UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	002964.P073

CONFIRMATION NO. 4565

8791
BLAKELY SOKOLOFF TAYLOR & ZAFMAN
1279 Oakmead Parkway
Sunnyvale, CA 94085-4040

POA ACCEPTANCE LETTER

OC000000070986478

Date Mailed: 09/29/2014

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/19/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/ytbedada/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	357323-990123

CONFIRMATION NO. 4565

26379
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

POWER OF ATTORNEY NOTICE

OC000000070986428

Date Mailed: 09/29/2014

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/19/2014.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/ytbedada/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/SB/81A (12-08)
Approved for use through 11/30/2011 OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	8,155,298
Issue Date	April 10, 2012
First Named Inventor	Samuel F. Wood
Title	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
Attorney Docket Number	002964.P073

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 08791

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Inventor, having ownership of the patent.

OR

☒ Patent owner,
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Inventor or Patent Owner

Signature		Date	6/26/2014
Name	Jeff Adelman	Telephone	(323) 860-9200
Title and Company	Manager, Focal IP, LLC		

NOTE: Signatures of all the inventors or patent owners of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	20194113
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	26379
Filer:	Farzad Etemad Amini/Margaux Wolson
Filer Authorized By:	Farzad Etemad Amini
Attorney Docket Number:	357323-990123
Receipt Date:	19-SEP-2014
Filing Date:	05-JUL-2006
Time Stamp:	16:50:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Assignee showing of ownership per 37 CFR 3.73.	2964P073_State37CFR373b_09_19_14.pdf	73994 886953de534cbe8e29e2a335ca30ec16680624e8	no	2

Warnings:	
Information:	

2	Power of Attorney	2964P073_PatentPOA_RevChange_09_19_14.pdf	48226 d96126001587ac7fdd8d7c69360bb02bf31869f7	no	1
Warnings:					
Information:					
			Total Files Size (in bytes):	122220	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Focal IP, LLC

Application No./Patent No.: 8,155,298 Filed/Issue Date: April 10, 2012

Titled:

Focal IP, LLC , a limited liability company
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. [X] the assignee of the entire right, title, and interest in;

2. [ ] an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. [ ] the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. [ ] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. [X] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Wood, Samuel F., Klein, Jerry A. To: Telemaze, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 014034, Frame 0043, or for which a copy thereof is attached.

2. From: Asprey, Margaret Susan To: Telemaze, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 015613, Frame 0259, or for which a copy thereof is attached.

3. From: Telemaze, Inc. To: Telemaze LLC
The document was recorded in the United States Patent and Trademark Office at
Reel 016844, Frame 0708, or for which a copy thereof is attached.

[X] Additional documents in the chain of title are listed on a supplemental sheet(s).

[ ] As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Farzad Amini/ September 19, 2014
Signature Date

Farzad E. Amini, Reg. No. 42,261 Attorney for Patent Owner
Printed or Typed Name Title

B. A chain of title from the inventor(s) of the patent application/patent identified above, to the current assignee as follows: (CONTINUED)

4. From: Telemaze, LLC To: Focal IP, LLC

The document was recorded in the United Sates Patent and Trademark Office at

Reel 032350, Frame 0549

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	357323-990123

CONFIRMATION NO. 4565

26379
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

MISCELLANEOUS NOTICE

OC000000070624063

Date Mailed: 09/09/2014

A communication which cannot be delivered in electronic form has been mailed to the applicant.

Doc Code: N572

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	357323-990123

CONFIRMATION NO. 4565

OC000000070624063

26379
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

Cc: BLAKELY SOKOLOFF TAYLOR & ZAFMAN
1279 OAKMEAD PARKWAY
SUNNYVALE, CA 94085-4040

Date Mailed: 09/09/2014

DENIAL OF REQUEST FOR POWER OF ATTORNEY

The request for Power of Attorney filed 08/25/2014 is acknowledged. However, the request cannot be granted at this time for the reason stated below.

- ☐ The Power of Attorney you provided did not comply with the new Power of Attorney rules that became effective on June 25, 2004. See 37 CFR 1.32.
- ☐ The revocation is not signed by the applicant, the assignee of the entire interest, or one particular principal attorney having the authority to revoke.
- ☑ The Power of Attorney is from an assignee and the Certificate required by 37 CFR 3.73(b) has not been received.
- ☐ The person signing for the assignee has omitted their empowerment to sign on behalf of the assignee.
- ☐ The inventor(s) is without authority to appoint attorneys since the assignee has intervened as provided by 37 CFR 3.71.
- ☐ The signature(s) of _____ , a co-inventor in this application, has been omitted. The Power of Attorney will be entered upon receipt of confirmation signed by said co-inventor(s).
- ☐ The person(s) appointed in the Power of Attorney is not registered to practice before the U.S. Patent and Trademark Office.

Questions relating to this Notice should be directed to the Application Assistance Unit.

A Gzw

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/SB/81A (12-08)
Approved for use through 11/30/2011 OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number

PATENT - POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Patent Number	8,155,298
Issue Date	April 10, 2012
First Named Inventor	Samuel F. Wood
Title	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
Attorney Docket Number	

I hereby revoke all previous powers of attorney given in the above-identified patent.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 08791

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) with respect to the patent identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified patent to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Inventor, having ownership of the patent.

OR

☒ Patent owner.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Inventor or Patent Owner

Signature		Date	6/26/2014
Name	Jeff Adelman	Telephone	(323) 860-9200
Title and Company	Manager, Focal IP, LLC		

NOTE: Signatures of all the inventors or patent owners of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Electronic Acknowledgement Receipt

EFS ID:	19956181
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	26379
Filer:	Farzad Etemad Amini/Margaux Wolson
Filer Authorized By:	Farzad Etemad Amini
Attorney Docket Number:	357323-990123
Receipt Date:	25-AUG-2014
Filing Date:	05-JUL-2006
Time Stamp:	15:53:13
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	2964P073_PatentPOA_RevChange_08_25_14.pdf	46903 e7e4c4eb80856a69b3619ff5ce3560503057e28f	no	1
Warnings:					
Information:					

Total Files Size (in bytes):	46903

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Please fax to: Status & Entity Branch, Office of Finance at 571-273-6500 or submit to:

Mail Stop M Correspondence
Director of the US Patent and Trademark Office
PO Box 1450
Alexandria, VA 22313-1450

Re: US Patent No. 8,155,298
Our Ref: 002964.P073

Dear Sir:

Please note that the applicant for the above-referenced patent qualifies as a **LARGE** entity.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN

Dated: 2/24/2014

By: _____
Eric S. Hyman Reg. No. 30,139

12400 Wilshire Boulevard
Seventh Floor
Los Angeles, California 90025
(310) 207-3800

CERTIFICATE OF FACSIMILE TRANSMISSION
I hereby certify that this correspondence is being submitted to the USPTO Office of Finance via facsimile at 571-273-6500 on the date shown below.

_____ 2/24/14
Alexis Kamiker Date

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	04/10/2012	8155298	357323-990123	4565

26379 7590 03/21/2012

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 1355 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Samuel F. Wood, Los Altos Hills, CA;
Jerry A. Klein, Los Altos, CA;
Margaret Susan Asprey, Los Altos, CA;

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		4,310,726	01-12-1982	Asmuth	179	18	02-04-1980
		5,673,262	09-30-1997	Shimizu	370	395	11-07-1995
		5,848,140	12-08-1998	Foladare et al.	379	201	12-29-1995
Change(s) applied to document, /TW/ 3/13/2012		5,991,310	11-23-1999 ~~07-09-1997~~	Katko	370	522	07-09-1997
		2007/0041526	02-2007	Hill et al.	379	88.21	10-27-2006

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		
	1	Dowden, Douglas C., et al., "The Future of Network-Provided Communications Services," *Bell Labs Technical Journal*, July-September 2000, pp. 3-10
	2	Foard, C.F., "Teaming Switches and Computers for Customer Applications," *AT&T Technology*, 1991; 6, 4; Research Library, pp. 32-38
	3	Foster, Robin Harris, "Computer-Telephone Integration Goes Global," *AT&T Technology*, Autumn 1995; 10, 3; Research Library , pp. 18-22
	4	Kozik, Jack, et al., "On Opening PSTN to Enhanced Voice/Data Services – The PINT Protocol Solution," *Bell Labs Technical Journal*, July-September 2000, pp. 153-165
	5	Lui, Anthony Y., et al., "The Enhanced Service Manager: A Service Management System for Next-Generation Networks," *Bell Labs Technical Journal*, July-September 2000, pp. 130-144
	6	Reisfield, E.S., "Customers Take Control of the AT&T Network," *AT&T Technology*, 1991; 6, 1; Research Library, pp. 44-48
	7	Sijben, Paul G., et al, "Bridging the Gap to IP Telephony," *Bell Labs Technical Journal*, October-December 1998, pp. 192-207

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/30/2011
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	**Art Unit**
	RASHA AL AUBAIDI	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION										
CLASS	SUBCLASS	CLAIMED					NON-CLAIMED					
379	211.01	H	0	4	M	3 / 42 (2006.01.01)						
CROSS REFERENCE(S)		H	0	4	M	7 / 00 (2006.01.01)						
		H	0	4	L	12 / 66 (2006.01.01)						

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
379	224				
370	352				

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	20	30	38	46										
2	2	21	31	39	47										
3	3	23	32	40	48										
4	4	25	33	41	49										
5	5	26	34	22	50										
6	6	27	35	42	51										
7	7	15	36	31	52										
8	8	18	37	32	53										
9	9	19	38	33	54										
12	10	24	39	34	55										
13	11	28	40												
14	25	29	41												
16	26	30	42												
10	27	35	43												
11	28	36	44												
17	29	37	45												

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 42	
/RASHA AL AUBAIDI/ Primary Examiner.Art Unit 2614 02/15/2012 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	357323-990123	4565

26379 7590 03/13/2012

DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

EXAMINER	
AL AUBAIDI, RASHA S	
ART UNIT	PAPER NUMBER
2614	

NOTIFICATION DATE	DELIVERY MODE
03/13/2012	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PatentDocketingUS-PaloAlto@dlapiper.com

Notice of Allowability	Application No.	Applicant(s)	
	11/428,822	WOOD ET AL.	
	Examiner	Art Unit	
	RASHA AL AUBAIDI	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *printer Rush dated 01/23/2012*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *1-11 and 25-55 which have been renumbered as 1-42*.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Rasha S AL-Aubaidi/
Primary Examiner, Art Unit 2614

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	357323-990123

CONFIRMATION NO. 4565

26379
DLA PIPER LLP (US)
2000 UNIVERSITY AVENUE
EAST PALO ALTO, CA 94303-2248

POA ACCEPTANCE LETTER

OC000000052087699

Date Mailed: 01/20/2012

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/06/2012.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/cbowen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2

CONFIRMATION NO. 4565

49637
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

POWER OF ATTORNEY NOTICE

OC000000052087668

Date Mailed: 01/20/2012

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 01/06/2012.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/cbowen/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

Bib Data Sheet

CONFIRMATION NO. 4565

SERIAL NUMBER	FILING OR 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/428,822	07/05/2006 RULE	379	2614	357323-990123

APPLICANTS

Samuel F. Wood, Los Altos Hills, CA;
Jerry A. Klein, Los Altos, CA;
Margaret Susan Asprey, Los Altos, CA;

**** CONTINUING DATA ***************************

This application is a CON of 10/426,279 04/30/2003 PAT 7324635
which is a CIP of 09/565,565 05/04/2000 PAT 6574328

**** FOREIGN APPLICATIONS *********************

IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** SMALL ENTITY **
** 07/19/2006

Foreign Priority claimed ☐ yes ☐ no 35 USC 119 (a-d) conditions met ☐ yes ☐ no ☐ Met after Allowance Verified and Acknowledged Examiner's Signature Initials	STATE OR COUNTRY CA	SHEETS DRAWING 11	TOTAL CLAIMS 24	INDEPENDENT CLAIMS 3

ADDRESS
26379

TITLE

TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

FILING FEE RECEIVED		
1395	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

49637 7590 10/07/2011

~~BERRY & ASSOCIATES P.C.~~
~~9229 SUNSET BOULEVARD~~
~~SUITE 630~~
~~LOS ANGELES, CA 90069~~

DLA PIPER LLP (US)
2000 University Ave.
East Palo Alto, CA 94303

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

Alan A. Limbach	(Depositor's name)
/Alan A. Limbach/	(Signature)
January 6, 2012	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

TITLE OF INVENTION: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	01/09/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
AL AUBAIDI, RASHA S	2614	379-211010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☒ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 DLA Piper LLP (US)
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: TELEMAZE LLC

(B) RESIDENCE: (CITY and STATE OR COUNTRY): LOS ALTOS, CALIFORNIA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

☒ Issue Fee

☒ Publication Fee (No small entity discount permitted)

☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

☐ A check is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 07-1896 (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Alan A. Limbach/ Date January 6, 2012

Typed or printed name Alan A. Limbach Registration No. 39,749

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PTO/SB/81 (01-09)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	11/428,622
Filing Date	July 5, 2006
First Named Inventor	Wood
Title	Tandem Access Controller Within The Public Switched Telephone Network
Art Unit	2614
Examiner Name	Al Aubaidi, Rasha S.
Attorney Docket Number	357323-990123

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☒ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith: 26379

OR

☐ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number

Please recognize or change the correspondence address for the above-identified application to:

☒ The address associated with the above-mentioned Customer Number.

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name					
Address					
City		State		Zip	
Country					
Telephone		Email			

I am the:

☐ Applicant/inventor.

OR

☒ Assignee of record of the entire interest. See 37 CFR 3.71.

Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____

SIGNATURE of Applicant or Assignee of Record

Signature		Date	1/5/12
Name	Jerry Klein	Telephone	650 948 1243
Title and Company	Managing Director, Telemaze LLC		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☒ *Total of 1 forms are submitted.

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Wood, Samuel F.; Klein, Jerry A. & Asprey, Margaret Susan

Application No./Patent No.: 11/428,822 Filed/Issue Date: July 5, 2006

Entitled: Tandem Access Controller Within The Public Switched Telephone Network

Telemaze LLC, a corporation
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title and interest in
(The extent (by percentage) of its ownership interest is _____%); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

in the patent application/patent identified above by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy thereof is attached.

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Wood, Samuel F. & Klein, Jerry A. To: Telemaze, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 014034, Frame 0043, or for which a copy thereof is attached.

2. From: Asprey, Margaret Susan To: Telemaze, Inc.
The document was recorded in the United States Patent and Trademark Office at
Reel 016813, Frame 0259, or for which a copy thereof is attached.

3. From: Telemaze, Inc. To: Telemaze LLC
The document was recorded in the United States Patent and Trademark Office at
Reel 016844, Frame 0708, or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☒ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Jerry Klein/ 1/5/12
Signature Date

Jerry Klein Managing Director, Telemaze LLC
Printed or Typed Name Title

Electronic Patent Application Fee Transmittal

Application Number:	11428822
Filing Date:	05-Jul-2006
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Filer:	Alan A. Limbach/Kathleen LaBrie
Attorney Docket Number:	TLM-103C1CON2

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	870	870
Publ. Fee- early, voluntary, or normal	1504	1	300	300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**1170**

Electronic Acknowledgement Receipt	
EFS ID:	11776334
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	49637
Filer:	Alan A. Limbach/Kathleen LaBrie
Filer Authorized By:	Alan A. Limbach
Attorney Docket Number:	TLM-103C1CON2
Receipt Date:	06-JAN-2012
Filing Date:	05-JUL-2006
Time Stamp:	17:06:36
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$1170
RAM confirmation Number	4357
Deposit Account	071896
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	Issue_Fee_Transmittal_PTOL85B_357323-990123.pdf	516125 45a6431a5ba22dfe97a4cfdfe994e60d0d1b4e83	no	1
Warnings:					
Information:					
2	Power of Attorney	Power_of_Attorney_357323-990123.pdf	405466 1a8fe5b68362ef3b0f8b9dc7afa87d9f29025b23	no	1
Warnings:					
Information:					
3	Assignee showing of ownership per 37 CFR 3.73(b).	Statement_373b_357323-990123.pdf	390103 feab2f083e4111d3b875bf9bf9a3261e8f4de547	no	1
Warnings:					
Information:					
4	Fee Worksheet (SB06)	fee-info.pdf	31818 5566713146e0d0153a4ce7485bd8d263134d51d7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1343512		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

49637 7590 11/23/2011

BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER	
AL AUBAIDI, RASHA S	
ART UNIT	**PAPER NUMBER**
2614	

NOTIFICATION DATE	DELIVERY MODE
11/23/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

efiling@berrypc.com

Response to Rule 312 Communication	Application No.	Applicant(s)
	11/428,822	WOOD ET AL.
	Examiner	Art Unit
	RASHA AL AUBAIDI	2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

1. ☒ The amendment filed on *04 November 2011* under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☒ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☐ entered in part. See explanation below.

/Rasha S AL-Aubaidi/
Primary Examiner, Art Unit 2614

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	)	**Customer No.:**	49,637
Samuel F. WOOD, et al.	)	**Confirmation No.:**	4565
Serial No.: 11/428,822	)	**Group Art Unit:**	2614
Filed: July 5, 2006	)	**Examiner:**	Al Aubaidi, Rasha S.
For: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK	)	**Docket No.:**	TLM-103.C1CON2

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT UNDER 312

Dear Madam:

Further to the Amendment please consider the following remarks.

The Claims are reflected in the listing of claims, which begins on page **2** of this paper.

Remarks begin on page **10** of this paper.

IN THE CLAIMS:

Please amend the claims as indicated. A complete set of the claims is included below, reflecting added subject matter *(underlining)* and deleted subject matter *(strikethrough)*, as well as the current status of each claim. This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method for providing user control selections for ~~of~~ routing of one or more communications between users of one or more communications networks, wherein the users either 1) initiate a communication, 2) receive a communication, or 3) control a communication, the user control selections ~~performed~~ provided by a user via access to a web server of a web-enabled processing system connected to operate at least in part with the one or more communication networks, wherein at least one of the communication networks is a network comprising edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, the web server of the web-enabled processing system facilitating direct access by a user for providing user control selections to the at least one of the switching facilities, the user having a communications device with which to communicate with the web server of the web-enabled processing system, the method comprising the steps of:

facilitating access by authorized users to the web-enabled processing system, via ~~Internet~~ the web server, the web-enabled processing system coupled to at least one of the switching facilities of the network, the web-enabled processing system configured to route a communication from a specific one of the users to an intended recipient of the users,

executing control criteria, via the web-enabled processing system, to control the routing of the one or more communications via the web-enabled processing system, the control criteria predetermined by the users control selections via the ~~Internet~~ web server before the control criteria are executed via the web-enabled processing system,

wherein the web-enabled processing system is configured to perform the following operations to execute the control criteria:

first, receive a message indicating a communication request from a user initiating a communication for an intended recipient user, wherein the message request is transmitted using a signalling protocol of the at least one communication network;

second, validate and acknowledge said communications request without first forwarding said request to a terminating edge switch within the geographic area of the intended recipient of the users;

third, determine the control criteria for access to the intended recipient of the users;

fourth, facilitate selection of a routing path over the at least one communication network in accordance with the control criteria for the intended recipient user;

fifth, route the communication in accordance with the control criteria, and

sixth, complete a communications link between the user initiating the communication and the intended recipient of the users, when the intended recipient of the users accepts the communication from the user initiating the communication.

2. (Previously Presented) The method of claim 1, wherein the user initiating the communication uses a first telephone number, and the web-enabled processing system for routing the communication in accordance with the control criteria routes the communication to a communications device designated by the intended recipient of the users, which is reached by using a second telephone number.

3. (Currently Amended) The method of claim 1, wherein the communications device of the intended recipient of the users is a telephone, and wherein the intended recipient of the users, by accepting the communication causes the web-enabled processing system to connect a communications device of the user initiating the communication to the telephone of the intended recipient of the users.

4. (Currently Amended) The method of claim 1, wherein the communications device of the intended recipient of the user~~s~~ is a telephone, and wherein the intended recipient of the user~~s~~ can designate control criteria to the web-enabled processing system to connect a

communications device of the user initiating the communication to a device other than the telephone of the intended recipient of the users.

5. (Currently Amended) The method of claim 1, wherein the communications device of the intended recipient of the users is a computer, and wherein upon accepting the communication, the web-enabled processing system connects a communications device of the user initiating a communication to the computer of the intended recipient of the users.

6. (Previously Presented) The method of claim 1, wherein the communication is initiated by the user initiating the communication through an edge switch in the local geographic area of the user initiating the communication to the web-enabled processing system, and the communication is routed via a non-toll communication network by the web-enabled processing system through an edge switch to the communications device of the intended recipient of the users.

7. (Currently Amended) The method of claim 1, wherein the control criteria execute any one of the following operations to implement features, including:

a) selective call forwarding whereby ~~the~~ a call request from an initiating communications device is forwarded to a particular communications device of an intended recipient of the users based on either a time of the communication or the user initiating the communication; and

b) conditional blocking of the communication based on either a time of the communication or the user initiating the communication.

8. (Previously Presented) The method of claim 1, wherein the web-enabled processing system receives the communication via the switching facility, which comprises a tandem switch in the network, which is a circuit switched network.

9. (Currently Amended) The method of claim 1, further comprising the step of:

providing access to the web-enabled processing system, via the ~~Internet~~ web server for certain of the users to obtain information regarding the one or more communications either received or initiated by certain of the users.

10. (Currently Amended) The method of claim 1, further comprising the steps of:

providing access to the web-enabled processing system via the web server, for certain of the users to initiate a communication to a third party, the web-enabled processing system routing the communication to the third party; and

establishing communication with the third party after the web-enabled processing system connects a user's communications device to a communications device of the third party.

11. (Currently Amended) The method of claim 10, wherein said step of providing access to said web-enabled processing system via the web server comprises using the Internet to communicate a telephone number to said web-enabled processing system for placing a call to said third party.

12-24. (Canceled)

25. (Previously Presented) The method of claim 1, wherein the communication is a call.

26. (Previously Presented) The method of claim 1, wherein the communication is a message.

27. (Previously Presented) The method of claim 9, wherein the information regarding the one or more communications either received or initiated by the users includes call detail recording.

28. (Previously Presented) The method of claim 9, wherein the information regarding the one or more communications either received or initiated by the users includes web based billings.

29. (Currently Amended) The method of claim 1, wherein the control criteria ~~for the intended recipient is configured to~~ includes facilitating ~~facilitate~~ a communications link to the user initiating a communication.

30. (Currently Amended) A method of providing a user interaction system to enable users to control routing of one or more communications between a calling party and a called party through user input, the user interaction system comprising a web server coupled to ~~the Internet, and~~ a controller with access to at least two communication networks, wherein at least one of the networks is a packet network configured to support voice over IP ("VOIP"), and the second network is coupled to a switching facility of a network comprising ~~at least one of the networks comprises~~ edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, comprising the steps of.

providing a website for the users to view features associated with the routing of the one or more communications;

facilitating certain of the users to sign up to become subscribers of the communication networks through the entry of user personal data through the website;

granting access to authorized ones of the users;

providing a menu of available features, via the website, for the users to make feature selections;

processing of feature selections into control criteria;

receiving and storing the control criteria in a database associated with the server, the controller, or both;

receiving a communication request at the controller, from the calling party to an intended called party;

upon receiving the communication request, utilizing the controller to retrieve at least a portion of the control criteria relating to the user to determine a possible route for the one or more communications from the calling party; and

executing the control criteria to facilitate the routing of the one or more communications across at least one of the at least two networks.

31. (Previously Presented) A method according to claim 30, wherein the one or more communications is a call between the calling party and the called party.

32. (Previously Presented) A method according to claim 30, wherein the one or more communications is a message transmitted from the calling party for the called party.

33. (Previously Presented) A method according to claim 30, wherein the personal data entered by the users include a valid credit card number.

34. (Previously Presented) A method according to claim 30, wherein personal data entered by the users is verified via the Internet.

35. (Currently Amended) A method according to claim 30, wherein a user interaction ~~before a user makes the feature selections~~ includes the selection of a phone number.

36. (New) The method of claim 25 where routing of the first call comprises initiating a second call leg.

37. (New) The method of claim 1 where the web-enabled processing system has a distributed architecture located in multiple locations.

38. (New) The method of claim 1 where the web-enabled processing system has a distributed architecture incorporating multiple subsystems.

39. (New) The method of claim 32 where a subsystem is used to complete the communications link between the user initiating the communication and the intended recipient of the users, when the intended recipient of the users accepts the communication from the user initiating the communication.

40. (New) The method of claim 30, wherein the second network is a VOIP network.

41. (New) The method of claim 30, wherein the control criteria includes security measures.

42. (New) The method of claim 41, wherein the security measures include the prevention or denial of service attacks.

43. (New) The method of claim 30, wherein the switching facility performs a class 4 switching function.

44. (New) The method of claim 30, wherein switching facility is a tandem switch.

45. (New) The method of claim 30, wherein the switching facility employs a signaling transfer point (STP).

46. (New) The method of claim 30, wherein the controller is a tandem access controller (TAC).

47. (New) The method of claim 30, wherein the controller utilizes the VOIP architecture.

48. (New) The method of claim 30, wherein the controller utilizes a circuit switching architecture.

49. (New) The method of claim 30, wherein the controller utilizes an ATM switching architecture.

50. (New) The method of claim 31, wherein the routing of the call includes initiating a second call leg.

51. (New) The method of claim 30, wherein the controller comprises a distributed architecture spanning multiple locations.

52. (New) The method of claim 41, wherein the security measures include call logging.

53. (New) The method of claim 41, wherein the security measures include web based billing.

54. (New) The method of claim 41, wherein the security measures include authentication of the calling party.

55. (New) The method of claim 41, wherein the security measures include conditional call blocking.

REMARKS

Further to the notice of allowance and a telephone interview with the Examiner on October 28, 2011, Applicants request the above amendments to the claims. The Applicants and the undersigned appreciate the Examiner's courtesy during the telephone interview. By this amendment, Applicants have amended claims 1, 3-5, 7, 9-11, 29-30, and 35 to further clarify them and have added dependent claims 36-55 for the Examiner's consideration.

Favorable consideration and continued allowance of the claims, as amended, is respectfully solicited. In the event these amendments are not acceptable to the Examiner, the Examiner is kindly requested to call the undersigned.

Respectfully submitted,

Dated: November 4, 2011

By: /Reena Kuyper/
Reena Kuyper
Registration No. 33,830

9229 Sunset Blvd., Suite 630
Los Angeles, CA 90069
(310) 247-2860

Electronic Patent Application Fee Transmittal

Application Number:	11428822
Filing Date:	05-Jul-2006
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Filer:	Reena Kuyper
Attorney Docket Number:	TLM-103C1CON2

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	19	30	570
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**570**

Electronic Acknowledgement Receipt	
EFS ID:	11334752
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	49637
Filer:	Reena Kuyper
Filer Authorized By:	
Attorney Docket Number:	TLM-103C1CON2
Receipt Date:	04-NOV-2011
Filing Date:	05-JUL-2006
Time Stamp:	02:09:56
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$570
RAM confirmation Number	7255
Deposit Account	503102
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		TLM-103C1CON2_Amendment_Under_312_Final_11-4-11.pdf	47860 5670d5c940c1283c4e5ab153e28f7fa878c520c8	yes	10

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment after Notice of Allowance (Rule 312)	1	1
	Claims	2	9
	Applicant Arguments/Remarks Made in an Amendment	10	10

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30273 f3ab4012582401a667805 14672529b2de852ffe2	no	2

Warnings:

Information:

Total Files Size (in bytes):	78133

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

49637 7590 10/07/2011
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER
AL AUBAIDI, RASHA S

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 10/07/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

TITLE OF INVENTION: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	01/09/2012

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

49637 7590 10/07/2011
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

TITLE OF INVENTION: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$870	$300	$0	$1170	01/09/2012

EXAMINER	ART UNIT	CLASS-SUBCLASS
AL AUBAIDI, RASHA S	2614	379-211010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

49637 7590 10/07/2011

BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER	
AL AUBAIDI, RASHA S	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 10/07/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1065 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1065 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	11/428,822	WOOD ET AL.	
	Examiner	Art Unit	
	RASHA AL AUBAIDI	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *an RCE filed 08/12/2011*.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are *1-11 and 25-35 which have been renumbered as 1-22*.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 08/12/2011
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Rasha S AL-Aubaidi/
Primary Examiner, Art Unit 2614

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/12/2011 has been entered.

Allowable Subject Matter

2. The following is an examiner's statement of reasons for allowance:

in an independent claim 1, a method for providing user control of routing of one or more communications between users of one or more communications networks, the user control performed-by a web-enabled processing system connected to operate at least in part with one or more communication networks, wherein at least one of the communication networks is a network comprising edge switches for routing calls to other edge switches or other switching facilities local or in other geographic areas. The method of claim 1 also comprises the steps of: "facilitating access by authorized users to the web-enabled processing system, via the internet, the web enabled processing system coupled to at least one of the switching facilities of the network" and "executing control criteria, via the web-enabled processing system' to control the routing of the one or more communications via the web-enabled processing system, the control criteria predetermined by the users via the Internet before the control criteria are executed via

the web-enabled processing system" as recited in claim 1 is neither taught or made fairly obvious by the prior art or record.

Independent claim 30 carries a subject matter that is similar to independent claim 1.

Note that Applicant's IDS forms 1449 filed on 08/12/2011 have been carefully considered. However, none of the prior art found nor the IDS clearly teach or fairly suggest the subject matter if independent claims 1 and 30.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rasha S. AL-Aubaidi whose telephone number is (571) 272-7481. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on (571) 272-7488.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Rasha S AL-Aubaidi/

Primary Examiner, Art Unit 2614

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1	"6574328".pn.	US-PGPUB; USPAT	OR	ON	2011/09/29 17:53
L2	1162	379/211.02.ccls.	US-PGPUB; USPAT	OR	ON	2011/09/29 17:54
L3	225	379/224.ccls.	US-PGPUB; USPAT	OR	ON	2011/09/29 17:55
L4	537	379/221.08.ccls.	US-PGPUB; USPAT	OR	ON	2011/09/29 17:55
L5	132	379/221.11.ccls.	US-PGPUB; USPAT	OR	ON	2011/09/29 17:55
L6	172	((provid$ or allow$) near4 (user or subscriber)) near6 ((control or controlling) near5 (routing))	US-PGPUB; USPAT	OR	ON	2011/09/29 17:56
L7	18	(edge near2 switch) near4 (local near4 area)	US-PGPUB; USPAT	OR	ON	2011/09/29 17:57
L8	1665	(execut$ near4 (control or controlling)) near5 (feature or criteria)	US-PGPUB; USPAT	OR	ON	2011/09/29 17:59
L9	0	6 same 8	US-PGPUB; USPAT	OR	ON	2011/09/29 17:59
L10	2	7 and 8	US-PGPUB; USPAT	OR	ON	2011/09/29 18:00
L11	1	"7324635".pn.	US-PGPUB; USPAT	OR	ON	2011/09/29 18:03

9/29/2011 6:03:58 PM

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	Art Unit
	RASHA S AL AUBAIDI	2614

SEARCHED			
Class	Subclass	Date	Examiner
379	224, 221.11, 221.08	9/29/10	R.S
379	211.01 and updated search for 224, 221.00 & 221.08	09/29/2011	R.S

SEARCH NOTES		
Search Notes	Date	Examiner
Searched EAST (US PAT & PGPUB)	9/29/10	R.S
Updated EAST search (US PAT & PGPUB)	05/06/2011	R.S
Updated EAST search (US PAT & PGPUB)	09/29/2011	R.S

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Pgpub text search, see intereference search	05/06/2011	R.S
	Pgpub text search, see intereference search	09/29/2011	R.S

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	user near1 control near1 performed near1 by near1 web near1 enabled near1 processing near1 system near1 connected near1 operate near1 least near1 part near1 "one" near1 more near1 communication near1 networks.clm.	US-PGPUB; USPAT	OR	ON	2011/09/30 13:12
L2	0	communication near1 networks near1 network near1 comprising near1 edge near1 switches near1 routing near1 calls near1 from near2 users near1 within near1 local near1 geographic near1 area near1 switching near1 facilities near1 routing near1 calls near1 other near1 edge near1 switches.clm.	US-PGPUB; USPAT	OR	ON	2011/09/30 13:14
L3	0	facilitating near1 access near1 authorized near1 users near2 web near1 enabled near1 processing near1 system near1 via near1 internet near2 web near1 enabled near1 processing near1 system near1 coupled near2 least near1 one near2 switching near1 facilities near2 network.clm.	US-PGPUB; USPAT	OR	ON	2011/09/30 13:17
L4	0	executing near1 control near1 criteria near1 via near1 web near1 enabled near1 processing near1 system near1 control near1 routing near2 "one" near1 more near1 communications near1 via near1 web near1 enabled near1 processing near1 system.clm.	US-PGPUB; USPAT	OR	ON	2011/09/30 13:19
L5	0	control near1 criteria near1 predetermined near2 users near1 via near1 Internet near1 before near1 control near1 criteria near1 executed near2 web near1 enabled near1 processing near1 system.clm.	US-PGPUB; USPAT	OR	ON	2011/09/30 13:22
L6	0	1 and 2 and 3 and 4 and 5	US-PGPUB; USPAT	OR	ON	2011/09/30 13:22

9/30/2011 1:22:59 PM

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		4,310,726	01-12-1982	Asmuth	179	18	02-04-1980
		5,673,262	09-30-1997	Shimizu	370	395	11-07-1995
		5,848,140	12-08-1998	Foladare et al.	379	201	12-29-1995
		5,991,310	07-09-1997	Katko	370	522	07-09-1997
		2007/0041526	02-2007	Hill et al.	379	88.21	10-27-2006

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		
	1	Dowden, Douglas C., et al., "The Future of Network-Provided Communications Services," *Bell Labs Technical Journal*, July-September 2000, pp. 3-10
	2	Foard, C.F., "Teaming Switches and Computers for Customer Applications," *AT&T Technology*, 1991; 6, 4; Research Library, pp. 32-38
	3	Foster, Robin Harris, "Computer-Telephone Integration Goes Global," *AT&T Technology*, Autumn 1995; 10, 3; Research Library , pp. 18-22
	4	Kozik, Jack, et al., "On Opening PSTN to Enhanced Voice/Data Services – The PINT Protocol Solution," *Bell Labs Technical Journal*, July-September 2000, pp. 153-165
	5	Lui, Anthony Y., et al., "The Enhanced Service Manager: A Service Management System for Next-Generation Networks," *Bell Labs Technical Journal*, July-September 2000, pp. 130-144
	6	Reisfield, E.S., "Customers Take Control of the AT&T Network," *AT&T Technology*, 1991; 6, 1; Research Library, pp. 44-48
	7	Sijben, Paul G., et al, "Bridging the Gap to IP Telephony," *Bell Labs Technical Journal*, October-December 1998, pp. 192-207

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/30/2011
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	**Art Unit**
	RASHA AL AUBAIDI	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION														
CLASS	SUBCLASS	CLAIMED									NON-CLAIMED					
379	211.01	H	0	4	M	3 / 42 (2006.0)										
CROSS REFERENCE(S)		H	0	4	M	7 / 00 (2006.0)										
		H	0	4	L	12 / 66 (2006.0)										

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
379	224				
370	352				

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	17	30												
2	2	18	31												
3	3	19	32												
4	4	20	33												
5	5	21	34												
6	6	22	35												
7	7														
8	8														
9	9														
12	10														
13	11														
14	25														
15	26														
10	27														
11	28														
16	29														

NONE (Assistant Examiner) (Date)	**Total Claims Allowed:** 22	
/RASHA AL AUBAIDI/ Primary Examiner.Art Unit 2614 09/29/2011 (Primary Examiner) (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 1

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	11428822	Filing Date	2006-07-05	Docket Number (if applicable)	TLM-103C1CON2	Art Unit	2614
First Named Inventor	Samuel F. Wood			Examiner Name	Al Aubaidi, Rasha S.		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 503102

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

☐ Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Signature of Registered U.S. Patent Practitioner			
Signature	/Reena Kuyper/	Date (YYYY-MM-DD)	2011-08-12
Name	Reena Kuyper	Registration Number	33830

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	Samuel F. WOOD, et al.	**Customer No.:**	49,637
Serial No.:	11/428,822	**Confirmation No.:**	4565
Filed:	July 5, 2006	**Group Art Unit:**	2614
For:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK	**Examiner:**	Al Aubaidi, Rasha S.
		Docket No.:	TLM-103.C1CON2

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT SUBMITTED WITH
REQUEST FOR CONTINUED EXAMINATION ("RCE")

Dear Sir:

The **Amendments to the Claims** are reflected in the listing of claims, which begins on page 2 of this submission.

The **Remarks/Arguments** begin on page 8 of this submission.

IN THE CLAIMS:

Please amend the claims as indicated. A complete set of the claims is included below, reflecting added subject matter *(with underlining)* and deleted subject matter *(with strikethrough)*, as well as the current status of each claim. This listing of claims will replace all prior versions and listings of the claims in this application:

1. (Currently Amended) A method for ~~selectively routing~~ providing user control of routing of one or more communications between users of one or more communications networks, wherein the users either 1) initiate a communication, 2) receive a communication, or 3) control a communication, the ~~routing~~ user control performed by a web-enabled processing system connected to operate at least in part with the one or more communication networks, wherein at least one of the communication networks is a network comprising edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, the web-enabled processing system facilitating direct access by a user to the at least one of the switching facilities, the user having a communications device with which to communicate with the web-enabled processing system, the method comprising the steps of:

facilitating access by authorized users to the web-enabled processing system, via ~~the~~ Internet ~~by authorized users~~, the web-enabled processing system coupled to at least one of the switching facilities of the network, ~~facility for a local area with respect to a specific one of the users and~~ the web-enabled processing system configured to route a communication ~~via the web-enabled processing system~~ from ~~the~~ a specific one of the users to an intended recipient of the users,

executing ~~features~~ control criteria, via the web-enabled processing system, to control the routing of the one or more communications via the web-enabled processing system, the ~~features~~ control criteria ~~being~~ predetermined by the users via the Internet before the ~~features~~ control criteria are executed via the web-enabled processing system,

wherein the web-enabled processing system ~~performing~~ is configured to perform the following operations to execute the ~~features~~ control criteria:

first, ~~receiving~~ receive a message indicating a communication request from a user initiating a communication for an intended recipient user, wherein the message request is transmitted using a signalling protocol of the at least one communication network;

second, ~~validating~~ validate and ~~acknowledging~~ acknowledge said communications request without first forwarding said request to a terminating edge switch within the geographic area of the intended recipient of the users ~~geographic area~~;

third, ~~determining~~ determine the ~~features~~ control criteria for the intended recipient ~~user~~ of the users;

fourth, facilitate ~~selecting~~ a routing path over the at least one communication network in accordance with the ~~features~~ control criteria for the intended recipient user;

fifth, ~~routing~~ route the communication in accordance with the ~~features~~ control criteria, and

sixth, ~~completing~~ complete a communications link between the user initiating the communication and the intended recipient ~~user~~ of the users, when the intended recipient of the users ~~user~~ accepts the communication from the user initiating the communication.

2. (Currently Amended) The method of claim 1, wherein the user initiating the communication uses a first telephone number, and the web-enabled processing system for routing the communication in accordance with the ~~features~~ control criteria routes the communication to a communications device designated by the intended recipient ~~user~~ of the users, which ~~that~~ is reached by using a second telephone number.

3. (Currently Amended) The method of claim 1, wherein communications device of the intended recipient ~~user's~~ of the users ~~communications device~~ is a telephone, and wherein the intended recipient ~~user~~ of the users, by accepting the communication causes the web-enabled processing system to connect a communication device of the user initiating the communication to the telephone of the intended recipient of the users ~~user's telephone~~.

4. (Currently Amended) The method of claim 1, wherein the communication device of the intended recipient of the users ~~user's communications device~~ is a telephone, and wherein

the intended recipient ~~user~~ of the users ~~by answering the communication, causes~~ can designate control criteria to the web-enabled processing system to connect a communication device of the user initiating the communication to a device other than the telephone of the intended recipient of the users ~~user's telephone, as designated by the intended recipient user during the step of selecting features~~.

5. (Currently Amended) The method of claim 1, wherein the communications device of the intended recipient of the users ~~user's communications device~~ is a computer, and wherein upon ~~answering~~ accepting the communication, the web-enabled processing system ~~causes the web-enabled processing system to connect~~ connects a communication device of the user initiating a communication to ~~a~~ the computer of the intended recipient ~~user~~ of the users.

6. (Currently Amended) The method of claim 1, wherein the communication is initiated by the user initiating the communication through an edge switch in the local geographic area of the user initiating the communication to the web-enabled processing system, and the communication is routed via a non-toll communication network by ~~by~~ the web-enabled ~~communication network~~ processing system through an edge switch to the communications device of the intended recipient of the users ~~user's communications device~~.

7. (Currently Amended) The method of claim 1, wherein the ~~features~~ control criteria ~~comprise~~ execute any one of the following operations to implement features, including:

a) selective call forwarding whereby the a call request from an initiating communication device is forwarded to a particular communications device of an intended recipient of the users based on either a time of the communication ~~and~~ or the user initiating the communication; and

b) conditional blocking of the communication based on either a time of the communication or the user initiating the communication.

8. (Currently Amended) The method of claim 1, wherein the web-enabled processing system receives the communication via the switching facility, which comprises a tandem switch in ~~a communication~~ the network, which is a circuit switched network.

9. (Currently Amended) The method of claim 1, further comprising the step of:

providing access to ~~accessing~~ the web-enabled processing system, ~~which comprises a controller, by the users~~ via the Internet for certain of the users to obtain information regarding the one or more communications either received or initiated by certain of the users.

10. (Currently Amended) The method of claim 1, further comprising the steps of:

providing access to ~~accessing~~ the web-enabled processing system, for certain of the users to initiate a communication ~~by the user~~ to a third party, the web-enabled processing system routing the communication to the third party; and

establishing communication ~~communicating~~ with the third party after the web-enabled processing system connects ~~the~~ a user's communications device to a communications device of the third party.

11. (Currently Amended) The method of claim ~~1~~ 10, wherein said step of providing access to ~~accessing~~ said ~~TAC~~ web-enabled processing system comprises using the Internet to communicate a telephone number to said ~~TAC~~ web-enabled processing system for placing a call to said third party.

12-24. (Canceled)

Please add the following new claims:

25. (New) The method of claim 1, wherein the communication is a call.

26. (New) The method of claim 1, wherein the communication is a message.

27. (New) The method of claim 9, wherein the information regarding the one or more communications either received or initiated by the users includes call detail recording.

28. (New) The method of claim 9, wherein the information regarding the one or more communications either received or initiated by the users includes web based billings.

29. (New) The method of claim 1, wherein the control criteria for the intended recipient is configured to facilitate a communications link to the user initiating a communication.

30. (New) A method of providing a user interaction system to enable users to control routing of one or more communications between a calling party and a called party, through user input, the user interaction system comprising a server coupled to the Internet, and a controller with access to at least two communication networks, wherein at least one of the networks is a packet network configured to support voice over IP ("VOIP"), and at least one of the networks comprises edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, comprising the steps of.

providing a website for the users to view features associated with the routing of the one or more communications;

facilitating certain of the users to sign up to become subscribers of the communication networks through the entry of user personal data through the website;

granting access to authorized ones of the users;

providing a menu of available features, via the website, for the users to make feature selections;

processing of feature selections into control criteria;

receiving and storing the control criteria in a database associated with the server, the controller, or both;

receiving a communication request at the controller, from the calling party to an intended called party ;

upon receiving the communication request, utilizing the controller to retrieve at least a portion of the control criteria relating to the user to determine a possible route for the one or more communications from the calling party; and

executing the control criteria to facilitate the routing of the one or more communications across at least one of the at least two networks.

31. (New) A method according to claim 30, wherein the one or more communications is a call between the calling party and the called party.

32. (New) A method according to claim 30, wherein the one or more communications is a message transmitted from the calling party for the called party.

33. (New) A method according to claim 30, wherein the personal data entered by the users include a valid credit card number.

34. (New) A method according to claim 30, wherein personal data entered by the users is verified via the Internet.

35. (New) A method according to claim 30, wherein a user interaction before a user makes the feature selections includes the selection of a phone number.

REMARKS

This Amendment is submitted with a Request for Continued Examination ("RCE"). Claims 1-11 stand allowed and claims 2-24 were canceled, without prejudice. The Examiner's allowance of claims 1-11 is graciously accepted. By this Amendment, Applicants have refined the allowed claims to more clearly recite certain limitations and have introduced additional claims 25-35 for the Examiner's consideration.

Favorable reconsideration of the allowed claims, as amended, and the newly presented claims 25-35 is respectfully requested. In the event there are any issues with the claims presented for examination, Applicants request the Examiner to resolve them in a personal or telephonic interview to quickly conclude prosecution of this application.

Respectfully submitted,

BERRY & ASSOCIATES P.C.

Dated: August 12, 2011

By: /Reena Kuyper/
Reena Kuyper
Registration No. 33,830

9229 Sunset Blvd., Suite 630
Los Angeles, CA 90069
(310) 247-2860

Electronic Patent Application Fee Transmittal

Application Number:	11428822
Filing Date:	05-Jul-2006
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Filer:	Reena Kuyper
Attorney Docket Number:	TLM-103C1CON2

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Request for continued examination	2801	1	405	405
		Total in USD ($)		**405**

Electronic Acknowledgement Receipt	
EFS ID:	10731422
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	49637
Filer:	Reena Kuyper
Filer Authorized By:	
Attorney Docket Number:	TLM-103C1CON2
Receipt Date:	12-AUG-2011
Filing Date:	05-JUL-2006
Time Stamp:	23:08:24
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$405
RAM confirmation Number	6170
Deposit Account	503102
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)	
Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		TLM-103C1CON2_IDS_after_RCE_before_OA_Final_8-12-11.pdf	93545 eba59c6dc39a57163ce372a1386520e7b13f58be	yes	6
	Multipart Description/PDF files in .zip description				
	Document Description		**Start**	**End**	
	Transmittal Letter		1	5	
	Information Disclosure Statement (IDS) Form (SB08)		6	6	
Warnings:					
Information:					
2	Non Patent Literature	1_Dowden_et_alEFS.pdf	3043566 2b7ce0d1f2e085468885531874d3cbeaeee1d7d0	no	8
Warnings:					
Information:					
3	Non Patent Literature	2_FoardEFS.pdf	1121821 1cc0ad966d29c09034619d043bcbe4382d0932a6	no	7
Warnings:					
Information:					
4	Non Patent Literature	3_FosterEFS.pdf	1127036 2f8b5193da00f97c8e14aa92514d98b584db5416	no	5
Warnings:					
Information:					
5	Non Patent Literature	4_Kozik_et_alEFS.pdf	4271696 6dff9243caa07e5d424bb78aca74be0c73687b51	no	13
Warnings:					
Information:					
6	Non Patent Literature	5_Lui_et_alEFS.pdf	4670475 de9f3ed088d5bc487e8ef40c5d794cbea993045c	no	15
Warnings:					
Information:					

7	Non Patent Literature	6_ReisfieldEFS.pdf	1247566 cb6aead0d2cd8454ebdd7df8a2ec9b2d81689dfd	no	5
Warnings:					
Information:					
8	Non Patent Literature	7_Sijben_et_alEFS.pdf	3072587 a3a95926969696953f08580d8defed4cfb05cdc7	no	16
Warnings:					
Information:					
9	Request for Continued Examination (RCE)	TLM-103C1CON2_RCE_8-12-11.pdf	768860 628976b06d9bb80d1fe9fbdc0dc6c6995272b793	no	3
Warnings:					
Information:					
10		TLM-103C1CON2_Amendment_with_RCE_after_allowance_final-8-12-11.pdf	46161 73c425a0e05d1bad2b7c1c6862a69a9cb56f2c5d	yes	8

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment Submitted/Entered with Filing of CPA/RCE	1	1
	Claims	2	7
	Applicant Arguments/Remarks Made in an Amendment	8	8

Warnings:					
Information:					
11	Fee Worksheet (SB06)	fee-info.pdf	30249 dc681c05ae4389e6301636e18b99d41a26da5241	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	19493562		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT
Docket TLM-103C1CON2

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	)	**Customer No.:**	49,637
Samuel F. WOOD, et al.	)	**Confirmation No.:**	4565
Serial No.: 11/428,822	)	**Group Art Unit:**	2614
Filed: July 5, 2006	)	**Examiner:**	Al Aubaidi, Rasha S.
For: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK	)		

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In compliance with the continuing duty of disclosure under 37 CFR § 1.56, 37 CFR §§ 1.97, and 1.98, Applicants bring the following documents to the attention of the Examiner, which may be of possible interest to the subject matter of this application. Each of these documents is also listed on the attached form PTO-1449. Applicants are providing copies of the listed documents, except for U.S. patents and U.S. patent application publications, which Applicants assume are easily available to the Examiner. In the event the Examiner would like copies of these patents and patent application publications, the Examiner is requested to kindly advise the undersigned. Applicants respectfully request the Examiner to consider and make these documents of record with respect to this application.

U.S. Patents & Patent Application Publications:

U.S. Patent	Issue/Publication Date	Inventor(s)
4,310,726	01-12-1982	Asmuth
5,673,262	09-30-1997	Shimizu
5,848,140	12-08-1998	Foladare et al.
5,991,310	07-09-1997	Katko
2007/0041526	02-2007	Hill et al.

1. U.S. Patent No. 4,310,726 -Method of Identifying a Calling Station at a Call Terminating Facility
Asmuth

This patent discloses a method of creating a database of call stations and routing calls to an identified called party and providing the identity of a calling Station to a call terminating facility.

2. U.S. Patent No. 5,673,262 - Communication Network comprising transit Switches without Asynchronous transfer Mode Capability
Shimizu

This patent discloses a communication system comprising an ATM (Asynchronous Transfer Mode) cross-connect and a signaling network. This patent also discloses methods for managing the signaling network and the communication bandwidth.

3. U.S. Patent No. 5,848,140 - Multi-Network Feature Application
Foladare

This patent discloses a method for a carrier to apply its services to a user that may originate from a different carrier. With this method, calls route all the way to the end office.

4. U.S. Patent No. 5,991,310 -Method and Apparatus for Bypassing Local Exchange Carriers to Permit an Independent Central Office to Provide Calling Services.
Katko

This patent addresses a method and technique for bypassing a LEC (Local Exchange Carrier) in order to reduce or eliminate the access charges typically payable to an IXC (Interexchange

Carrier), which reduces subscriber costs. This patent is directed to network control and ways of connecting to the requisite facilities.

5. U.S. Patent Publication US2007/0041526 A1-System and Method for Privacy Management Hill et al

This published patent application discloses a privacy management system and method, whereby callers can manage and monitor their inbound calls and segregate between calls that are desired and those that are not. This published patent application is a continuation of several patent applications, which share the same specification, and have issued under Patent Nos. 6,542,596, 6,876,735, 7,136,472. This published patent application and its issued parent patents disclose a caller ID tagging feature.

Note: U.S. Patent No. 7,436,851, cited in an information disclosure statement submitted on June 7, 2010, inadvertently defined ATM as "Automated Teller Machine" instead of "Asynchronous Transfer Mode." This reference describes using ATM (Asynchronous Transfer Mode) and other transmission facilities for routing within IP or PSTN networks.

Other References:

1 Dowden, Douglas C., et al., "The Future of Network-Provided Communications Services," Bell Labs Technical Journal, July-September 2000, pp. 3-10

This article announces the next generation of services that will be enabled by endpoint intelligent servers. The article is an overview of the new services and is published after Applicants' filing date. This article is not prior art, and is cited simply to inform on emerging technologies.

2 Foard, C.F., "Teaming Switches and Computers for Customer Applications," AT&T Technology, 1991; 6, 4; Research Library, pp. 32-38

This article discusses new integration schemes of computers into PBXs. It discusses the many benefits that such integration of computers and PBXs would bring.

3 Foster, Robin Harris, "Computer-Telephone Integration Goes Global," AT&T Technology, Autumn 1995; 10, 3; Research Library, pp. 18-22

This article discloses new integration schemes of computer and telephony and the benefits obtained in the future from such integration. The article highlights Call Center applications.

4 Kozik, Jack, et al., "On Opening PSTN to Enhanced Voice/Data Services – The PINT Protocol Solution," Bell Labs Technical Journal, July-September 2000, pp. 153-165

This article discloses suggested protocols for connecting the PSTN to the internet. It is published after Applicants' filing date. This article is not prior art, and is cited simply to inform on emerging technologies.

5 Lui, Anthony Y., et al., "The Enhanced Service Manager: A Service Management System for Next-Generation Networks," Bell Labs Technical Journal, July-September 2000, pp. 130-144

This article discusses the next generation of intelligent networks and their architectures and benefits. Their architectures are different. Moreover, this article is published after Applicants' filing date and therefore, it is not prior art. It is disclosed here simply to inform on emerging trends.

6 Reisfield, E.S., "Customers Take Control of the AT&T Network," AT&T Technology, 1991; 6, 1; Research Library, pp. 44-48

This article discusses a product offering from AT& T, "The Accumasters Services Workstation," which gives users the ability, e.g., to monitor their inbound traffic and use the SDN (Software Defined Network) tools from AT&T. The article is an overview of the new services that were offered then.

7 Sijben, Paul G., et al, "Bridging the Gap to IP Telephony," Bell Labs Technical Journal, October-December 1998, pp. 192-207

This article discloses suggested protocols for connecting the PSTN to the internet and managing the converged network.

This Supplemental Information Disclosure Statement is timely submitted under 37 CFR §1.97(b)(4), that is, before the mailing of a first Office action after the filing of a request for continued examination ("RCE") under § 1.114. Thus, no petition or fee is required. However, if the undersigned representative of Applicants is in error in this regard, then the Examiner is requested to consider this Supplemental Information Disclosure as filed under §1.97(c) and is further authorized to charge any fee required by its filing to Berry & Associates P.C.'s Deposit Account No. **50-3102**.

Application No.: 11/428,822

Respectfully submitted,

BERRY & ASSOCIATES P.C.

Dated: August 12, 2011

By: /Reena Kuyper/
Reena Kuyper
Registration No. 33,830

9229 Sunset Blvd., Suite 630
Los Angeles, California 90069
(310) 247-2860
Customer No. 49,637

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		4,310,726	01-12-1982	Asmuth	179	18	02-04-1980
		5,673,262	09-30-1997	Shimizu	370	395	11-07-1995
		5,848,140	12-08-1998	Foladare et al.	379	201	12-29-1995
		5,991,310	07-09-1997	Katko	370	522	07-09-1997
		2007/0041526	02-2007	Hill et al.	379	88.21	10-27-2006

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		
	1	Dowden, Douglas C., et al., "The Future of Network-Provided Communications Services," *Bell Labs Technical Journal*, July-September 2000, pp. 3-10
	2	Foard, C.F., "Teaming Switches and Computers for Customer Applications," *AT&T Technology*, 1991; 6, 4; Research Library, pp. 32-38
	3	Foster, Robin Harris, "Computer-Telephone Integration Goes Global," *AT&T Technology*, Autumn 1995; 10, 3; Research Library , pp. 18-22
	4	Kozik, Jack, et al., "On Opening PSTN to Enhanced Voice/Data Services – The PINT Protocol Solution," *Bell Labs Technical Journal*, July-September 2000, pp. 153-165
	5	Lui, Anthony Y., et al., "The Enhanced Service Manager: A Service Management System for Next-Generation Networks," *Bell Labs Technical Journal*, July-September 2000, pp. 130-144
	6	Reisfield, E.S., "Customers Take Control of the AT&T Network," *AT&T Technology*, 1991; 6, 1; Research Library, pp. 44-48
	7	Sijben, Paul G., et al, "Bridging the Gap to IP Telephony," *Bell Labs Technical Journal*, October-December 1998, pp. 192-207

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/428,822	07/05/2006	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 08/12/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 22	Minus	** 24	= 0	X $26 =	0	OR	X $ =	
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $110 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/DAVINA G. BUTLER/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	11/428,822	WOOD ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 07 MAR 2011	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:
JAB

U.S. Patent and Trademark Office

FORM PTO-1449	ATTY. DOCKET NO.	SERIAL NO.
LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT	TLM-103C1CON2	11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
(Use several sheets if necessary)	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		2001/0022784A1	09-2001	Menon et al.	----------	----------	----------
		2001/0030950A1	10-2001	Chen et al.	----------	----------	----------
		2003/0026403A1	02-2003 ~~11-2007~~	Clapper et al.	----------	----------	----------
		2003/0040325A1	02-2003	Clark	----------	----------	----------
		2003/0095650A1	05-2003	Mize	----------	----------	----------
		2003/0133553A1	07-2003	Khakoo et al.	----------	----------	----------
		2003/0156693A1	08-2003	Goldman	----------	----------	----------
		2003/0194078A1	10-2003	Wood et al.	----------	----------	----------
		2004/0029568A1	02-2004	DeLuca et al.	----------	----------	----------
		2005/0041526A1	02-2005	Esmersoy et al.	----------	----------	----------
		2005/0141500A1	06-2005	Bhandari et al.	----------	----------	----------
		2005/0169445A1	08-2005	Harris	----------	----------	----------
		2005/0207557A1	09-2005	Dolan et al.	----------	----------	----------
		4,313,035	01-1982	Jordan et al.	----------	----------	----------
		4,348,554	09-1982	Asmuth	----------	----------	----------
		4,611,094	09-1986	Asmuth et al.	----------	----------	----------
		4,611,096	09-1986	Asmuth et al.	----------	----------	----------
		4,953,198	08-1990	Daly et al.	----------	----------	----------
		4,973,837	11-1990	Bradbeer	----------	----------	----------
		5,297,191	03-1994	Gerszberg	----------	----------	----------
		5,311,582	05-1994	Davenport et al.	----------	----------	----------
		5,428,663	06-1995	Grimes et al.	----------	----------	----------

Change(s) applied to document, /G.R.P./ 6/25/2011

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 19 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/20701	May., 1998			
		WO 98/23067	May., 1998			
		WO 98/23080	May., 1998			
		WO 98/26543	Jun., 1998			
	EP	~~WO~~ 0 851 653	Jul., 1998			
	EP	~~WO~~ 0 853 411 A2	Jul., 1998			

Change(s) applied to document, /M.C.E./ 6/23/2011

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

49637 7590 05/12/2011
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER
AL AUBAIDI, RASHA S

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 05/12/2011

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

TITLE OF INVENTION: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	08/12/2011

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

49637 7590 05/12/2011
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

TITLE OF INVENTION: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	$755	$300	$0	$1055	08/12/2011

EXAMINER	ART UNIT	CLASS-SUBCLASS
AL AUBAIDI, RASHA S	2614	379-211010

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____

2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:

❑ Issue Fee

❑ Publication Fee (No small entity discount permitted)

❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): (**Please first reapply any previously paid issue fee shown above**)

❑ A check is enclosed.

❑ Payment by credit card. Form PTO-2038 is attached.

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

❑ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.

❑ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

49637 7590 05/12/2011
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER	
AL AUBAIDI, RASHA S	

ART UNIT	PAPER NUMBER
2614	

DATE MAILED: 05/12/2011

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 1065 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 1065 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No.	Applicant(s)	
	11/428,822	WOOD ET AL.	
	Examiner	Art Unit	
	RASHA AL AUBAIDI	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *03/07/2011*.

2. ☒ The allowed claim(s) is/are *1-11*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☐ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

/Rasha S AL-Aubaidi/
Primary Examiner, Art Unit 2614

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	**Art Unit**
	RASHA AL AUBAIDI	2614

ORIGINAL		INTERNATIONAL CLASSIFICATION														
CLASS	SUBCLASS	CLAIMED									NON-CLAIMED					
379	211.01	H	0	4	M	3 / 42 (2006.0)										
CROSS REFERENCE(S)		H	0	4	M	7 / 00 ()										
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)															
379	224															

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
2	2														
3	3														
4	4														
5	5														
6	6														
7	7														
8	8														
9	9														
10	10														
11	11														

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	11	
/RASHA AL AUBAIDI/ Primary Examiner.Art Unit 2614	05/06/2011	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	Art Unit
	RASHA S AL AUBAIDI	2614

SEARCHED			
Class	Subclass	Date	Examiner
379	224, 221.11, 221.08	9/29/10	R.S
379	211.01 and updated search for 224, 221.00 & 221.08	05/06/2011	R.S

SEARCH NOTES		
Search Notes	Date	Examiner
Searched EAST (US PAT & PGPUB)	9/29/10	R.S
Updated EAST search (US PAT & PGPUB)	05/06/2011	R.S

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner
	Pgpub text search, see intereference search	05/06/2011	R.S

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	selectively near1 routing near1 communications near1 between near1 users near1 "one" near1 more near1 communications near1 networks.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 09:45
L2	0	"one" near2 communication near1 networks near1 comprising near1 edge near1 switches near1 routing near1 calls near1 from near2 users near1 within near1 local near1 geographic near1 area near1 switching near1 facilities near1 routing near1 calls near1 other near1 edge near1 switches near1 other near1 switching near1 facilities near1 local near2 other near1 geographic near1 areas.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 09:49
L3	0	web near1 enabled near1 processing near1 system near1 facilitating near1 direct near2 user.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 09:51
L4	0	facilitating near1 access near2 web near1 enabled near1 processing near1 system near2 internet near1 authorized near1 users.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 09:59

L5	0	"one" near1 switching near1 facility near2 local near1 service near1 area near1 respect near2 specific near1 "one" near2 users near1 configured near1 route near1 communication near2 web near1 enabled near1 processing near1 system.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 10:02
L6	0	executing near1 features near2 web near1 enabled near1 processing near1 system near1 control near1 routing near1 communications near2 web near1 enabled near1 processing near1 system.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 10:04
L7	0	receiving near1 message near1 indicating near1 communication near1 request near1 from near1 user near1 initiating near1 communication near2 intended near1 recipient near1 user.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 10:08
L8	0	determining near1 features near2 intended near1 recipient near1 user near1 establishing near1 communications near1 link near2 user near1 initiating near1 communication.clm.	US-PGPUB; USPAT	OR	ON	2011/05/06 10:09
L9	0	1 and 2 and 3 and 4 and 5 and 6 and 7 and 8	US-PGPUB; USPAT	OR	ON	2011/05/06 10:10

5/6/11 10:10:52 AM
C:\Documents and Settings\RAlaubaidi\My Documents\EAST\Workspaces\09567297.wsp

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5	(selectively near3 routing) near5 (users or subscribers)	USPAT	OR	OFF	2011/05/06 10:30
L2	19	(selectively near3 routing) same (users or subscribers)	USPAT	OR	OFF	2011/05/06 10:30
L3	14	(edge near2 switch $) near6 (local near3 area)	USPAT	OR	OFF	2011/05/06 10:31
L4	401	379/211.01.ccls.	USPAT	OR	OFF	2011/05/06 10:32
L5	0	2 and 3 and 4	USPAT	OR	OFF	2011/05/06 10:32
L6	0	2 and 3	USPAT	OR	OFF	2011/05/06 10:32
L7	1	(edge near2 switch $) near6 (local near3 geographic near3 area)	USPAT	OR	OFF	2011/05/06 10:32
L8	0	((selectively near3 routing) same (users or subscribers)) near6 (access near5 (web near2 enabled))	USPAT	OR	OFF	2011/05/06 10:37
L9	0	((selectively near3 routing) same (users or subscribers)) near6 (access$ near5 (web near2 enabled))	USPAT	OR	ON	2011/05/06 10:37

L10	285	(selectively near3 routing) same (users or subscribers)	US-PGPUB; USPAT	OR	ON	2011/05/06 10:37
L11	23	(edge near2 switch $) near6 (local near3 area)	US-PGPUB; USPAT	OR	ON	2011/05/06 10:38
L12	23	(edge near2 switch $) near6 (local near3 area)	US-PGPUB; USPAT	OR	ON	2011/05/06 10:39
L13	0	10 and 11	US-PGPUB; USPAT	OR	ON	2011/05/06 10:39
L14	4	4 and 10	US-PGPUB; USPAT	OR	ON	2011/05/06 10:39
L15	0	(execut$ near5 featur$) near6 ((web near2 enabled) near4 (processing near3 system))	US-PGPUB; USPAT	OR	ON	2011/05/06 10:43
L16	8	(featur$) near6 ((web near2 enabled) near4 (processing near3 system))	US-PGPUB; USPAT	OR	ON	2011/05/06 10:44

5/6/11 10:47:00 AM
C:\Documents and Settings\RAlaubaidi\My Documents\EAST\Workspaces\09567297.wsp

PTO/SB/26 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A "PRIOR" PATENT	Docket Number (Optional) TLM-103C1CON2

In re Application of: Samuel F. Wood, et al.

Application No.: 11/428,822

Filed: July 5, 2006

For: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

The owner*, TELEMAZE LLC, of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term **prior patent** No. 6,532,288 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said **prior patent** is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the **prior patent** are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of the term of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the **prior patent**, "as the term of said **prior patent** is presently shortened by any terminal disclaimer," in the event that said **prior patent** later:

expires for failure to pay a maintenance fee;
is held unenforceable;
is found invalid by a court of competent jurisdiction;
is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321;
has all claims canceled by a reexamination certificate;
is reissued; or
is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

Check either box 1 or 2 below, if appropriate.

1. ☐ For submissions on behalf of a business/organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the business/organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ☑ The undersigned is an attorney or agent of record. Reg. No. 33,830

/Reena Kuyper/ — Signature
March 7, 2011 — Date

Reena Kuyper — Typed or printed name

(310) 247-2860 — Telephone Number

☑ Terminal disclaimer fee under 37 CFR 1.20(d) included.

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

*Statement under 37 CFR 3.73(b) is required if terminal disclaimer is signed by the assignee (owner).
Form PTO/SB/96 may be used for making this certification. See MPEP § 324.

Application No.: 11/428,822
Reply to Office Action of: October 5, 2010

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	)	**Customer No.:**	49,637
Samuel F. WOOD, et al.	)	**Confirmation No.:**	4565
Serial No.: 11/428,822	)	**Group Art Unit:**	2614
Filed: July 5, 2006	)	**Examiner:**	Al Aubaidi, Rasha S.
For: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK	)	**Docket No.:**	TLM-103.C1CON2
	)	**Office Action dated:**	October 5, 2010

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT & RESPONSE TO OFFICE ACTION

Dear Sir:

In response to the office action dated October 5, 2010, please amend the application as indicated in the following pages. Applicants' representative requested a personal interview with the Examiner, the final date of which is still being determined. Applicants appreciate the courtesy extended by the Examiner in considering a personal interview. As the deadline for this response falls before such an interview can occur, Applicant's submit this Amendment and response, but may supplement it further to the personal interview with the Examiner.

The **Amendments to the Claims** are reflected in the listing of claims, which begins on page 2 of this submission.

The **Remarks/Arguments** begin on page 6 of this submission.

IN THE CLAIMS:

Please amend the claims as indicated. A complete set of the claims is included below, reflecting added subject matter *(with underlining)* and deleted subject matter *(with strikethrough)*, as well as the current status of each claim. This listing of claims will replace all prior versions and listings of the claims in this application:

1. (Currently Amended) A method for selectively routing communications between users of one or more communications networks, wherein the users either 1) initiate a communication, 2) receive a communication, or 3) control a communication, the routing performed ~~by a user of a public switched telephone network (PSTN)~~ by a web-enabled processing system connected to operate at least in part with the one or more communication networks, at least one of the communication networks comprising edge switches for routing calls from and to users within a local geographic area and switching facilities for routing calls to other edge switches or other switching facilities local or in other geographic areas, the web-enabled processing system facilitating direct access by a user, ~~said~~ the user having a communications device with which to communicate with the web-enabled processing system, ~~said~~ the method comprising the steps of:

facilitating access to ~~accessing a remote tandem access controller (TAC)~~ the web-enabled processing system, via the Internet by ~~said user~~ authorized users, ~~said TAC being within the PSTN~~ the web-enabled processing system ~~and~~ coupled to ~~a PSTN tandem switch~~ at least one switching facility for a local service area with respect to ~~said user, said TAC~~ a specific one of the users and configured to route a communication via the web-enabled processing system from the specific one of the users to an intended recipient of the users, ~~for processing incoming calls from a calling party, via said tandem switch, intended by said calling party to be received by said user's communications device~~;

~~selecting~~ executing features via the web-enabled processing system to control the routing of communications via the web-enabled processing system, the features being predetermined by ~~the user~~ the users via the Internet ~~to be applied by said TAC to said incoming calls~~ before the features are executed via the web-enabled processing system,

wherein ~~said TAC~~ the web-enabled processing system performing the following operations to execute the features:

first, ~~receives~~ receiving a message indicating a communication request from a user initiating a communication for an intended recipient user, the message request transmitted using a signalling protocol of the at least one communication network;

second, validating and acknowledging said communications request without first forwarding said request to a terminating edge switch within the intended recipient users geographic area;

third, determining the features for the intended recipient user and establishing a communications link to the user initiating the communication;

fourth, selecting a routing path over the at least one communication network in accordance with the features for the intended recipient user; ~~first call from a calling party intended for said~~ the ~~user's communication device~~ and ~~processes said~~

fifth, routing the communication ~~first call~~ in accordance with ~~said~~ the features, ~~prior to the first call reaching a terminating central office said method performed by said user further comprising:~~ and

~~receiving a second call by said user from said TAC, via said tandem switch, after said first call has been processed by said TAC in accordance with said features selected and without the first call reaching the terminating central office; and~~

sixth, completing ~~answering said second call to cause said TAC to complete~~ a communications link between ~~said calling party and said user~~ the user initiating the communication and the intended recipient user, when the intended recipient user accepts the communication from the user initiating the communication.

2. (Currently Amended) The method of claim 1, wherein ~~said TAC receiving a first call from said calling party comprises said calling party calling~~ the user initiating the communication uses a first telephone number, and ~~said receiving a second call from said TAC comprises said TAC~~ the web-enabled processing system for routing the communication in accordance with the features ~~placing said~~ routes the ~~second call to a~~ communication to a

communications device designated by ~~said~~ the intended recipient user that is reached by using a second telephone number.

3. (Currently Amended) The method of claim 1, wherein ~~said~~ the intended recipient user's communications device is a telephone, and wherein the intended recipient user by ~~answering said second call~~ accepting the communication causes ~~said TAC~~ the web-enabled processing system to connect a ~~calling party's~~ communication device of the user initiating the communication to ~~said~~ the intended recipient user's telephone.

4. (Currently Amended) The method of claim 1, wherein ~~said~~ the intended recipient user's communications device is a telephone, and wherein the intended recipient user by answering ~~said second call~~ the communication, causes ~~said TAC~~ web-enabled processing system to connect a ~~calling party's~~ communication device of the user initiating the communication to ~~other than said~~ a device other than the intended recipient user's telephone, as designated by ~~said~~ the intended recipient user during ~~said~~ the step of selecting features.

5. (Currently Amended) The method of claim 1, wherein ~~said~~ the intended recipient user's communications device is a computer, and wherein upon answering ~~said second call~~ the communication, the web-enabled processing system causes ~~said TAC~~ the web-enabled processing system to connect a ~~calling party's~~ communication device of the user initiating a communication to ~~said user's~~ a computer of the intended recipient user.

6. (Currently Amended) The method of claim 1, wherein ~~said first call~~ the communication is ~~placed~~ initiated by ~~said calling party~~ the user initiating the communication through ~~a PSTN central office~~ an edge switch in the local geographic area of the user initiating the communication to ~~said TAC~~ the web-enabled processing system, and the communication is routed via ~~said second call is~~ a non-toll communication network ~~call placed~~ by ~~said TAC~~ by the web-enabled communication network through ~~a central office~~ an edge switch to ~~said user's~~ the intended recipient user's communications device.

7. (Currently Amended) The method of claim 1, wherein ~~said~~ the features ~~are selected from the one of~~ comprise any one of the following:

a) selective call forwarding ~~wherein said second call~~ whereby the communication device is to a particular communications device ~~is~~ based on ~~one of~~ either a time of ~~said first call~~ the communication and the ~~party making the first call~~ user initiating the communication; and

b) conditional ~~call~~ blocking of the communication.

8. (Currently Amended) The method of claim 1, wherein ~~said TAC~~ the web-enabled processing system ~~receiving a first call from a calling party comprises receiving said first call~~ receives the communication via ~~said~~ the switching facility, which comprises a tandem switch in a communication network, which is a circuit-switched network ~~said PSTN~~.

9. (Currently Amended) The method of claim 1, further comprising the step of: accessing ~~said TAC~~ the web-enabled processing system, which comprises a controller, by ~~said~~ the users via the Internet to obtain information regarding ~~calls~~ communications either received ~~and~~ or ~~placed~~ initiated by ~~said~~ the users.

10. (Currently Amended) The method of claim 1, further comprising the steps of:

accessing ~~said TAC~~ the web-enabled processing system, to ~~place a call~~ initiate a communication by ~~said~~ the user to a third party, ~~said TAC placing said call~~ the web-enabled processing system routing the communication to ~~said~~ the third party; and

communicating with ~~said~~ the third party after ~~said TAC~~ the web-enabled processing system connects ~~said~~ the user's communications device to a communications device of ~~said~~ the third party.

11. (Currently Amended) The method of claim 1 wherein said accessing said TAC comprises using the Internet to communicate a telephone number to said TAC for placing a call to said third party.

12-24. (Canceled)

REMARKS

This amendment is in response to the office action dated October 5, 2010. Applicants have amended claims 1-11. Claims 12-24 are canceled, without prejudice. In the office action, the Examiner rejected claims 1, 13, and 19 (as they appeared before amendment), as being unpatentable over claims 1 and 9 of U.S. Patent No. 6,532,288, on the basis of nonstatutory obviousness-type double patenting. The Examiner also indicates that although claims 1, 13, and 19 (before amendment) are not identical to claims 1 and 9 of U.S. Patent No. 6,532,288, they are broader, which is the reason for the Examiner's rejection. The Examiner rejects claims 2-24 for the same reasons. Although Applicants respectfully submit that there are differences in the claims, in order to expedite conclusion of this application, Applicants submit with this amendment a terminal disclaimer to obviate the double patenting rejection. Moreover, Applicants have amended the claims here to be more specific.

Conclusion

Favorable reconsideration of the rejected claims and the new claims presented here is respectfully requested. Finally, Applicants have requested a personal interview with the Examiner, the exact date for which is being determined. In the event there remain any issues with the claims as presented here, Applicants request the Examiner to resolve them in the personal interview to quickly conclude prosecution of this application.

Respectfully submitted,

BERRY & ASSOCIATES P.C.

Dated: March 7, 2011

By: /Reena Kuyper/
Reena Kuyper
Registration No. 33,830

9229 Sunset Blvd., Suite 630
Los Angeles, CA 90069
(310) 247-2860

Electronic Patent Application Fee Transmittal

Application Number:	11428822
Filing Date:	05-Jul-2006
Title of Invention:	Tandem access controller within the public switched telephone network
First Named Inventor/Applicant Name:	Samuel F. Wood
Filer:	Reena Kuyper
Attorney Docket Number:	TLM-103C1CON2

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Statutory or terminal disclaimer	2814	1	70	70
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 2 months with $0 paid	2252	1	245	245
Miscellaneous:				
		Total in USD ($)		**315**

Electronic Acknowledgement Receipt	
EFS ID:	9606022
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	Tandem access controller within the public switched telephone network
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	49637
Filer:	Reena Kuyper
Filer Authorized By:	
Attorney Docket Number:	TLM-103C1CON2
Receipt Date:	07-MAR-2011
Filing Date:	05-JUL-2006
Time Stamp:	23:18:03
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$315
RAM confirmation Number	8055
Deposit Account	503102
Authorized User	
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees) Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees) Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Terminal Disclaimer Filed	TLM-103C1CON2_terminal_disclaimer_final_3-7-11.pdf	293706 a6712a911690e5b15f2f85439b8408131c3842e1	no	1
Warnings:					
Information:					
2		TLM-103C1CON2_ROA_final_3-7-11.pdf	51803 5a891c0ea126700f88c3dd3521e27dfbbce9e6d5	yes	6

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	5
	Applicant Arguments/Remarks Made in an Amendment	6	6

Warnings:					
Information:					
3	Fee Worksheet (PTO-875)	fee-info.pdf	31606 07956c637296bcb35ece2d77f180ad5351ee9a04	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	377115	

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
11/428,822	07/05/2006	

APPLICATION AS FILED – PART I

	(Column 1)	(Column 2)	SMALL ENTITY ☒		OR	OTHER THAN SMALL ENTITY	
FOR	NUMBER FILED	NUMBER EXTRA	RATE ($)	FEE ($)		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT	03/07/2011	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 11	Minus	** 23	= 0	X $26 =	0	OR	X $ =	
	Independent (37 CFR 1.16(h))	* 1	Minus	***3	= 0	X $110 =	0	OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE	0	OR	TOTAL ADD'L FEE	

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)	OR	RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
	☐ Application Size Fee (37 CFR 1.16(s))									
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/ANTJUAN RIVERA/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
11/428,822	07/05/2006	Samuel F. Wood	TLM-103C1CON2	4565

49637 7590 10/05/2010

BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

EXAMINER	
AL AUBAIDI, RASHA S	
ART UNIT	**PAPER NUMBER**
2614	

MAIL DATE	DELIVERY MODE
10/05/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	11/428,822	WOOD ET AL.	
	Examiner	Art Unit	
	RASHA S. AL AUBAIDI	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the Examiner.

Double Patenting

2. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

> A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.
>
> Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claims 1, 13 and 19 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, and 9 of U.S. Patent No. 6,532,288. Although the conflicting claims are not identical, they are not patentably

distinct from each other because the claimed invention in the instant application is fully disclosed in patent number 6,532,288 and it is broader than the claimed invention in the patent. No new invention or new improvement is being claimed in the instant application. Applicant is now attempting to claim broadly that which had been previously described in more detail in the claims of the patent (In re Van Ornum, 214 USPQ 761 CCPA 1982).

Claims 2-24 are rejected for the same reasons as discussed above with respect to claims 1, 13 and 19.

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rasha S AL-Aubaidi whose telephone number is (571) 272-7481. The examiner can normally be reached on Monday-Friday from 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ahmad Matar, can be reached on (571) 272-7488.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Rasha S. AL-Aubaidi/

Primary Examiner, Art Unit 2614

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	Art Unit
	RASHA S AL AUBAIDI	2614

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	09/29/2010								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								
	16	✓								
	17	✓								
	18	✓								
	19	✓								
	20	✓								
	21	✓								
	22	✓								
	23	✓								
	24	✓								

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	11428822	WOOD ET AL.
	Examiner	Art Unit
	RASHA S AL AUBAIDI	2614

SEARCHED			
Class	Subclass	Date	Examiner
379	224, 221.11, 221.08	9/29/10	R.S

SEARCH NOTES		
Search Notes	Date	Examiner
Searched EAST (US PAT & PGPUB)	9/29/10	R.S

INTERFERENCE SEARCH			
Class	Subclass	Date	Examiner

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 4565

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
11/428,822	07/05/2006 RULE	379	2614	TLM-103C1CON2

APPLICANTS

Samuel F. Wood, Los Altos Hills, CA;
Jerry A. Klein, Los Altos, CA;
Margaret Susan Asprey, Los Altos, CA;

**** CONTINUING DATA ***************************

This application is a CON of 10/426,279 04/30/2003 PAT 7,324,635
which is a CIP of 09/565,565 05/04/2000 PAT 6,574,328

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
07/19/2006

Foreign Priority claimed	Met after Allowance	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
☐ Yes ☑ No	☐	CA	11	24	3
35 USC 119(a-d) conditions met ☐ Yes ☐ No					
Verified and Acknowledged /RASHA S AL AUBAIDI/ Examiner's Signature	Initials				

ADDRESS

BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069
UNITED STATES

TITLE

Tandem access controller within the public switched telephone network

FILING FEE RECEIVED		
525	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	831	PSTN and (tandem near2 switch)	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L2	225	379/224.ccls.	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L3	510	379/221.08.ccls.	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L4	123	379/221.11.ccls.	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L5	1126	379/201.01.ccls.	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L6	17	TAc near5 PSTN	US-PGPUB; USPAT	OR	ON	2010/09/29 13:44
L7	17	TAC near5 PSTN	US-PGPUB; USPAT	OR	ON	2010/09/29 13:45
L8	12	TAC near5 ((select$ or apply $) near6 (feature))	US-PGPUB; USPAT	OR	ON	2010/09/29 13:54
L9	12	TAC near7 ((select$ or apply $) near6 (feature))	US-PGPUB; USPAT	OR	ON	2010/09/29 13:55
L10	11	1 and 9	US-PGPUB; USPAT	OR	ON	2010/09/29 13:55
L11	0	10 not 6	US-PGPUB; USPAT	OR	ON	2010/09/29 13:55

9/29/10 2:10:50 PM
C:\Documents and Settings\RAlaubaidi\My Documents\EAST\Workspaces\123.wsp

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		2001/0022784A1	09-2001	Menon et al.	----------	----------	----------
		2001/0030950A1	10-2001	Chen et al.	----------	----------	----------
		2003/0026403A1	11-2007	Clapper	----------	----------	----------
		2003/0040325A1	02-2003	Clark	----------	----------	----------
		2003/0095650A1	05-2003	Mize	----------	----------	----------
		2003/0133553A1	07-2003	Khakoo et al.	----------	----------	----------
		2003/0156693A1	08-2003	Goldman	----------	----------	----------
		2003/0194078A1	10-2003	Wood et al.	----------	----------	----------
		2004/0029568A1	02-2004	DeLuca et al.	----------	----------	----------
		2005/0041526A1	02-2005	Esmersoy et al.	----------	----------	----------
		2005/0141500A1	06-2005	Bhandari et al.	----------	----------	----------
		2005/0169445A1	08-2005	Harris	----------	----------	----------
		2005/0207557A1	09-2005	Dolan et al.	----------	----------	----------
		4,313,035	01-1982	Jordan et al.	----------	----------	----------
		4,348,554	09-1982	Asmuth	----------	----------	----------
		4,611,094	09-1986	Asmuth et al.	----------	----------	----------
		4,611,096	09-1986	Asmuth et al.	----------	----------	----------
		4,953,198	08-1990	Daly et al.	----------	----------	----------
		4,973,837	11-1990	Bradbeer	----------	----------	----------
		5,297,191	03-1994	Gerszberg	----------	----------	----------
		5,311,582	05-1994	Davenport et al.	----------	----------	----------
		5,428,663	06-1995	Grimes et al.	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		5,448,623	09-1995	Wiedeman et al.	----------	----------	----------
		5,455,853	10-1995	Cebulka et al.	----------	----------	----------
		5,471,616	11-1995	Johnson et al.	----------	----------	----------
		5,495,567	02-1996	Iizawa et al.	----------	----------	----------
		5,497,339	03-1996	Bernard	----------	----------	----------
		5,557,658	09-1996	Gregorek et al.	----------	----------	----------
		5,563,937	10-1996	Bruno et al.	----------	----------	----------
		5,566,236	10-1996	MeLampy et al.	----------	----------	----------
		5,606,594	02-1997	Register et al.	----------	----------	----------
		5,628,004	051997	Gormley et al.	----------	----------	----------
		5,646,945	07-1997	Bergler	----------	----------	----------
		5,727,057	03-1998	Emery et al.	----------	----------	----------
		5,727,057	03-1998	Emery et al.	----------	----------	----------
		5,732,074	03-1998	Spaur et al.	----------	----------	----------
		5,732,216	03-1998	Logan et al.	----------	----------	----------
		5,737,533	04-1998	De Hond	----------	----------	----------
		5,742,905	04-1998	Pepe et al.	----------	----------	----------
		5,802,160	09-1998	Kugell et al.	----------	----------	----------
		5,806,057	09-1998	Gormley et al.	----------	----------	----------
		5,838,665	11-1998	Kahn et al.	----------	----------	----------
		5,850,433	12-1998	Rondeau	----------	----------	----------
		5,859,972	01-1999	Subramaniam et al.	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		5,875,405	02-1999	Honda	----------	----------	----------
		5,878,113	03-1999	Bhusari	----------	----------	----------
		5,878,418	03-1999	Polcyn et al.	----------	----------	----------
		5,894,473	04-1999	Dent	----------	----------	----------
		5,894,595	04-1999	Foladare et al.	----------	----------	----------
		5,913,029	06-1999	Shostak	----------	----------	----------
		5,915,008	06-1999	Dulman	----------	----------	----------
		5,918,172	06-1999	Saunders et al.	----------	----------	----------
		5,930,700	07-1999	Pepper et al.	----------	----------	----------
		5,933,778	08-1999	Buhrmann et al.	----------	----------	----------
		5,938,757	08-1999	Bertsch	----------	----------	----------
		5,953,392	09-1999	Rhie et al.	----------	----------	----------
		5,958,016	09-1999	Chang et al.	----------	----------	----------
		5,960,340	09-1999	Fuentes	----------	----------	----------
		5,970,059	10-1999	Ahopelto et al.	----------	----------	----------
		5,974,449	10-1999	Chang et al.	----------	----------	----------
		5,982,866	11-1999	Kowalski	----------	----------	----------
		5,991,394	11-1999	Dezonno et al.	----------	----------	----------
		6,006,272	12-1999	Aravamudan et al.	----------	----------	----------
		6,012,088	01-2000	Li et al.	----------	----------	----------
		6,014,437	01-2000	Acker et al.	----------	----------	----------
		6,020,916	02-2000	Gerszberg et al.	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,028,917	02-2000	Creamer et al.	----------	----------	----------
		6,031,836	02-2000	Haserodt	----------	----------	----------
		6,031,904	02-2000	An et al.	----------	----------	----------
		6,041,325	03-2000	Shah et al.	----------	----------	----------
		6,044,403	03-2000	Gerszberg et al.	----------	----------	----------
		6,075,992	06-2000	Moon et al.	----------	----------	----------
		6,078,581	06-2000	Shtivelman et al.	----------	----------	----------
		6,084,584	07-2000	Nahi et al.	----------	----------	----------
		6,094,478	07-2000	Shepherd et al.	----------	----------	----------
		6,104,800	08-2000	Benson	----------	----------	----------
		6,141,341	10-2000	Jones et al.	----------	----------	----------
		6,161,134	12-2000	Wang et al.	----------	----------	----------
		6,163,598	12-2000	Moore	----------	----------	----------
		6,167,040	12-2000	Haeggstrom	----------	----------	----------
		6,175,860	01-2001	Gaucher	----------	----------	----------
		6,188,688	02-2001	Buskirk, Jr.	----------	----------	----------
		6,212,261	04-2001	Meubus et al.	----------	----------	----------
		6,216,158	04-2001	Luo et al.	----------	----------	----------
		6,240,097	05-2001	Wesloek et al.	----------	----------	----------
		6,259,692	07-2001	Shtivelman et al.	----------	----------	----------
		6,262,978	07-2001	Bruno et al.	----------	----------	----------
		6,266,539	07-2001	Pardo	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,301,609	10-2001	Aravamudan et al.	----------	----------	----------
		6,308,201	10-2001	Pivowar et al.	----------	----------	----------
		6,334,126	12-2001	Nagatomo et al.	----------	----------	----------
		6,337,858	01-2002	Petty et al.	----------	----------	----------
		6,359,892	03-2002	Szlam	----------	----------	----------
		6,359,892	03-2002	Szlam	----------	----------	----------
		6,359,892	03-2002	Szlam et al.	----------	----------	----------
		6,381,323	04-2002	Schwab et al.	----------	----------	----------
		6,385,308	05-2002	Cohen et al.	----------	----------	----------
		6,404,764	06-2002	Jones et al.	----------	----------	----------
		6,411,615	06-2002	DeGolia et al.	----------	----------	----------
		6,411,965	06-2002	Klug	----------	----------	----------
		6,414,962	07-2002	Hall et al.	----------	----------	----------
		6,418,198	07-2002	Brablec et al.	----------	----------	----------
		6,421,235	07-2002	Ditzik	----------	----------	----------
		6,445,694	09-2002	Swartz	----------	----------	----------
		6,445,697	09-2002	Fenton	----------	----------	----------
		6,446,127	09-2002	Shuster et al.	----------	----------	----------
		6,448,978	09-2002	Salvador et al.	----------	----------	----------
		6,456,594	09-2002	Kaplan et al.	----------	----------	----------
		6,456,601	09-2002	Kozdon et al.	----------	----------	----------
		6,459,780	10-2002	Wurster et al.	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,477,565	11-2002	Daswani et al.	----------	----------	----------
		6,477,576	11-2002	Angwin et al.	----------	----------	----------
		6,483,902	11-2002	Stewart et al.	----------	----------	----------
		6,493,338	12-2002	Preston et al.	----------	----------	----------
		6,496,477	12-2002	Perkins et al.	----------	----------	----------
		6,526,462	02-2003	Elabd	----------	----------	----------
		6,539,359	03-2003	Ladd et al.	----------	----------	----------
		6,577,622	06-2003	Shuster et al.	----------	----------	----------
		6,584,490	06-2003	Shuster et al.	----------	----------	----------
		6,650,901	11-2003	Shuster et al.	----------	----------	----------
		6,681,252	01-2004	Shuster et al.	----------	----------	----------
		6,697,461	02-2004	Middleswarth et al.	----------	----------	----------
		6,731,630	05-2004	Shuster et al.	----------	----------	----------
		6,741,586	05-2004	Shuster et al.	----------	----------	----------
		6,744,759	06-2004	Sidhu	----------	----------	----------
		6,785,266	08-2004	Swartz	----------	----------	----------
		6,788,775	09-2004	Simpson	----------	----------	----------
		6,795,429	09-2004	Shuster et al.	----------	----------	----------
		6,804,224	10-2004	Shuster et al.	----------	----------	----------
		6,822,957	11-2004	Shuster et al.	----------	----------	----------
		6,853,714	02-2005	Liljestrand et al.	----------	----------	----------
		6,856,616	02-2005	Shuster et al.	----------	----------	----------

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,857,021	02-2005	Shuster et al.	----------	----------	----------
		6,857,072	02-2005	Shuster et al.	----------	----------	----------
		6,870,830	03-2005	Shuster et al.	----------	----------	----------
		6,914,897	07-2005	Shuster et al.	----------	----------	----------
		6,937,699	08-2005	Shuster et al.	----------	----------	----------
		6,956,941	10-2005	Duncan et al.	----------	----------	----------

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO
		DE19813179	09-1999	DE	----------	----------	X	
		EP0578374	01-1994	EP	----------	----------		
		EP0704788	04-1996	EP	----------	----------		
		EP0738093	10-1996	EP	----------	----------		
		EP0858202	08-1998	EP	----------	----------		
		EP0869688	10-1998	EP	----------	----------		
		EP0881848	12-1998	EP	----------	----------		
		EP0898431	02-1999	EP	----------	----------		
		EP0918423	10-1998	EP	----------	----------		
		WO/0184859	11-2001	WO	----------	----------		
		WO01/024496	04-2001	WO	----------	----------		
		WO01/024498	04-2001	WO	----------	----------		
		WO01/024500	04-2001	WO	----------	----------		
		WO01/024501	04-2001	WO	----------	----------		

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO
		WO01/024502	04-2001	WO	----------	----------		
		WO01/024503	04-2001	WO	----------	----------		
		WO01/05078	01-2001	WO	----------	----------		
		WO94/05111	03-1994	WO	----------	----------		
		WO95/34985	12-1995	WO	----------	----------		
		WO97/31492	08-1997	WO	----------	----------		
		WO97/33421	09-1997	WO	----------	----------		
		WO97/44943	11-1997	WO	----------	----------		
		WO98/00988	01-1998	WO	----------	----------		
		WO98/04065	01-1998	WO	----------	----------		
		WO98/10538	03-1998	WO	----------	----------		
		WO98/16051	04-1998	WO	----------	----------		
		WO98/21911	05-1998	WO	----------	----------		
		WO98/30008	07-1998	WO	----------	----------		
		WO98/37665	08-1998	WO	----------	----------		
		WO99/12365	03-1999	WO	----------	----------		
		WO99/19988	04-1999	WO	----------	----------		
		WO99/20059	04-1999	WO	----------	----------		
		WO99/35802	07-1999	WO	----------	----------		
		WO99/45687	09-1999	WO	----------	----------		

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		
	1	RFC 3298 Service in the PSTN, August 2002
	2	Implementing Automatic Location Update for Follow-Me database using VoIP and Bluetooth Technologies, IEEE Transaction on computers, Vol. 51, No. 10, October 2002
	3	New services demand integration, Electronic Engineering Times, Aug. 28, 2000, Iss. 1128; pg. 110
	4	Natural Microsystems, M2 Presswire. Coventry: Aug, 18, 2000
	5	This pipe dream will come true: Voice Over Internet Protocol (VoIP) technology will make the phone Box something that really talks, Businessline, Chennai: Apr 17, 2002
	6	Using Optimization to Achieve Efficient Quality of Service in Voice over IP Networks, IEEE 2003
	7	Broadsoft literature Broadworks overview, Copyright date 2002
	8	BroadSoft introduces industry's first complete service delivery and creation product suite for enhanced telephony services Broadworks, ATM Newsletter: Boston: March 2000, vol. 9, Iss. 3, pg 13
	9	BroadSoft unveils advanced architecture for the rapid and cost effective delivery of enhanced communications services, Website, August 25, 1999, Press releases, 3 pages.
	10	ADC Telecommunications; SS7 New Net SS7 Tutorial; Copyright 1999.
	11	Mary Carmichael, "Calls That Follow you Anywhere" Newsweek, April 28, 2003, page 43.
	12	European Search Report, 3 pages, from European Application No. 04252483.5 (EP Patent No. 1473947B1).
	13	U.S. patent application Ser. No. 09/406,322, Schuster et al., filed Sep. 27, 1999
	14	U.S. patent application Ser. No. 09/515,798, Schuster et al., filed Feb. 29, 2000

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		2004/0240657 A1	12-02-2004	Camarillo	379	221.02	----------
		2004/0264673 A1	12-30-2004	Novack	379	221.11	----------
		5,469,500	11-21-1995	Satter et al.	379	201	----------
		6,327,258	12-04-2001	Deschaine et al.	370	356	----------
		6,643,282	11-04-2003	Christie	370	352	----------
		7,123,708	10-17-2006	Gavillet	379	219	----------
		7,242,759	07-10-2007	Sanchez et al.	379	219	----------
		7,436,851	10-14-2008	Chambers et al.	370	325	----------

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		

EXAMINER: /Rasha Al Aubaidi/	DATE CONSIDERED: 09/29/2010
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s):	Samuel F. Wood, Jerry A. Klein, Margaret Susan Asprey		
Assignee:	Telemaze LLC		
Title:	Tandem Access Controller Within the Public Switched Telephone Network		
Serial No.:	11/428,822	Filing Date:	July 5, 2006
Examiner:	Not yet known	Group Art Unit:	2614
Docket No.:	TEL-M-8801-1P-1C		

San Jose, California
July 17, 2006

Mail Stop Amendment
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

INFORMATION DISCLOSURE STATEMENT
UNDER 37 CFR § 1.97(b)

Dear Sir:

Pursuant to 37 C.F.R. § 1.56, § 1.97 and § 1.98, the documents listed on the accompanying form PTO/SB/08A are called to the attention of the Examiner for the above patent application. Copies of the References are not included because they were cited in the parent application no. 10/426,279, filing date April 30, 2003.

1. A very large quantity of prior art is cited in the PTO/SB/08A form (formerly PTO 1449) because the present invention is related to the invention in U.S. Patent 6,614,781 to Elliot, and the identified prior art is copied from the "References Cited" section of that patent. There is no other reason for why the Applicants believe the identified art is material to the present claims. Only a few of the prior art documents are discussed below.

2. Various prior art documents describe systems in which telephone features are only applied once a call reaches the called party's central office. In contrast, Applicants' claims specify that the telephone features are applied before the call reaches the terminating central office. This provides various important advantages, discussed in the application. Other distinguishing aspects of the claims also exist.

PATENT LAW
GROUP LLP
2635 N. FIRST ST.
SUITE 223
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

3. U.S. Patent 6,614,781 to Elliot discloses a method of implementing a telephone feature that requires a change, modification, or enhancement to the software of the central office of the PSTN. To use the features offered by the Elliot '781 patent, the call must reach the central office offering the feature.

4. U.S. Patents 6,445,694 and 6,785,266 to Swartz disclose methods to provide telephone features, where the processing that provides the features occurs outside of the PSTN.

5. U.S. Patent 6,094,478 to Shepherd describes a processor for providing features, where the processor is located at the terminating central office.

6. U.S. Patent 6,853,714 to Liljestrand is similar to the Shepherd patent in that the processing for providing telephone features occurs at the central office.

Citation of these documents shall not be construed as:

1. an admission that the documents are necessarily prior art with respect to the instant invention;

2. a representation that a search has been made; or

3. an admission that the information cited herein is, or is considered to be, material to patentability as defined in § 1.56(b).

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450, on the date shown below.

Attorney for Applicant(s) Date 2/12/06

Respectfully submitted,

Brian D. Ogonowsky
Attorney for Applicant(s)
Reg. No. 31,988

PATENT LAW GROUP LLP
2635 N. FIRST ST.
SUITE 223
SAN JOSE, CA 95134
(408) 382-0480
FAX (408) 382-0481

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 4100377	Jul., 1978	Flanagan	
		US- 4238851	Dec., 1980	Takahashi et al.	
		US- 4569041	Feb., 1986	Takeuchi et al.	
		US- 4608685	Aug., 1986	Jain et al.	
		US- 4630260	Dec., 1986	Toy et al.	
		US- 4630262	Dec., 1986	Callens et al.	
		US- 4661947	Apr., 1987	Lea et al.	
		US- 4674082	Jun., 1987	Flanagin et al.	
		US- 4679190	Jul., 1987	Dias et al.	
		US- 4679191	Jul., 1987	Nelson et al.	
		US- 4707831	Nov., 1987	Weir, deceased et al.	
		US- 4715026	Dec., 1987	Eberspaecher	
		US- 4723238	Feb., 1988	Isreal et al.	
		US- 4757497	Jul., 1988	Beierle et al.	
		US- 4761779	Aug., 1988	Nara et al.	
		US- 4771425	Sep., 1988	Baran et al.	
		US- 4815071	Mar., 1989	Shimizu	
		US- 4819228	Apr., 1989	Baran et al.	
		US- 4862451	Aug., 1989	Closs et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 2 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 4866704	Sep., 1989	Bergman	
		US- 4872159	Oct., 1989	Hemmady et al.	
		US- 4872160	Oct., 1989	Hemmady et al.	
		US- 4885739	Dec., 1989	Read et al.	
		US- 4903261	Feb., 1990	Baran et al.	
		US- 4926416	May., 1990	Weik	
		US- 4932022	Jun., 1990	Keeney et al.	
		US- 4933931	Jun., 1990	Kokubo	
		US- 4953158	Aug., 1990	Schreur	
		US- 4958341	Sep., 1990	Hemmady et al.	
		US- 4962497	Oct., 1990	Ferenc et al.	
		US- 4969184	Nov., 1990	Gordon et al.	
		US- 4970721	Nov., 1990	Aczel et al.	
		US- 4975695	Dec., 1990	Almond et al.	
		US- 4996685	Feb., 1991	Farese et al.	
		US- 5008929	Apr., 1991	Olsen et al.	
		US- 5014266	May., 1991	Bales et al.	
		US- 5018136	May., 1991	Gollub	
		US- 5020058	May., 1991	Holden et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 3 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5022071	Jun., 1991	Mozer et al.	
		US- 5048081	Sep., 1991	Gavaras et al.	
		US- 5051983	Sep., 1991	Kammerl	
		US- 5093827	Mar., 1992	Franklin et al.	
		US- 5115431	May., 1992	Williams et al.	
		US- 5150357	Sep., 1992	Hopner et al.	
		US- 5157662	Oct., 1992	Tadamura et al.	
		US- 5197067	Mar., 1993	Fujimoto et al	
		US- 5208806	May., 1993	Hasegawa	
		US- 5218602	Jun., 1993	Grant et al.	
		US- 5231633	Jul., 1993	Hluchyj et al.	
		US- 4926416	May., 1990	Weik	
		US- 4932022	Jun., 1990	Keeney et al.	
		US- 4933931	Jun., 1990	Kokubo	
		US- 5241588	Aug., 1993	Babson, III et al.	
		US- 5247571	Sep., 1993	Kay et al.	
		US- 5268900	Dec., 1993	Hluchyj et al.	
		US- 5274635	Dec., 1993	Rahman et al.	
		US- 5291489	Mar., 1994	Morgan et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] *(if known)*	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 4 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5301189	Apr., 1994	Schmidt et al.	
		US- 5305308	Apr., 1994	English et al.	
		US- 5327428	Jul., 1994	Van As et al.	
		US- 5341374	Aug., 1994	Lewen et al.	
		US- 5351276	Sep., 1994	Doll, Jr. et al.	
		US- 5351286	Sep., 1994	Nici	
		US- 5353283	Oct., 1994	Tsuchiya	
		US- 5359598	Oct., 1994	Steagall et al.	
		US- 5365521	Nov., 1994	Ohnishi et al.	
		US- 5379293	Jan., 1995	Kanno et al.	
		US- 5381405	Jan., 1995	Daugherty et al.	
		US- 5381466	Jan., 1995	Shibayama et al.	
		US- 5383183	Jan., 1995	Yoshida	
		US- 5384840	Jan., 1995	Blatchford et al.	
		US- 5390184	Feb., 1995	Morris	
		US- 5396491	Mar., 1995	Newman	
		US- 5420858	May., 1995	Marshall et al.	
		US- 5422882	Jun., 1995	Hiller et al.	
		US- 5423003	Jun., 1995	Berteau	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 5 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5426636	Jun., 1995	Hiller et al.	
		US- 5428607	Jun., 1995	Hiller et al.	
		US- 5428616	Jun., 1995	Field et al.	
		US- 5430719	Jul., 1995	Weisser, Jr.	
		US- 5434913	Jul., 1995	Tung et al.	
		US- 5436898	Jul., 1995	Bowen et al.	
		US- 5438614	Aug., 1995	Rozman et al.	
		US- 5444709	Aug., 1995	Riddle	
		US- 5452289	Sep., 1995	Sharma et al.	
		US- 5453986	Sep., 1995	Davis et al.	
		US- 5457684	Oct., 1995	Bharucha et al.	
		US- 5471470	Nov., 1995	Sharma et al.	
		US- 5479411	Dec., 1995	Klein	
		US- 5485457	Jan., 1996	Aramaki	
		US- 5521914	May., 1996	Mavraganis et al.	
		US- 5526353	Jun., 1996	Henley et al.	
		US- 5537403	Jul., 1996	Cloonan et al.	
		US- 5541917	Jul., 1996	Farris	
		US- 5544161	Aug., 1996	Bigham et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 6 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5544163	Aug., 1996	Madonna	
		US- 5544164	Aug., 1996	Baran	
		US- 5544168	Aug., 1996	Jeffrey et al.	
		US- 5553063	Sep., 1996	Dickson	
		US- 5568475	Oct., 1996	Doshi et al.	
		US- 5570355	Oct., 1996	Dail et al.	
		US- 5572583	Nov., 1996	Wheeler, Jr. et al.	
		US- 5577038	Nov., 1996	Miyahara	
		US- 5577041	Nov., 1996	Sharma et al.	
		US- 5579308	Nov., 1996	Humpleman	
		US- 5590181	Dec., 1996	Hogan et al.	
		US- 5592477	Jan., 1997	Farris et al.	
		US- 5592538	Jan., 1997	Kosowsky et al.	
		US- 5594732	Jan., 1997	Bell et al.	
		US- 5600643	Feb., 1997	Robrock, II	
		US- 5600649	Feb., 1997	Sharma et al.	
		US- 5602991	Feb., 1997	Berteau	
		US- 5604737	Feb., 1997	Iwami et al.	
		US- 5608786	Mar., 1997	Gordon	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 7 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5613069	Mar., 1997	Walker	
		US- H1641	Apr., 1997	Sharman	
		US- 5621727	Apr., 1997	Vaudreuil	
		US- 5625677	Apr., 1997	Feiertag et al.	
		US- 5631897	May., 1997	Pacheco et al.	
		US- 5640446	Jun., 1997	Everett et al.	
		US- 5650999	Jul., 1997	Dickson	
		US- 5654957	Aug., 1997	Koyama	
		US- 5659541	Aug., 1997	Chan	
		US- 5659542	Aug., 1997	Bell et al.	
		US- 5680437	Oct., 1997	Segal	
		US- 5684799	Nov., 1997	Bigham et al.	
		US- 5689553	Nov., 1997	Ahuja et al.	
		US- 5692126	Nov., 1997	Templeton et al.	
		US- 5701301	Dec., 1997	Weisser, Jr.	
		US- 5706286	Jan., 1998	Reiman et al.	
		US- 5710769	Jan., 1998	Anderson et al.	
		US- 5712903	Jan., 1998	Bartholomew et al.	
		US- 5712908	Jan., 1998	Brinkman et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 8 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5724412	Mar., 1998	Srinivasan	
		US- 5729544	Mar., 1998	Lev et al.	
		US- 5732078	Mar., 1998	Arango	
		US- 5737320	Apr., 1998	Madonna	
		US- 5737331	Apr., 1998	Hoppal et al.	
		US- 5737333	Apr., 1998	Civanlar et al.	
		US- 5740164	Apr., 1998	Liron	
		US- 5740231	Apr., 1998	Cohn et al.	
		US- 5742596	Apr., 1998	Baratz et al.	
		US- 5751706	May., 1998	Land et al.	
		US- 5751968	May., 1998	Cohen	
		US- 5754641	May., 1998	Voit et al.	
		US- 5764628	Jun., 1998	Davis et al.	
		US- 5764736	Jun., 1998	Shachar et al.	
		US- 5764750	Jun., 1998	Chau et al.	
		US- 5764756	Jun., 1998	Onweller	
		US- 5777991	Jul., 1998	Adachi et al.	
		US- 5790538	Aug., 1998	Sugar	
		US- 5793762	Aug., 1998	Penners et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 9 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5793771	Aug., 1998	Darland et al.	
		US- 5799154	Aug., 1998	Kuriyan	
		US- 5805587	Sep., 1998	Norris et al.	
		US- 5805588	Sep., 1998	Petersen	
		US- 5809022	Sep., 1998	Byers et al.	
		US- 5809128	Sep., 1998	McMullin	
		US- 5812534	Sep., 1998	Davis et al.	
		US- 5815505	Sep., 1998	Mills	
		US- 5818912	Oct., 1998	Hammond	
		US- 5825771	Oct., 1998	Cohen et al.	
		US- 5828666	Oct., 1998	Focsaneanu et al.	
		US- 5838665	Nov., 1998	Kahn et al.	
		US- 5867494	Feb., 1999	Krishnaswamy et al.	
		US- 5867495	Feb., 1999	Elliott et al.	
		US- 5881060	Mar., 1999	Morrow et al.	
		US- 5881131	Mar., 1999	Farris et al.	
		US- 5889774	Mar., 1999	Mirashrafi et al.	
		US- 5915008	Jun., 1999	Dulman	
		US- 5922047	Jul., 1999	Newlin et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 10 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 5933490	Aug., 1999	White et al.	
		US- 5954799	Sep., 1999	Goheen et al.	
		US- 5963551	Oct., 1999	Minko	
		US- 5991291	Nov., 1999	Asai et al.	
		US- 5999525	Dec., 1999	Krishnaswamy et al.	
		US- 6009469	Dec., 1999	Mattaway et al.	
		US- 6026083	Feb., 2000	Albrow et al.	
		US- 6069890	May., 2000	White et al.	
		US- 6134235	Oct., 2000	Goldman et al.	
		US- 6278707	Aug., 2001	MacMillan et al.	
		US- 6324183	Nov., 2001	Miller et al.	
		US- 6327258	Dec., 2001	Deschaine et al.	
		US- 6339594	Jan., 2002	Civanlar et al.	
		US- 5946684	Aug., 1999	Lund	
		US- 6094478	Jul., 2000	Shepherd et al.	
		US- 6028917	Feb., 2000	Creamer et al.	
		US- 6104800	Aug., 2000	Benson	
		US- 6078581	Jun., 2000	Shtivelman et al.	
		US- 6259692	Jul., 2001	Shtivelman et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 11 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US- 6014437	Jan., 2000	Acker et al.	
		US- 5799072	Aug., 1998	Vulcan et al.	
		US- 5946386	Aug., 1999	Rogers et al.	
		US- 6005870	Dec., 1999	Leung et al.	
		US- 6161128	Dec. 2000	Smyk	
		US- 6614781	Sep., 2003	Elliott et al.	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 12 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		EP 0 789 470	Aug., 1997			
		EP 0 794 650	Sep., 1997			
		EP 0 797 373	Sep., 1997			
		EP 0 824 298	Feb., 1998			
		EP 0 829 995	Mar., 1998			
		EP 0 841 831	May., 1998			

Examiner Signature	/Basha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 13 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		EP 0 847 176	Jun., 1998			
		EP 0 866 596	Sep., 1998			
		EP 0 872 998	Oct., 1998			
		GB 2 315 190	Jan., 1998			
		JP 10-23067	Jan., 1998			
		JP 10-51453	Feb., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 14 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		JP 10-164135	Jun., 1998			
		JP 10-164257	Jun., 1998			
		WO 96/08935	Mar., 1996			
		WO 96/15598	May., 1996			
		WO 97/14238	Apr., 1997			
		WO 97/14234 A2	Apr., 1997			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 15 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 97/16007	May., 1997			
		WO 97/22216	Jun., 1997			
		WO 97/23078	Jun., 1997			
		WO 97/27692	Jul., 1997			
		WO 97/28628	Aug., 1997			
		WO 97/29581	Aug., 1997			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6]Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 16 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 97/31492	Aug., 1997			
		WO 97/33412	Sep., 1997			
		WO 97/38551	Oct., 1997			
		WO 97/39560	Oct., 1997			
		WO 97/38511 A2	Oct., 1997			
		WO 97/47118	Dec., 1997			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 17 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 97/50217	Dec., 1997			
		WO 97/50271	Dec., 1997			
		WO 97/46073 A2	Dec., 1997			
		WO 97/50277 A2	Dec., 1997			
		WO 98/04989	Feb., 1998			
		WO 98/11704	Mar., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 18 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		Wo 98/12860	Mar., 1998			
		WO 98/13974	Apr., 1998			
		WO 98/18238	Apr., 1998			
		WO 98/18289	Apr., 1998			
		WO 98/19425	May., 1998			
		WO 98/19445	May., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 19 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/20701	May., 1998			
		WO 98/23067	May., 1998			
		WO 98/23080	May., 1998			
		WO 98/26543	Jun., 1998			
		WO 0 851 653	Jul., 1998			
		WO 0 853 411 A2	Jul., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 20 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/28885	Jul., 1998			
		WO 98/30007	Jul., 1998			
		WO 98/30008	Jul., 1998			
		WO 98/34391	Aug., 1998			
		WO 98/34399	Aug., 1998			
		WO 98/36543	Aug., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 21 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/37665	Aug., 1998			
		WO 98/37688 A2	Aug., 1998			
		WO 98/39897	Sep., 1998			
		WO 98/42104	Sep., 1998			
		WO 98/42107	Sep., 1998			
		WO 98/42146	Sep., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

PTO/SB/08A (07-05)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 22 of 22

Complete if Known	
Application Number	11/428,822
Filing Date	July 5, 2006
First Named Inventor	Samuel F. Wood
Art Unit	2614
Examiner Name	Not yet known
Attorney Docket Number	TEL-M-8801-1P-1C

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number-Kind Code[2] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Country Code[3]-Number[4]-Kind Code[5] (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T[6]
		WO 98/47256 A2	Oct., 1998			
		WO 98/51063	Nov., 1998			

Examiner Signature	/Rasha Al Aubaidi/	Date Considered	09/29/2010

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. [1] Applicant's unique citation designation number (optional). [2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. [3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). [4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [5]Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [6] Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /RA/

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		2004/0240657 A1	12-02-2004	Camarillo	379	221.02	----------
		2004/0264673 A1	12-30-2004	Novack	379	221.11	----------
		5,469,500	11-21-1995	Satter et al.	379	201	----------
		6,327,258	12-04-2001	Deschaine et al.	370	356	----------
		6,643,282	11-04-2003	Christie	370	352	----------
		7,123,708	10-17-2006	Gavillet	379	219	----------
		7,242,759	07-10-2007	Sanchez et al.	379	219	----------
		7,436,851	10-14-2008	Chambers et al.	370	325	----------

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

Electronic Acknowledgement Receipt

EFS ID:	7764571
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	Tandem access controller within the public switched telephone network
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	49637
Filer:	Reena Kuyper
Filer Authorized By:	
Attorney Docket Number:	TLM-103C1CON2
Receipt Date:	07-JUN-2010
Filing Date:	05-JUL-2006
Time Stamp:	23:26:46
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	TLM-103C1CON2_IDS_before_OA_final_6-7-10.pdf	28028 bfe8e832f334f23b9ba05398ad3a7f5cb85d9e7b	no	3
Warnings:					
Information:					

2	Information Disclosure Statement (IDS) Filed (SB/08)	TLM-103C1CON2_PTO_1449_final_6-7-10.pdf	25964 8d636665afa13b8ba046b692844e63d2cec2e8e4	no	1

Warnings:	
Information:	
This is not an USPTO supplied IDS fillable form	
Total Files Size (in bytes):	53992

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:	)	**Customer No.:**	49,637
Samuel F. WOOD, et al.	)	**Confirmation No.:**	4565
Serial No.: 11/428,822	)	**Group Art Unit:**	2614
Filed: July 5, 2006	)	**Examiner:**	Al Aubaidi, Rasha S.
For: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK	)	**Docket No.:**	TLM-103.C1CON2

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. 1.97(b)

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In compliance with the duty of disclosure under 37 CFR § 1.56, 37 CFR §§ 1.97, and 1.98, before receipt of a first office action, Applicants bring the following documents, of possible interest to the subject matter of this application, to the attention of the Examiner. Each of these documents is listed on the attached form PTO-1449. Each of the documents is either a published patent or pending application. In the event the Examiner would like copies of them, the Examiner is requested to advise the undersigned. Applicants respectfully request the Examiner to consider and make these documents of record with respect to this application. In addition, for the Examiner's convenience, Applicants are providing below comments on each of the references. The references pertain to fundamental call routing architecture and operations executed within a single carrier network as opposed to the Applicants' inventions, which are directed to architecture and operations that apply call features to the fundamental call routing operations over multiple carrier networks. The Examiner is requested to make an independent

determination if there is any relevance to these documents. These documents are also cited in related pending application serial numbers 11/428,825 and 11/948,965.

1. U.S. Patent No. 5,469,500 describes a method and apparatus for delivering calling services by contemplating an AIN (Advanced Intelligent Network) architecture, different from the existing network structure, with software upgrades to this AIN to implement calling services.

2. Publication No. 2004/0264673 A1 describes an architecture to connect disparate peripherals in a network, not to execute features as in Applicants' inventions. In addition, it should be noted that this publication is dated December 30, 2004, after the effective filing date of this application, which is May 4, 2000. The filing date is June 30, 2003.

3. Publication No. 2004/0240657 A1 describes an architecture for routing schemes in the network to route calls to different tandems in the network. This publication is dated December 2, 2004, after the effective filing date of this application, which is May 4, 2000. The filing date is May 28, 2003.

4. U.S. Patent No. 7,436,851 describes using ATM (Automatic Teller Machine) and other transmission facilities for routing within IP or PSTN networks. There is no disclosure of any calling features.

5. U.S. Patent No. 7,123,708 describes an architecture for IP routing of calls (by connecting different networks and carriers) within the internet. It does not describe applying any features to call routing operations of the network. This patent issued on October 14, 2008, and has a filing date of March 29, 1999.

6. U.S. Patent No. 7,242,759 describes an architecture for routing of calls in the network specifically to 800 numbers. The patent issued on October 14, 2008 and has a filing date of March 29, 1999.

7. U.S. Patent No. 6,643,282 describes a major network architecture proposed by Sprint Communications Company LP. There is no disclosure of applying features.

8. U.S. Patent No. 6,327,258 describes an architecture and operations for connecting the PSTN (Public Switched Telephone Network) with Internet data networks utilizing ATM. The architecture is for routing calls in the network.

This Supplemental Information Disclosure Statement is timely submitted under 37 CFR § 1.97(b)(3), that is, before mailing of a first office action on the merits. Thus, no petition or fee is required at this time. If the U.S. Patent Office determines that a fee is necessary, this submission should be considered a petition, and the U.S. Patent Office is hereby authorized to charge any fee necessary to Deposit Account No. **50-3102** of Berry & Associates P.C.

Respectfully submitted,
BERRY & ASSOCIATES P.C.

Dated: June 7, 2010

By: /Reena Kuyper/
Reena Kuyper
Registration No. 33,830

9229 Sunset Blvd., Suite 630
Los Angeles, California 90069
(310) 247-2860
Customer No. 49,637

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	TEL-M-8801-1P-1C

CONFIRMATION NO. 4565

49637
BERRY & ASSOCIATES P.C.
9229 SUNSET BOULEVARD
SUITE 630
LOS ANGELES, CA 90069

POA ACCEPTANCE LETTER

OC000000040278856

Date Mailed: 02/26/2010

NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/18/2010.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

/mteklemichael/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
11/428,822	07/05/2006	Samuel F. Wood	TEL-M-8801-1P-1C

CONFIRMATION NO. 4565

32566
PATENT LAW GROUP LLP
2635 NORTH FIRST STREET
SUITE 223
SAN JOSE, CA 95134

POWER OF ATTORNEY NOTICE

OC000000040278843

Date Mailed: 02/26/2010

NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 02/18/2010.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/mteklemichael/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

PTO/SB/80 (11-08)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(b).

I hereby appoint:

☑ Practitioners associated with the Customer Number: 49,637

OR

☐ Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number	Name	Registration Number

as attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(b).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(b) to:

☑ The address associated with Customer Number: 49,637

OR

☐ Firm or Individual Name			
Address			
City		State	Zip
Country			
Telephone		Email	

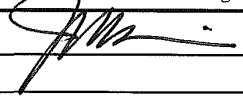
Assignee Name and Address:

Telemaze, LLC
101 First Street, Suite 477
Los Altos, CA 94022

A copy of this form, together with a statement under 37 CFR 3.73(b) (Form PTO/SB/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(b) may be completed by one of the practitioners appointed in this form if the appointed practitioner is authorized to act on behalf of the assignee, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	12/11/09
Name	Jerry A. Klein	Telephone	650-948-1243
Title	Managing Member		

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/96 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Samuel F. Wood, et al.

Application No./Patent No.: 11/428,822 Filed/Issue Date: July 5, 2006

Titled: TANDEM ACCESS CONTROLLER WITHIN THE PUBLIC SWITCHED TELEPHONE NETWORK

TELEMAZE, LLC , a limited liability company

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. ☒ the assignee of the entire right, title, and interest in;

2. ☐ an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. ☐ the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. ☐ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. ☒ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Wood, Samuel F. and Klein, Jerry A. To: Telemaze, Inc.

The document was recorded in the United States Patent and Trademark Office at
Reel 014034 , Frame 0043 , or for which a copy thereof is attached.

2. From: Asprey, Margaret Susan To: Telemaze, Inc.

The document was recorded in the United States Patent and Trademark Office at
Reel 015613 , Frame 0259 , or for which a copy thereof is attached.

3. From: Telemaze, Inc. To: Telemaze, LLC

The document was recorded in the United States Patent and Trademark Office at
Reel 016844 , Frame 0708 , or for which a copy thereof is attached.

☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☐ As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

/Reena Kuyper/ February 17, 2010

Signature Date

Reena Kuyper, Reg. No. 33,830 Registered Patent Agent

Printed or Typed Name Title

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt

EFS ID:	7033705
Application Number:	11428822
International Application Number:	
Confirmation Number:	4565
Title of Invention:	Tandem access controller within the public switched telephone network
First Named Inventor/Applicant Name:	Samuel F. Wood
Customer Number:	32566
Filer:	Reena Kuyper
Filer Authorized By:	
Attorney Docket Number:	TEL-M-8801-1P-1C
Receipt Date:	18-FEB-2010
Filing Date:	05-JUL-2006
Time Stamp:	00:14:57
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	Telemaze_General_Power_of_Attorney_signed_12-11-09.pdf	368786 9e15f0da052fc2fcb55372b9edb8c986444364a1	no	1

Warnings:

Information:

2	Assignee showing of ownership per 37 CFR 3.73(b).	TLM-103C1CON2_Statement_3_73b.pdf	439208 dd2e625efaa208349cc3133d57391f9a0183f90c	no	2

Warnings:	
Information:	
Total Files Size (in bytes):	807994

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		2001/0022784A1	09-2001	Menon et al.	----------	----------	----------
		2001/0030950A1	10-2001	Chen et al.	----------	----------	----------
		2003/0026403A1	11-2007	Clapper	----------	----------	----------
		2003/0040325A1	02-2003	Clark	----------	----------	----------
		2003/0095650A1	05-2003	Mize	----------	----------	----------
		2003/0133553A1	07-2003	Khakoo et al.	----------	----------	----------
		2003/0156693A1	08-2003	Goldman	----------	----------	----------
		2003/0194078A1	10-2003	Wood et al.	----------	----------	----------
		2004/0029568A1	02-2004	DeLuca et al.	----------	----------	----------
		2005/0041526A1	02-2005	Esmersoy et al.	----------	----------	----------
		2005/0141500A1	06-2005	Bhandari et al.	----------	----------	----------
		2005/0169445A1	08-2005	Harris	----------	----------	----------
		2005/0207557A1	09-2005	Dolan et al.	----------	----------	----------
		4,313,035	01-1982	Jordan et al.	----------	----------	----------
		4,348,554	09-1982	Asmuth	----------	----------	----------
		4,611,094	09-1986	Asmuth et al.	----------	----------	----------
		4,611,096	09-1986	Asmuth et al.	----------	----------	----------
		4,953,198	08-1990	Daly et al.	----------	----------	----------
		4,973,837	11-1990	Bradbeer	----------	----------	----------
		5,297,191	03-1994	Gerszberg	----------	----------	----------
		5,311,582	05-1994	Davenport et al.	----------	----------	----------
		5,428,663	06-1995	Grimes et al.	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		5,448,623	09-1995	Wiedeman et al.	----------	----------	----------
		5,455,853	10-1995	Cebulka et al.	----------	----------	----------
		5,471,616	11-1995	Johnson et al.	----------	----------	----------
		5,495,567	02-1996	Iizawa et al.	----------	----------	----------
		5,497,339	03-1996	Bernard	----------	----------	----------
		5,557,658	09-1996	Gregorek et al.	----------	----------	----------
		5,563,937	10-1996	Bruno et al.	----------	----------	----------
		5,566,236	10-1996	MeLampy et al.	----------	----------	----------
		5,606,594	02-1997	Register et al.	----------	----------	----------
		5,628,004	051997	Gormley et al.	----------	----------	----------
		5,646,945	07-1997	Bergler	----------	----------	----------
		5,727,057	03-1998	Emery et al.	----------	----------	----------
		5,727,057	03-1998	Emery et al.	----------	----------	----------
		5,732,074	03-1998	Spaur et al.	----------	----------	----------
		5,732,216	03-1998	Logan et al.	----------	----------	----------
		5,737,533	04-1998	De Hond	----------	----------	----------
		5,742,905	04-1998	Pepe et al.	----------	----------	----------
		5,802,160	09-1998	Kugell et al.	----------	----------	----------
		5,806,057	09-1998	Gormley et al.	----------	----------	----------
		5,838,665	11-1998	Kahn et al.	----------	----------	----------
		5,850,433	12-1998	Rondeau	----------	----------	----------
		5,859,972	01-1999	Subramaniam et al.	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		5,875,405	02-1999	Honda	----------	----------	----------
		5,878,113	03-1999	Bhusari	----------	----------	----------
		5,878,418	03-1999	Polcyn et al.	----------	----------	----------
		5,894,473	04-1999	Dent	----------	----------	----------
		5,894,595	04-1999	Foladare et al.	----------	----------	----------
		5,913,029	06-1999	Shostak	----------	----------	----------
		5,915,008	06-1999	Dulman	----------	----------	----------
		5,918,172	06-1999	Saunders et al.	----------	----------	----------
		5,930,700	07-1999	Pepper et al.	----------	----------	----------
		5,933,778	08-1999	Buhrmann et al.	----------	----------	----------
		5,938,757	08-1999	Bertsch	----------	----------	----------
		5,953,392	09-1999	Rhie et al.	----------	----------	----------
		5,958,016	09-1999	Chang et al.	----------	----------	----------
		5,960,340	09-1999	Fuentes	----------	----------	----------
		5,970,059	10-1999	Ahopelto et al.	----------	----------	----------
		5,974,449	10-1999	Chang et al.	----------	----------	----------
		5,982,866	11-1999	Kowalski	----------	----------	----------
		5,991,394	11-1999	Dezonno et al.	----------	----------	----------
		6,006,272	12-1999	Aravamudan et al.	----------	----------	----------
		6,012,088	01-2000	Li et al.	----------	----------	----------
		6,014,437	01-2000	Acker et al.	----------	----------	----------
		6,020,916	02-2000	Gerszberg et al.	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,028,917	02-2000	Creamer et al.	----------	----------	----------
		6,031,836	02-2000	Haserodt	----------	----------	----------
		6,031,904	02-2000	An et al.	----------	----------	----------
		6,041,325	03-2000	Shah et al.	----------	----------	----------
		6,044,403	03-2000	Gerszberg et al.	----------	----------	----------
		6,075,992	06-2000	Moon et al.	----------	----------	----------
		6,078,581	06-2000	Shtivelman et al.	----------	----------	----------
		6,084,584	07-2000	Nahi et al.	----------	----------	----------
		6,094,478	07-2000	Shepherd et al.	----------	----------	----------
		6,104,800	08-2000	Benson	----------	----------	----------
		6,141,341	10-2000	Jones et al.	----------	----------	----------
		6,161,134	12-2000	Wang et al.	----------	----------	----------
		6,163,598	12-2000	Moore	----------	----------	----------
		6,167,040	12-2000	Haeggstrom	----------	----------	----------
		6,175,860	01-2001	Gaucher	----------	----------	----------
		6,188,688	02-2001	Buskirk, Jr.	----------	----------	----------
		6,212,261	04-2001	Meubus et al.	----------	----------	----------
		6,216,158	04-2001	Luo et al.	----------	----------	----------
		6,240,097	05-2001	Wesloek et al.	----------	----------	----------
		6,259,692	07-2001	Shtivelman et al.	----------	----------	----------
		6,262,978	07-2001	Bruno et al.	----------	----------	----------
		6,266,539	07-2001	Pardo	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,301,609	10-2001	Aravamudan et al.	----------	----------	----------
		6,308,201	10-2001	Pivowar et al.	----------	----------	----------
		6,334,126	12-2001	Nagatomo et al.	----------	----------	----------
		6,337,858	01-2002	Petty et al.	----------	----------	----------
		6,359,892	03-2002	Szlam	----------	----------	----------
		6,359,892	03-2002	Szlam	----------	----------	----------
		6,359,892	03-2002	Szlam et al.	----------	----------	----------
		6,381,323	04-2002	Schwab et al.	----------	----------	----------
		6,385,308	05-2002	Cohen et al.	----------	----------	----------
		6,404,764	06-2002	Jones et al.	----------	----------	----------
		6,411,615	06-2002	DeGolia et al.	----------	----------	----------
		6,411,965	06-2002	Klug	----------	----------	----------
		6,414,962	07-2002	Hall et al.	----------	----------	----------
		6,418,198	07-2002	Brablec et al.	----------	----------	----------
		6,421,235	07-2002	Ditzik	----------	----------	----------
		6,445,694	09-2002	Swartz	----------	----------	----------
		6,445,697	09-2002	Fenton	----------	----------	----------
		6,446,127	09-2002	Shuster et al.	----------	----------	----------
		6,448,978	09-2002	Salvador et al.	----------	----------	----------
		6,456,594	09-2002	Kaplan et al.	----------	----------	----------
		6,456,601	09-2002	Kozdon et al.	----------	----------	----------
		6,459,780	10-2002	Wurster et al.	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,477,565	11-2002	Daswani et al.	----------	----------	----------
		6,477,576	11-2002	Angwin et al.	----------	----------	----------
		6,483,902	11-2002	Stewart et al.	----------	----------	----------
		6,493,338	12-2002	Preston et al.	----------	----------	----------
		6,496,477	12-2002	Perkins et al.	----------	----------	----------
		6,526,462	02-2003	Elabd	----------	----------	----------
		6,539,359	03-2003	Ladd et al.	----------	----------	----------
		6,577,622	06-2003	Shuster et al.	----------	----------	----------
		6,584,490	06-2003	Shuster et al.	----------	----------	----------
		6,650,901	11-2003	Shuster et al.	----------	----------	----------
		6,681,252	01-2004	Shuster et al.	----------	----------	----------
		6,697,461	02-2004	Middleswarth et al.	----------	----------	----------
		6,731,630	05-2004	Shuster et al.	----------	----------	----------
		6,741,586	05-2004	Shuster et al.	----------	----------	----------
		6,744,759	06-2004	Sidhu	----------	----------	----------
		6,785,266	08-2004	Swartz	----------	----------	----------
		6,788,775	09-2004	Simpson	----------	----------	----------
		6,795,429	09-2004	Shuster et al.	----------	----------	----------
		6,804,224	10-2004	Shuster et al.	----------	----------	----------
		6,822,957	11-2004	Shuster et al.	----------	----------	----------
		6,853,714	02-2005	Liljestrand et al.	----------	----------	----------
		6,856,616	02-2005	Shuster et al.	----------	----------	----------

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE
		6,857,021	02-2005	Shuster et al.	----------	----------	----------
		6,857,072	02-2005	Shuster et al.	----------	----------	----------
		6,870,830	03-2005	Shuster et al.	----------	----------	----------
		6,914,897	07-2005	Shuster et al.	----------	----------	----------
		6,937,699	08-2005	Shuster et al.	----------	----------	----------
		6,956,941	10-2005	Duncan et al.	----------	----------	----------

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO
		DE19813179	09-1999	DE	----------	----------	X	
		EP0578374	01-1994	EP	----------	----------		
		EP0704788	04-1996	EP	----------	----------		
		EP0738093	10-1996	EP	----------	----------		
		EP0858202	08-1998	EP	----------	----------		
		EP0869688	10-1998	EP	----------	----------		
		EP0881848	12-1998	EP	----------	----------		
		EP0898431	02-1999	EP	----------	----------		
		EP0918423	10-1998	EP	----------	----------		
		WO/0184859	11-2001	WO	----------	----------		
		WO01/024496	04-2001	WO	----------	----------		
		WO01/024498	04-2001	WO	----------	----------		
		WO01/024500	04-2001	WO	----------	----------		
		WO01/024501	04-2001	WO	----------	----------		

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

FOREIGN PATENT DOCUMENTS								
EXAMINER INITIAL		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATI YE	NO
		WO01/024502	04-2001	WO	----------	----------		
		WO01/024503	04-2001	WO	----------	----------		
		WO01/05078	01-2001	WO	----------	----------		
		WO94/05111	03-1994	WO	----------	----------		
		WO95/34985	12-1995	WO	----------	----------		
		WO97/31492	08-1997	WO	----------	----------		
		WO97/33421	09-1997	WO	----------	----------		
		WO97/44943	11-1997	WO	----------	----------		
		WO98/00988	01-1998	WO	----------	----------		
		WO98/04065	01-1998	WO	----------	----------		
		WO98/10538	03-1998	WO	----------	----------		
		WO98/16051	04-1998	WO	----------	----------		
		WO98/21911	05-1998	WO	----------	----------		
		WO98/30008	07-1998	WO	----------	----------		
		WO98/37665	08-1998	WO	----------	----------		
		WO99/12365	03-1999	WO	----------	----------		
		WO99/19988	04-1999	WO	----------	----------		
		WO99/20059	04-1999	WO	----------	----------		
		WO99/35802	07-1999	WO	----------	----------		
		WO99/45687	09-1999	WO	----------	----------		

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

FORM PTO-1449 LIST OF PATENTS AND OTHER ITEMS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	ATTY. DOCKET NO. TLM-103C1CON2	SERIAL NO. 11/428,822
	APPLICANT: Samuel F. WOOD, et al.	
	FILING DATE: July 5, 2006	GROUP: 2614

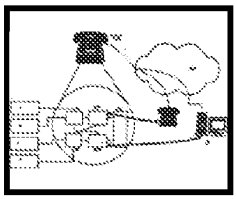
OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, etc.)		
EXAMINER INITIAL		
	1	RFC 3298 Service in the PSTN, August 2002
	2	Implementing Automatic Location Update for Follow-Me database using VoIP and Bluetooth Technologies, IEEE Transaction on computers, Vol. 51, No. 10, October 2002
	3	New services demand integration, Electronic Engineering Times, Aug. 28, 2000, Iss. 1128; pg. 110
	4	Natural Microsystems, M2 Presswire. Coventry: Aug, 18, 2000
	5	This pipe dream will come true: Voice Over Internet Protocol (VoIP) technology will make the phone Box something that really talks, Businessline, Chennai: Apr 17, 2002
	6	Using Optimization to Achieve Efficient Quality of Service in Voice over IP Networks, IEEE 2003
	7	Broadsoft literature Broadworks overview, Copyright date 2002
	8	BroadSoft introduces industry's first complete service delivery and creation product suite for enhanced telephony services Broadworks, ATM Newsletter: Boston: March 2000, vol. 9, Iss. 3, pg 13
	9	BroadSoft unveils advanced architecture for the rapid and cost effective delivery of enhanced communications services, Website, August 25, 1999, Press releases, 3 pages.
	10	ADC Telecommunications; SS7 New Net SS7 Tutorial; Copyright 1999.
	11	Mary Carmichael, "Calls That Follow you Anywhere" Newsweek, April 28, 2003, page 43.
	12	European Search Report, 3 pages, from European Application No. 04252483.5 (EP Patent No. 1473947B1).
	13	U.S. patent application Ser. No. 09/406,322, Schuster et al., filed Sep. 27, 1999
	14	U.S. patent application Ser. No. 09/515,798, Schuster et al., filed Feb. 29, 2000

EXAMINER:	DATE CONSIDERED:
EXAMINER: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include a copy of this form with next communication to applicant	

Derwent Record

Derwent Title: **Internet-telephone with telephone acting as client for Internet applications - allows carrying out entries via telephone using telephone's keypad, microphone and loudspeaker and allows functionality extension of telephone using additional memories and processors**

Original Title: DE19813179A1: Internet-telephone with telephone acting as client for Internet applications



Assignee: **SIEMENS AG** Standard company
Other publications from SIEMENS AG (SIEI)...

Inventor: **VAN DER VEKENS A;**

Accession/ Update: **1999-541738** / **199948**

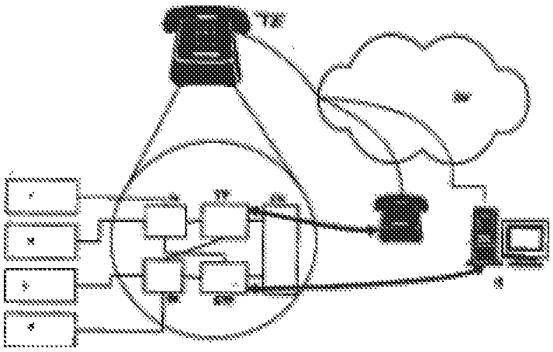
IPC Code: **H04M 1/00 ;** H04L 12/16 ; H04M 1/21 ;

Derwent Classes: T01; W01;

Manual Codes: **T01-J08C**(Communication controller) **, W01-A06**(Exchanges; connections between exchanges (including LAN)) **, W01-A06B7**(Internet and intranet) **, W01-C01**(Subscriber equipment) **, W01-C01A**(Construction (including cradle switch mechanical aspects)) **, W01-C05B5**(Entertainment, dictation)

Derwent Abstract: (DE19813179A) The Internet-telephone includes a telephone which has an electronic memory and a processor. Entries can be carried out via the telephone using the keypad, microphone and loudspeaker.
The telephone can be extended in its functionality using additional memories and processors so that the telephone can act as a client for Internet applications. Preferably, the a connection set-up to the Internet can be controlled using the telephone. Applet software can be loaded to the telephone via the Internet.
Advantage - Allows reduction of terminals and integration of computer function into telephone.

Images:



Dwg.1/1

Family:

PDF	Patent	Pub. Date	Derwent Update	Pages	Language	IPC Code
☑	DE19813179A1 *	1999-09-30	199946	3	German	H04M 1/00

Local appls.: DE1998001013179 Filed:1998-03-25 (98DE-1013179)

INPADOC Legal Status: Show legal status actions

First Claim: Show all claims

1. Internet-Telefon, mit einem Telefon, das einen elektronischen Speicher sowie einen Prozessor aufweist und über das Eingaben mittels Tastatur, Mikrofon und Lautsprecher vorgenommen werden

können, **dadurch gekennzeichnet**, daß das Telefon in seiner Funktionalität derart erweitert wird, daß es als Client für Internet Anwendungen verwendbar ist.

Priority Number:

Application Number	Filed	Original Title
DE1998001013179	1998-03-25	

Title Terms: TELEPHONE TELEPHONE ACT CLIENT APPLY ALLOW CARRY ENTER TELEPHONE TELEPHONE MICROPHONE LOUDSPEAKER ALLOW FUNCTION EXTEND TELEPHONE ADD MEMORY PROCESSOR

(19) BUNDESREPUBLIK DEUTSCHLAND

DEUTSCHES PATENT- UND MARKENAMT

(12) **Offenlegungsschrift**

(10) **DE 198 13 179 A 1**

(51) Int. Cl.[6]:
H 04 M 1/00
H 04 M 1/21
H 04 L 12/16

(21) Aktenzeichen: 198 13 179.8
(22) Anmeldetag: 25. 3. 98
(43) Offenlegungstag: 30. 9. 99

DE 198 13 179 A 1

(71) Anmelder:
Siemens AG, 80333 München, DE

(72) Erfinder:
Vekens, Alexander van der, Dipl.-Inform., 81373 München, DE

(56) Entgegenhaltungen:

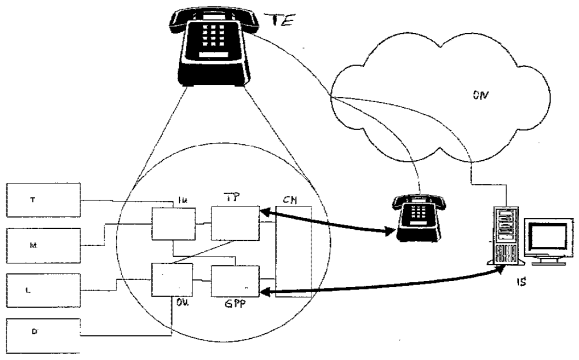
DE	196 45 368 A1
WO	97 19 519 A2
WO	91 07 839 A1

Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen

Prüfungsantrag gem. § 44 PatG ist gestellt

(54) Internet-Telefon

(57) Gegenwärtige als Endgerät ausgebildete Telefone weisen in der Regel keine oder nur minimale Intelligenz auf. Damit können diese Endgeräte nur eingeschränkt für moderne Internetdienste verwendet werden. Um eine Verwendung hier dennoch sinnvoll vornehmen zu können, wird erfindungsgemäß vorgesehen, das Telefon mit zusätzlichen Speicher- und Prozessormitteln zu erweitern. Damit sind dann komplexe Funktionen, die bislang in PCs integriert sind, im Telefon selbst ablauffähig. Damit ist ein derartiges Telefon als intelligentes Endgerät für Internetdienste verwendbar.



DE 198 13 179 A 1

Beschreibung

Die Erfindung betrifft eine Vorrichtung gemäß dem Oberbegriff von Patentanspruch 1.

Zeitgemäße Endgeräte werden zunehmend als digitale Telefone ausgebildet. Derartige Endgeräte weisen in der Regel keinerlei oder wenig Intelligenz auf und werden parallel zu den modernen Internetdiensten oder zukünftigen Intelligenten Netzdiensten (wie z. B. TINA) zugeordneten Endgeräten wie Personal Computer, Netzwerkcomputer oder Set-Top-Boxen betrieben. Damit steigt die Zahl der Endgeräte im privaten wie öffentlichen Hausbereich je nach Verwendung jener Netze sowie die zugeordneten Dienste um ein Vielfaches.

Damit ist nicht nur die Komplexität in der Bedienung aller Endgeräte gewachsen, auch unter Kostenaspekten ist eine derartige Vielzahl für den Anwender unwirtschaftlich. Letzteres gilt auch für die Hersteller, die bezüglich Lagerhaltung und Ersatzteile besondere Vorkehrungen treffen müssen.

Der Erfindung liegt die Aufgabe zugrunde, einen Weg aufzuzeigen, wie die Vielzahl der Endgeräte verringert werden kann. Vorteilhaft an der Erfindung ist insbesondere das Integrieren von Personal Computer-Funktionen in das Telefon. Insbesondere Personal Computer weisen aufgrund ihrer Prozessoren und Speichermittel eine umfangreiche Funktionalität auf.

Vorteilhafte Weiterbildungen der Erfindung sind in den Unteransprüchen angegeben.

Die Erfindung wird im folgenden anhand eines figürlich dargestellten Ausführungsbeispiels näher erläutert.

In der Figur ist die erfindungsgemäße Vorrichtung offenbart. Demgemäß ist vorgesehen, ein digitales Telefon TE als Basiseinheit zu verwenden. Derartige digitale Telefone weisen heute einen Zentralprozessor sowie einen entsprechenden elektronischen Speicher auf.

Es wird vorgesehen, das Telefon TE gegebenenfalls um weitere Prozessoren und Speicher derart zu erweitern, daß auch komplexere Funktionen, die gegenwärtig in Personal Computern ablaufen, in derart erweiterten Telefonen ablauffähig sind. Als Funktionen sind beispielhaft Verbindungsaufbaueinrichtungen CM (Connection Management) vorgesehen. Weiterhin sind Telefonprozeduren TP (Telephony Processing) vorgesehen. Diese stellen die Funktionalität des Telefons TE als herkömmliches Telefon sicher. Die komplexen Funktionen sind in der Einrichtung GPP realisiert. Als Schnittstelle zum Anwender sind Ein-/Ausgabeeinrichtungen IU, OU vorgesehen. Die Kommunikation zwischen Anwender und Telefon erfolgt über eine Tastatur T, ein Mikrofon M, Lautsprechereinrichtungen L sowie Anzeigevorrichtungen D.

Im folgenden wird die Funktionsweise eines derart ausgebildeten Telefons TE aufgezeigt:

Demgemäß soll beispielsweise Software über ein Netz, das beispielhaft als öffentliches Netz ON ausgebildet sein kann, in das Telefon TE geladen werden. Damit soll es möglich sein, eine Kommunikation zwischen dieser Software und dem Anwender zu steuern. Der zugeordnete Dienst soll aber auf einem Server ausgeführt werden. Dabei findet eine weitere Kommunikation zwischen der im Telefon TE geladenen Software und diesem Dienst über das Netz statt. Beispielhaft sollen akustische JAVA Applets für diese Aufgabe verwendet werden. Damit wird ein herkömmliches digitales Telefon bezüglich seiner Funktionalität erheblich erweitert.

Hierzu wird ein Verbindungsaufbau vom Telefon TE über das öffentliche Netz ON zu einem Internet-Server IS durchgeführt. Die Steuerungsvorgänge werden von der im Telefon TE angeordneten Verbindungsaufbaueinrichtung CM

vorgenommen und überwacht. Die hierzu erforderlichen Eingaben werden vom Anwender unter Benutzung herkömmlicher Einrichtungen T, M, L, D vorgenommen. Als systeminterne Schnittstellen fungieren die Ein-/Ausgabeeinrichtungen IU, OU. Ist die Verbindung erstellt, wird die Applet Software über die aufgebaute Verbindung in die elektronischen Speicher des Telefons TE in die Einrichtung GPP geladen. Damit ist dann ein Datenaustausch zwischen dem Internet-Server IS und der Applet Software möglich. Zeitgleich hierzu kann eine weitere Kommunikation zwischen Anwender und der Applet Software durchgeführt werden.

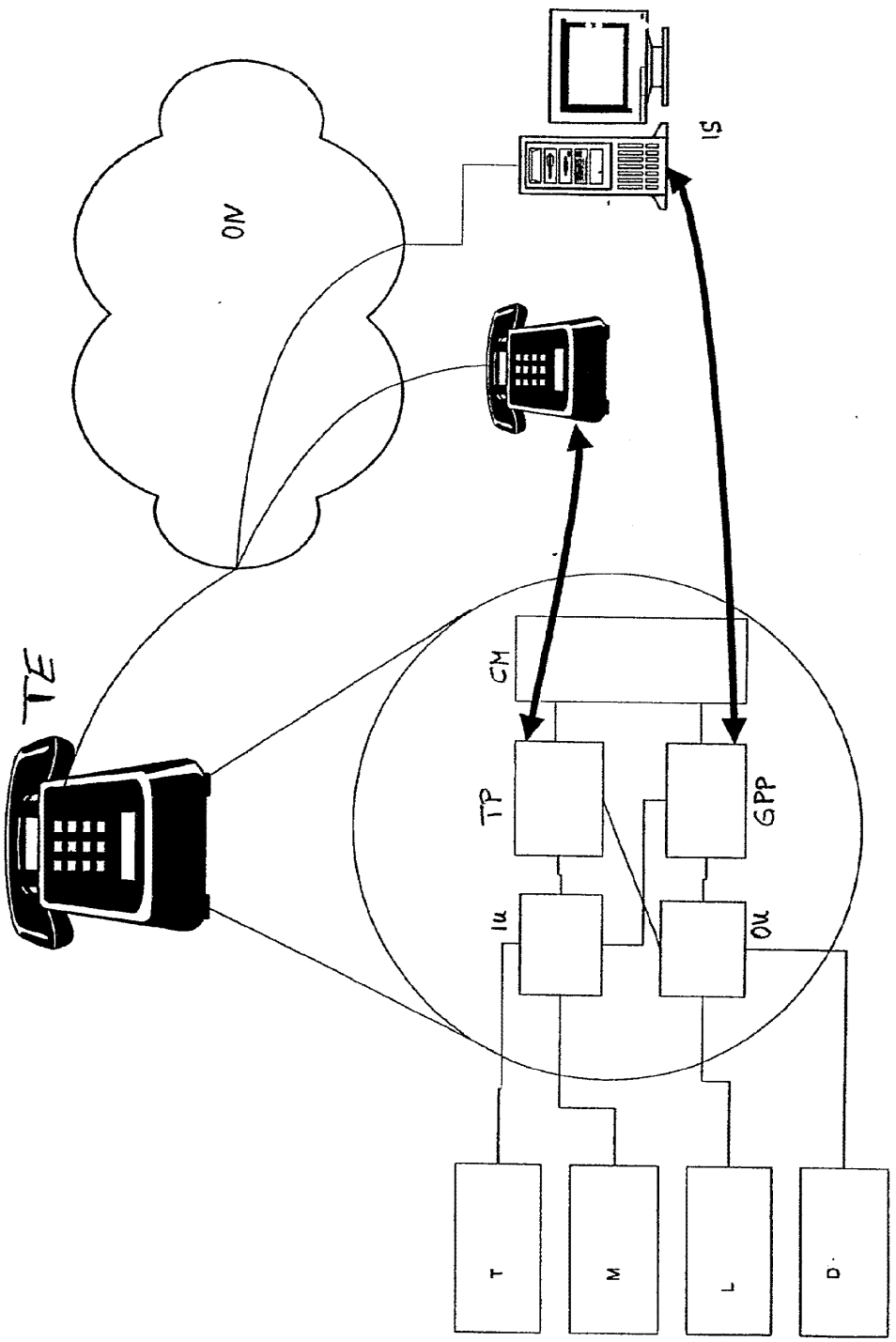
Patentansprüche

1. Internet-Telefon, mit einem Telefon, das einen elektronischen Speicher sowie einen Prozessor aufweist und über das Eingaben mittels Tastatur, Mikrofon und Lautsprecher vorgenommen werden können, **dadurch gekennzeichnet**, daß das Telefon in seiner Funktionalität derart erweitert wird, daß es als Client für Internet Anwendungen verwendbar ist.
2. Internet-Telefon nach Anspruch 1, dadurch gekennzeichnet, daß mit dem Telefon ein Verbindungsaufbau zum Internet steuerbar ist.
3. Internet-Telefon nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß Applet Software über das Internet in das Telefon ladbar ist.

Hierzu 1 Seite(n) Zeichnungen

- Leerseite -

Nummer: **DE 198 13 179 A1**
Int. Cl.[6]: **H 04 M 1/00**
Offenlegungstag: 30. September 1999



FIGUR

902 039/455

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 578 374 B1

(12) EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention of the grant of the patent:
02.12.1998 Bulletin 1998/49

(51) Int Cl.[6]: **H04M 11/00**, H04M 3/42, G07C 9/00, G08B 3/10

(21) Application number: **93304446.3**

(22) Date of filing: **08.06.1993**

(54) Method and apparatus for providing a personal locator, access control and asset tracking service using an in-building telephone network

Verfahren und Einrichtung zur Personenaufenthaltsbestimmung, Zugangskontrolle und Güteraufspürung mit dem Telefonnetz eines Gebäudes

Méthode et dispositif pour assurer les services de localisation de personnes , contrôle d'accès et pistage de matériels en utilisant le réseau téléphonique d'un immeuble

(84) Designated Contracting States:
DE FR GB SE

(30) Priority: **29.06.1992 US 906192**

(43) Date of publication of application:
12.01.1994 Bulletin 1994/02

(73) Proprietor: **NORTHERN TELECOM LIMITED**
Montreal, Quebec H2Y 3Y4 (CA)

(72) Inventors:
- **Mufti, Sohale Aziz**
  Kanata, Ontario K2M 2A3 (CA)
- **Yip, Adrian Men-Gee**
  Kanata, Ontario K2L 1R7 (CA)
- **Samuel, Robert George**
  Nepean, Ontario K2J 3E4 (CA)
- **Soong, Peter Pui Kwok**
  Nepean, Ontario K2J 5S7 (CA)
- **Wakim, Michael Jamil**
  Nepean, Ontario K2J 1T8 (CA)

(74) Representative: **Ryan, John Peter William et al**
Nortel Patents,
London Road
Harlow, Essex CM17 9NA (GB)

(56) References cited:
EP-A- 0 152 908
FR-A- 2 630 565
GB-A- 2 222 503
GB-A- 2 225 141
US-A- 4 752 951

Printed by Jouve, 75001 PARIS (FR)

EP 0 578 374 B1

Description

Field of the Invention

This invention relates to personal communication services and more particularly to systems for providing a locator, access control and asset tracking service whereby users and material assets can be located and access restricted using an in-building telephone network.

Background of the Invention

A number of personal communication devices have been designed to allow subscribers of the telephone service the opportunity to be reached in the event a calling party is attempting to reach that subscriber. Portable cellular telephones, pagers and cordless telephones are such known devices.

Specification No EP-A-0 152 908 describes an arrangement for use in an automatic call transfer system in which users carrying transmitters and moving in a limited area are assigned personal identification numbers for the purpose of directing transferred calls to those users. A PABX incorporating location apparatus for transmitters carried by users is described in specification No GB-A-2 222 503. An arrangement for the electronic location of persons or objects is described in specification No FR-A-2 630 565.

Those who do not have access to these devices can currently receive calls at a telephone set other than their own, by providing potential callers their new telephone numbers, call forwarding their calls to a telephone set at their new location, or specifically instructing the network of their new location each time they move to a new location. Similarly, a number of asset tracking systems have been designed to provide a user assistance in tracking material assets. One of the problems associated with the tracking of assets, is that the equipment is often moved from one room to the next as the need arises. Thus, the tracking of expensive equipment within, say, a large laboratory, can be difficult. In addition, a material asset could be removed from the secured premises without detection.

One of the problems associated with the existing locator and asset tracking systems, is that they require the site to be re-wired for installation of infrared or other sensors, which is often done at the expense of the user.

Systems that are designed for locating individuals for the routing of calls, are not useable as an asset tracking system and vice versa.

Although some systems provide transmitting devices to be carried by individuals, the user has no control over its use. That is, other than leaving the transmitting device at a specific location, calls will always follow the individual. This can be annoying, especially, if the individual does not want to be disturbed at his or her new location. For example, the individual maybe in a meeting, with others, also wearing the transmitting device.

Another problem is that the ID code sent by the transmitting device is not secure and can easily be replicated.

Yet another problem associated with the use of existing systems, is when the individual is located in an area served by multiple telephone terminals. A number of operational and network oriented problems will occur, since several telephone terminals will pick up the same ID code. In addition, in some instances, the terminal picking up the strongest signal from the ID transmitting device will not necessarily be the unit closest to the individual, therefore resulting in confusion.

Systems that offer access control currently do not make use of the in-building telephone system to restrict access either into the building or to specific rooms once inside the building.

Thus a need exist for a personal communication system able to automatically locate a user for the purpose of delivering an incoming call to them, which can be used for in-building access control and which can also be used to locate assets in real-time to eliminate physical inventories and loss of valuable assets.

Accordingly, there is a need for an improved method and apparatus for providing a locator, access control and asset tracking service whereby users and material assets can be located using an in-building telephone network, while also providing intelligent network services.

It is therefore an object of the present invention to provide an improved method and apparatus for operating a personal communication and locator service within a telephone network wherein a transmitting device is provided having means to enable the user to either become automatically or manually registered with the telephone network.

Another object of the present invention is to provide an improved method and apparatus for operating a personal communication and locator service within a telephone network, wherein the transmitting device enables the downloading of the user's service configuration to a specific telephone set.

Another object of the present invention is to provide an improved method and apparatus for operating a personal communication and locator service within a telephone network, wherein the transmitting device allows the user to activate and deactivate intelligent network services without having to make use the keypad on the telephone terminal located nearby.

Another object of the present invention is to provide an improved method and apparatus for operating a personal

communication and locator service within a telephone network, wherein access control is provided by making use of the transmitting device to allow the user to enter and exit a facility or room according to the entry level requirements.

Another object of the present invention is to provide an improved method and apparatus for operating a personal communication and locator service within a telephone network, wherein the transmitting device is in the form of an ID badge which can either transmit an autonomous periodic RF signal to a receiving unit located at a nearby telephone terminal or transmit a different RF signal when one or more buttons are depressed.

Another object of the present invention is to provide an improved method and apparatus for operating an asset tracking service using the in-building telephone network.

Another object of the present invention is to provide improved method and apparatus for operating an asset tracking service, wherein a transmitting device is permanently secured to an asset to enable a receiving station, connected to the telephone network, to monitor the location and movement of the asset.

Another object of the present invention is to provide improved method and apparatus for operating an asset tracking service, wherein the transmitting device is provided with means for detecting the removal of the transmitting device from the asset.

Summary of the Invention

In the first embodiment of the invention, a low-power signal is emitted by a small radio transmitter embedded in a person's identification badge. The transmitter automatically sends out signals, which the system uses to update the person's location. Alternately, the user can manually register his or her new location by pushing a button on the ID badge. This signal is detected by base stations, typically located within the walls of a building or in desktop telephone sets. Upon receiving a signal, the base station communicates over the telephone lines with a telecommunications switch. The switch contains software to locate individuals and redirect their phone calls to the nearest telephone.

The software in the telecommunications switch also enables features that give individuals extensive ability to customize their personal communications to suit individual needs and preferences. For example, an individual can request that the system screens incoming calls, so that only high priority callers are put through. Other calls could be directed to voice mail.

In addition, the individual can also conveniently control the extent to which his or her personal communications services are transferred to a telephone at a new location. A user might want to have only external calls forwarded, or temporarily assign to the nearest phone, all of his or her personal telephony services, such as a speed-dialling directory and called-number display.

Also, the ID badge is designed to restrict or allow access to certain areas of a building, or the building itself.

In a second embodiment of the invention, the system keeps track of the location of critical assets, such as computerized workstations or test equipment. Tags, containing the low-power transmitters are placed on, or inside, the assets. These transmitters emit a signal at designated intervals. If the asset is moved, the signal is detected by the base stations, located within the walls of the building or in desktop telephone sets, pinpoints the new location and sends this information over the telephone lines to a database.

The actual network communication can be accomplished through the use of signal modulation such as the "data above voice" mechanism, or through the use of the "D channel" signalling as defined in the Integrated Services Digital Network (ISDN) Basic Rate Interface (BRI) Q.931 signaling.

The transmitting devices send periodic homing signals to a receiving device located nearby. The information which is sent identifies the badge and any miscellaneous operations associated with the operation of the badge. In the case of asset tracking, the homing signal provides an indication of the type of asset being tracked by the system.

According to a first aspect of the present invention there is provided a system for providing a personal communication and locator service within a telephone network as a subscriber moves along the network from a first receiver device associated with his home telephone set to a second receiver device associated with a visited telephone set, the system comprising:

database storage means (17), for storing a list of subscriber profiles indicative of the identity of the subscriber and network services available to that subscriber at his home telephone set;

transmitter means (50, 51) adapted to be carried by a subscriber, and able to transmit a predetermined radio frequency signal;

input means (62, 63) at said transmitter means to allow said subscriber to modify said predetermined radio frequency signal to initiate a predetermined network service;

multiple receiver means (11, 12, 14) adapted to be connected and distributed across said telephone network and able to receive said predetermined and modified radio frequency signals indicative of a specific network service requested by said subscriber;

signal modulation means (83) at said multiple receiver means for modulating said predetermined and modified

radio frequency signals into a modulated signal;
means (84) for sending, along a telephone line connected to said multiple receiver means, said modulated radio frequency signal to a switch (16) connected to said network; and
means (17) for registering said subscriber service profile against said visited telephone set associated with said second receiver device when said subscriber activates said input means, such that the subscriber's network services and telephony features available from his home telephone set can be enabled at said visited telephone set.

According to a second aspect of the present invention there is provided a method of operating a system for providing a personal communication and locator service, wherein transmitting devices (50, 51), which are carried by a subscriber of the service, transmit at periodic intervals RF signals indicative of the identity of the subscriber and are provided with means (62, 63) for modifying said RF signal, multiple receiver devices (11, 12, 14), which are connected and distributed across a telephone network are adapted to receive the RF signals as the subscriber moves along the network from a first receiver device associated with his home telephone set to a second receiver device associated with a visited telephone set, the method comprising the steps of:

storing at database means (17) a list of subscriber profiles indicative of the identity of the subscriber and network services available to that subscriber at his home telephone;
transmitting said RF signal, as a said subscriber moves towards said second receiver device associated with said visited telephone set;
modulating said transmitted RF signal to obtain a modulated RF signal;
sending, along a telephone line connected to said second receiver device, said modulated RF signal to switching means (16) connected to said network;
accessing said database means when said switching means receives said modulated signal;
searching said database means to find a profile associated with said modulated signal to identify the subscriber and service profile; and
registering said subscriber service profile against said visited telephone set associated with said second receiver device when said subscriber activates said modifying means, such that the subscriber's network services and telephony features available from his home telephone set can be enabled at said visited telephone set.

Brief Description of the Drawings

Figure 1 is a block diagram illustrating a system for providing a locator and asset tracking service according to an embodiment of the invention;
Figure 2a is an illustration of a possible mounting arrangement for an access control receiver according to a first embodiment of the invention;
Figure 2b is an illustration of a possible mounting arrangement for an access control receiver according to a second embodiment of the invention;
Figures 3a and 3b are illustrations of a possible mounting arrangement for a locator/asset tracking receiver according to another embodiment of the invention;
Figures 4a, 4b and 4c are top, bottom and side views, respectively, of a typical asset tracking tag according to an embodiment of the invention;
Figure 5 is a block diagram showing the general layout of the asset tracking tag of Figure 4;
Figures 6a and 6b are top and bottom views, respectively, of a typical locator ID badge according to an embodiment of the invention;
Figure 7 is a block diagram showing the general layout of the locator ID badge of Figure 6;
Figure 8 is a block diagram of a locator/tracking receiver according to an embodiment of the invention; and
Figure 9 is an illustration of a typical transmission burst from a transmitting device.

Detailed description of the Drawings

Referring now to Figure 1, we have shown a diagram illustrating how the personal communication locator and asset tracking service interacts with a telephone network. In particular, in one embodiment of the invention, the service makes use of a transmitting device forming an integral part of an ID badge 10a and 10b and a receiving device located either at a telephone terminal 11 or as part of an stand-alone unit 12 to provide a personal communication service. In a second embodiment of the invention, the transmitting device can form part of an asset tracking tag attached or secured to a material asset, such as a computer 13 or other piece of equipment. A receiving device 14 can also be designed such that it can be connected between a telephone terminal 15 and a switch or PBX unit 16. Power to the receiving device 14 is provided by the switch 16, via the telephone line. This provides a centralized battery backup,

reduces the cost of installation and also reduces the complexity of the system, since the units do not have to be placed near electrical outlets. As will be shown in Figures 2a, 2b, 3a and 3b, the receiving unit can be positioned in a number of areas of a building to provide the locator, asset tracking and access control services defined herein.

A database 17 associated with the telephone network records all data associated with the RF signal sent by the transmitting device via the RF signal receiving device attached to the telephone network. This recorded data will form the information database through which Personal Communications Services (PCS) can be realized. A workstation 18, such as a PC, can be used for accessing the database 17 for reading the information stored therein. Similarly, the PC can also be used to directly store the information received from the switch or PBX unit 16. Similarly, the workstation can continuously monitor movement of tags, in the case of asset tracking, wherein the PC would initiate a security sequence, such as alerting a security guard, if the asset is moved away from its assigned area.

Access Control System

In one embodiment of the present invention, building entry and access control can be provided. In this application, the RF signal receivers can be located on the ceiling, or in the walls of a building, as shown in Figures 2a and 2b, to control the access to a room or building. For example, as shown in Figure 2a, receiver 20 is connected to a PBX (not shown) via an ISDN BRI link 21 or equivalent. In the embodiment shown, the receiver is also connected to a door latch 22 to allow or deny access of personnel to the computer room. Thus, only those employees that have an ID badge emitting the correct RF pattern will be allowed in the room.

In another application, a base station can be installed at a building entrance by mounting a receiving unit inside a passageway pedestal, as is shown in Figure 2b. The diagram shows the view of the pedestals 30a, 30b and 30c as would be seen by a user entering the building. At pedestal 30a, a receiver 31 mounted inside the pedestal is connected to an antenna 32. Receiver 31 is connected to front and back photoelectric sensors 33, loudspeaker 34 and alarm lamp 35. The base station receiver 31 monitor the photoelectric sensors 33 in order to distinguish incoming and outgoing traffic. In Figure 2b, only one sensor is shown for clarity. Front and back sensors would be positioned horizontally adjacent one another to identify movement of users. The base stations can be isolated by a dummy pedestal 30b, in order to allow use of multiple pedestals at the same entrance. Each dummy pedestal is provided with reflectors 36 positioned opposite sensors 33.

In this embodiment, the base station is a stand alone unit. The receiver 21 receives a radio message from the user's badge and grants access to the user by matching the ID code of the user's badge to the user's service address in an internal database located on site or on the network database. If the user is valid, a green lamp lights on, and the sensors are bypassed until the user walks by.

If the badge is invalid, or the user walks through without pressing the button on the badge, a red lamp will flash, and an alarm will sound via the loudspeaker 24. The loudspeaker is able to produce different alarm sounds to indicate different situations. The base station transmits a radio message which may be used at an alarm indicator box at the guard's desk.

In the case of visiting employees from other sites, as the visitor enters the building, the base station will access the corporate database. If the user is valid, the receiver will add the user to the visiting employee database, for use by sensors of other entrances as well.

Asset Tracking System

When used for asset tracking, the system makes use of small tags which are attached on the interior or exterior of a material asset. Receiver units, distributed within the facilities, monitor the RF bursts from the ID tags. For example, at entrances and exits of the building or rooms therein, such as shown in Figures 2a and 2b, or in standard office partitions, such as shown in Figures 3a. In the illustration of Figure 3b, a receiver unit 37 is located at a corner junction 38 of the partition's walls 39. The receiver unit 37 is connected via a standard telephone line (not shown) to the switch or PBX unit. With this arrangement, the receiving unit can be used for both the asset tracking and personal locator services.

One embodiment of the asset tag is as shown in Figure 4a, 4b and 4c. The tag 40 is designed to be small in size to be unobtrusive. It is provided with an antenna 41 which is slightly raised above the top surface 42 of the tag for assets that have a metallic surface. The antenna is generally cross-shaped to permit an omnidirectional radiation pattern and provide spatial diversity which enhances the transmission reliability and range of the tag. In the embodiment shown, the bottom side of the tag 43 is provided with a sensor 44 surrounded by an adhesive surface 45. Sensor 44 is designed to detect the removal of the tag from the surface of an asset. For example, the sensor can be integrally formed with a permanent adhesive pad, such that any attempt to remove the tag, will destroy the adhesive pad and disconnect the sensor from the transmitter. It will of course be known to those knowledgeable in this art, that other sensor designs can be derived without departing from the scope of the invention. The surface 42 of the tag can be

provided with a bar type code 46 to assist in the programming and identification of tags prior to being placed on the asset.

If we now refer to Figure 5, we have shown a block diagram describing the layout of the transmitter in the asset tag. The transmitter is basically comprised of a microcontroller 50, a timer and power controller circuit 51 for power control and sensor registration detection. A sensor button 52 is connected to the controller 51 for detecting the removal of the asset tag. An RF oscillator 53 is used in conjunction with a modulator 54 and filter 55 for transmission of signal bursts to a receiver (not shown) via antenna 41. A battery 56 provides the necessary power to the transmitter circuit. The transmitter's microcontroller will monitor the sensor button status, check for low battery, send a burst signal for modulation by the modulator 54. The burst signal, as will be shown below, comprises a tag ID number, battery status, sensor button state and CRC.

Personal Locator System

In Figure 6a and 6b, we have shown a top and bottom view of a user ID badge for use with the access control or personal locator systems. The top view shows that the badge can look like any other ordinary badge. However, as seen in Figure 6b, the badge can be comprised of two (2) programmable input buttons to allow a user to request specific personal communication and network services, as will be described below. The transmitter layout of the badge shown in Figure 7, is similar to that of the asset tag. The badge, however, can also make use of an etched antenna 60 which spirals around the perimeter of the badge to make it both compact and omnidirectional. The transmitter of the badge operates similarly to the one in the asset tag, except that the microcontroller 61 is provided with additional software to allow user access to the services described below. The ID badge shown in Figure 6a and 6b, can also be designed such that the control and registration buttons 62 and 63 are positioned on the same side as the photograph 64 of the badge.

Receiver Unit

A block diagram of a receiver unit for use with the embodiments of Figures 2a, 2b, 3a and 3b is shown in Figure 8. The receiving unit is basically comprised of a transceiver 80 connected to an antenna 81 and a microcontroller 82. The microcontroller 82 communicates with a telephone interface 83 in order to communicate with the telephone network. The telephone interface 83, is used to modulate a received RF signal from an ID badge or asset tag, for transmission to the switch 16 and database 17. The link 84 is accomplished using an ISDN BRI link or equivalent. Power is provided to the power supply 85 from the telephone line. When the receiving unit is used as part of a pedestal entry system, an alarm speaker 86 is provided. A number of input/output devices 87, such as a door latch, lamp or LED, photocell, switches, etc. can be controlled by the micro controller 82. These input/output devices will vary according to the location and use of the receiving unit. A RAM 88 with battery backup 89 is provided for storing ID codes and firmware. The RAM battery backup 89 allows both user database and firmware to be preserved during a power failure.

Radio Link

The radio link between a transmitting device of an ID badge or asset tag and the receiving devices is normally unidirectional. However, the tags and badges can be designed to react to certain prompts from the system, as in the case of an emergency or to request immediate identification of the ID badge user or asset tag. For example, the asset tag can be designed to send out its ID code upon crossing and sensing a low power electric or magnetic field near a doorway, thus enabling the asset tracking system to monitor the movement of the asset. Similarly, the ID badge could send out the user's ID code upon passing near a receiver unit at a telephone, office partition, doorway or building entrance, enabling the personal locator system to locate the user.

The system is designed such that at random intervals, the transmitter sends out an RF burst of information having a basic structure. For example, as shown in Figure 9, the radio burst can start with a 3 byte preamble 90, used for synchronization, followed by 10 bytes of data, including a header 91, an ID code 92, a Sequence Number 93 and CRC 94. The Length field 90 specifies the length of the packet (in bytes) excluding the length field itself. The length field can vary between 3 and 15 bits. The header byte allows for up to 256 message types. In the case of the ID badge, the ID code can be used to store a 7 digit (decimal) employee number (3 bytes) along with one byte company affiliation or location code. The telephone switch would map this number to a home telephone set used by the user. In the case of the asset tag, the ID code would be the asset's unique number.

In order to reduce the possibility of fraud on the system, the transmitter units in the asset tags and ID badges make use of a counter increase the sequence number by one each time the tag or ID badge sends out a new burst.

The following messages have been defined in the preferred embodiment of the invention. The TAG messages apply to the asset-tags only.

Hex	Message Type	Description
00	BADGE_LOCATION	Sent at regular intervals during Autonomous Mode
01	BADGE_S1	Sent when the top button on the badge is pressed
02	BADGE_S2	Sent when the bottom button on the badge is pressed
03	BADGE_DISTRESS	
04	BADGE_DEFECT	Sent at regular intervals when a badge has determined an internal malfunction
05	BADGE_LOW_BAT	Sent at regular intervals when the battery is low
06		
07	TAG_LOW_BAT	Sent at regular intervals when the battery is low
08	TAG_LOCATION	Sent at regular intervals when a tag is affixed to an asset
09	TAG_DISTRESS	Sent at regular intervals when a tag has been removed from an asset
0A	CONFIG_START	Programmer use only: Indicates beginning of configuration mode
0B	CONFIG_END	Programmer use only: Indicates end of configuration mode
0C	spare	
0D	spare	
0E	spare	
0F	DIAGNOSTICS	Programmer use only: Various functions

Before the burst is sent, the burst is scrambled. This is performed over the entire message including CRC, excluding the length field. It is used to reduce the possibility of sequential zeros which can degrade the reception quality at the base station.

The CRC bits are used to validate the burst and protect against collisions with competing transmitters.

During normal operation, the receiver will decode and validate incoming bursts from nearby ID badges and asset tags. This involves detecting the start of the burst, compensating for any DC offset in the incoming analog signals, performing Automatic Gain Control (AGC), by selecting the correct A-to-D input, clock recovery, removal of balance bits and CRC bits validation. The receiver will also keep a list of all ID badges and assets within range, including the filtering of spurious signals from other ID badges and asset tags. This can occur when, for example, ID codes from multiple badges and/or asset tags collide or are corrupted. The receiver will then send the ID's, with encrypted burst counters, and signal strengths to the telephone switch and report registration of ID badges, tag tampering and which ID badges and asset exit a receiver's operating area.

Personal Locator Service

The personal communication locator system can provide a number of PCS telephony features and services when a user makes use of the control buttons 62 and 63 (Figure 6b) on the ID badge. In the preferred embodiment, three operational states can exist:

- Located: The telephone network knows the location of the user. This can be achieved by an autonomous periodic RF signal transmitted from the ID badge's transmitter.

- Registered: The telephone network is granted permission by the user to act upon the knowledge of the user's location. The registration can be established through the use of a button depression on the ID badge. By pressing this button, a modified RF signal is transmitted, thus enabling the user to register in the network.

- Logon: Transfers the user's service configuration to a specific telephone set that the user wish to "log" on. The actual logon procedure can be realized through the use of one or both buttons, depressed simultaneously or in sequence.

The Located state is activated as soon as the user's ID badge sends out a signal and the signal is picked up by a network receiver. This state can be used in emergency situations to get a call to the user.

Inbound PCS can be accomplished through the use of Registered state, in this state all calls to the user are automatically redirected to the phone on which the user has registered. Registration can occur by pushing a button on the locator tag, using display with softkeys technology on telephone sets, using voice response units, or using voice

recognition techniques. For example, as shown in Figure 1, if user A of badge 10a has telephone 11 for a home set, i.e. the user's usual telephone set, then being Located at that set will cause automatic registration. For example, when the user walks back to his office after visiting a colleague on another floor.

When a call arrives for a user, the network verifies whether the user has subscribed to the PCS service. A database query will be performed, and the user's new location information will be returned to the switch for proper routing. Call Screening can be accomplished as the user's screening data will be embedded in the database, as screening is applied, new routing info will be returned to the switch. The switch can then reroute the call to the appropriate destination as specified by the user.

The Logon state allows for outbound PCS functionality where the user's profile is placed against the telephone set the user has logged onto. This allows the user to obtain their services at the logged on set, have their name and number send out with each call, and have calls placed from that set billed to the logged on user. For example, as in the above example, if user A happens to be using the office where telephone set 15 is located, user A can "logon" or "register" his profile to that telephone set by pressing one or two of the buttons on his or her badge. Upon pressing the buttons, the RF burst associated with that command will be received by the telephone set 15, modulated for transmission on the connecting line to the PBX 16. Once received, database 17 will then associate the profile of user A to telephone set 15. Thus, when the user makes use of that telephone set, all features associated in the network with that user will be provided to the user.

By using the location and state information of both the calling user and called users, a number of new services can be developed. For example, when a user does not answer an incoming call, the network will normally route the call to a voice mail after 3 to 4 rings at the user's set. With the locator system of the present invention, if the network does not know the location of the user then there is no need to provide ringing to the calling user before the call forward no answer (CFNA) service is invoked. Instead the call will be forwarded to a voice mail immediately because the network knows that the called user can not be reached. The voice mail storage facility can either be an integral part of switch 16, or an external service (not shown). Some other services that can be implemented are as follows:

- Call When Both Home (CWBH):

A call completion feature which allows the calling user to specify that the network set up a call between the calling user and the called user when both users are located at their home location.

As an example, if user A needs to communicate with user B wearing badge 10b, then, other than leaving a voice mail when user B is not available, user A activates the CWBH feature from his home telephone, i.e. telephone 11. When user B returns to his office, he will become automatically registered on the network, since telephone set 15 is his "home location", and a call will be initiated between user A and B.

- Call When Both Registered (CWBR):

This service is similar to call when both home, the only difference is the call is set up when both users are registered in the network as opposed to being at their home location.

This, for example, could happen when user A is making use of a temporary office and user B happens to be in the building's main conference room. If user A is initiating the call, the service feature could be enabled by making use of soft keys on the telephone set, pressing a predetermined sequence of buttons on the badge, or other activation feature.

- Caller Negotiation:

This feature puts the choice of call termination treatment back into the hands of the calling user. In today's network if the call is call forward no answer (CFNA) to a voice mail machine, the calling user can only leave a message or be rerouted to a live attendant. Caller Negotiation allows the call to be suspended and presents the calling user a choice of what service they would like. If a call forward no answer is about to occur, the user may be presented with the following choices: Voice Mail, Secretary, CWBH, CWBR, and Page.

- Call Disruption:

This feature is based on the called user location's proximity information. For example, a single receiver located at a telephone set of a conference room, may receive multiple location signals for different locators in the immediate area. This can be interpreted as a meeting in progress amongst the users carrying the ID badges. The caller calling a specific user in this situation can therefore be informed that "a meeting is in progress", and thus be able to negotiate the call destination. For example, in Figure 1, if user A is in the office of user B, then the receiver at telephone set 15 will receive multiple location signals. The system can be designed such that the system's response provide the calling party with

either the number of people in user B's office, who is present, or whether a visitor, wearing a visitor badge is present. The visitor badge could, of course, be programmed to provide the name of the visiting individual and his company name. This interrupt feature could, for example, be provided only if the calling party is at a higher reporting level than the called party, such as the employee's supervisor.

- Autonomous ring tone volume control:

With this feature, the receiver has the ability to detect the signal strength of the RF signal transmitted by the ID badge. A strong signal indicates that the user is in the immediate proximity of the receiver, a weak signal implies that the user is at a distance from the receiver. If this receiver is integrated into a telephone set, it can relay the RF signal strength to the set, thus allowing the telephone to adjust its ringing volume as calls arrive on the set.

- Handsfree call by name:

With this feature, one of the buttons on the badge can be programmed to request call origination. For example, if a receiver embedded into a telephone set that has handsfree operations receives an RF signal associated with this button depression and forwards this information to the network, the network can instruct the telephone set to start handsfree operation. At the same time, the network can validate the user associated with the transmitter to grant such service request. Once validated, the network will connect this telephone to a voice recognition server, which can be located either with the database 17 or the PBX 16. The user will announce the name of the intended called party. This voice message will be transmitted through the handsfree unit of the telephone to the voice recognition server. The server will then match the name of the called party provided by the user to one in the name file of the system. Once a match is found, the server will relay the call routing digits to the telephone network, thereby completing the call.

- Feature button programming:

This feature allows users to program the buttons on their badges to operate a specific telephone network feature required. Thus, when the user presses the selected button, the network feature will be activated. The programming can be done from any telephone set using interactive displays/voice response systems using soft keys. Once the feature is selected, the user is prompted to select a specific button on the ID badge. As the button is depressed, the associated RF signal will be received by the telephone network and it will be designated as required RF signal for requesting the selected feature.

The programming of the buttons could also be done when the user request a badge from, say, the company's security group. Thus, the user would simply indicate the type of features to be activated, which button sequence to be used and provide his or her associated profile upon requesting a new badge. Accordingly, in use, the network would associate the user's use of the buttons with a service listed in the user's profile. Thus, the depression of a button on the badge of user A and B both provide the same RF burst. However, the combination of that RF burst with user A's ID code results in a different feature than the RF burst with user B's ID code.

Claims

1. A system for providing a personal communication and locator service within a telephone network as a subscriber moves along the network from a first receiver device associated with his home telephone set to a second receiver device associated with a visited telephone set, the system comprising:

   database storage means (17), for storing a list of subscriber profiles indicative of the identity of the subscriber and network services available to that subscriber at his home telephone set;
   transmitter means (50, 51) adapted to be carried by a subscriber, and able to transmit a predetermined radio frequency signal;
   input means (62, 63) at said transmitter means to allow said subscriber to modify said predetermined radio frequency signal to initiate a predetermined network service;
   multiple receiver means (11, 12, 14) adapted to be connected and distributed across said telephone network and able to receive said predetermined and modified radio frequency signals indicative of a specific network service requested by said subscriber;
   signal modulation means (83) at said multiple receiver means for modulating said predetermined and modified radio frequency signals into a modulated signal;
   means (84) for sending, along a telephone line connected to said multiple receiver means, said modulated

radio frequency signal to a switch (16) connected to said network; and
means (17) for registering said subscriber service profile against said visited telephone set associated with said second receiver device when said subscriber activates said input means, such that the subscriber's network services and telephony features available from his home telephone set can be enabled at said visited telephone set.

2. A system as claimed in claim 1, characterised in that said transmitter means is embedded in an ID badge (10a, 10b) carried by said subscriber and said input means comprises programmable button means to allow said user to modify said predetermined radio frequency signal.

3. A system as claimed in claim 1 or 2, characterised in that the transmitter means is further comprised of:

microcontroller means (61) connected to said programmable button means;
radio frequency oscillator and modulator means connected to said microcontroller means;
antenna means (60) for transmitting a radio frequency signal generated by said radio frequency oscillator and modulator means; and
means for providing power to said microcontroller, radio frequency oscillator and modulator means.

4. A system as claimed in claim 3, characterised in that said antenna means provides an omnidirectional radiation pattern and spatial diversity.

5. A system as claimed in claim 4, characterised in that said antenna means is generally cross-shaped.

6. A system as claimed in claim 4, characterised in that said antenna means comprises a spirally etched metallic film extending around the perimeter of the badge.

7. A system as claimed in any one of claims 1 to 6, characterised in that said receiver means comprises;

radio transceiver means (80);
antenna means (81) connected to said radio transceiver means for capturing said radio frequency signal from said transmitter means;
microcontroller means (82) connected to said radio transceiver means and telephone interface means, said telephone interface means allowing said radio transceiver means to access said telephone network;
power supply means connected to said telephone interface means for obtaining power from a telephone line connected to said receiver means; and
input/output means (87) for connecting to accessories required for providing said locator and access control service.

8. A system as claimed in claim 7, characterised in that said receiver means forms an integral part of a telephone set connected to said network.

9. A system as claimed in claim 7, characterised in that said receiver means is part of a stand-alone unit connected to said telephone network via a telephone line.

10. A system as claimed in claim 9, characterised in that said receiver means is positioned adjacent an access control point to monitor, allow or deny access to predetermined ID badge users.

11. A system as claimed in claim 10, characterised in that said receiver means is positioned at a doorway for controlling access through said doorway.

12. A system as claimed in claim 11, characterised in that said input/output means is connected to a door latch of said doorway.

13. A system as claimed in claim 10, characterised in that said receiver means is positioned at a building entrance pedestal for controlling access through said building.

14. A system as claimed in claim 13, characterised in that said input/output means is connected to photoelectric sensors and an alarm system of said pedestal.

15. A system as claimed in claim 10, characterised in that said receiver means is positioned at office partitions.

16. A system as claimed in any one of claims 1 to 15, characterised in that said RF signal comprises an RF burst of data sent at random intervals.

17. A system as claimed in claim 16, characterised in that said RF burst comprises a series of preamble bits followed by a header, badge code ID code, sequence number and CRC bits.

18. A method of operating a system for providing a personal communication and locator service, wherein transmitting devices (50, 51), which are carried by a subscriber of the service, transmit at periodic intervals RF signals indicative of the identity of the subscriber and are provided with means (62, 63) for modifying said RF signal, multiple receiver devices (11, 12, 14), which are connected and distributed across a telephone network are adapted to receive the RF signals as the subscriber moves along the network from a first receiver device associated with his home telephone set to a second receiver device associated with a visited telephone set, the method comprising the steps of:

storing at database means (17) a list of subscriber profiles indicative of the identity of the subscriber and network services available to that subscriber at his home telephone;
transmitting said RF signal, as a said subscriber moves towards said second receiver device associated with said visited telephone set;
modulating said transmitted RF signal to obtain a modulated RF signal;
sending, along a telephone line connected to said second receiver device, said modulated RF signal to switching means (16) connected to said network;
accessing said database means when said switching means receives said modulated signal;
searching said database means to find a profile associated with said modulated signal to identify the subscriber and service profile; and
registering said subscriber service profile against said visited telephone set associated with said second receiver device when said subscriber activates said modifying means, such that the subscriber's network services and telephony features available from his home telephone set can be enabled at said visited telephone set.

19. A method as claimed in claim 18, characterised in that a call directed to the home telephone set of said subscriber is forwarded automatically to said visited telephone set when said subscriber has registered his service profile thereto.

20. A method as claimed in claim 19, characterised in that a call between a first subscriber and a second subscriber can be completed when both subscribers have registered to nearby receiving devices.

21. A method as claimed in claim 19, characterised in that an incoming call directed to a subscriber located at a receiving device which is receiving multiple RF signals is forwarded to a voice mail device.

Patentansprüche

1. System zur Bereitstellung eines Personalkommunikations- und Standortbestimmungs-Dienstes in einem Telefonnetz, wenn sich ein Teilnehmer entlang des Netzes von einer ersten Empfängereinrichtung, die seinem Heimat-Telefonapparat zugeordnet ist, zu einer zweiten Empfängereinrichtung bewegt, die einem besuchten Telefonapparat zugeordnet ist, wobei das System folgendes umfaßt:

Datenbank-Speichereinrichtungen (17) zum Speichern einer Liste von Teilnehmerprofilen, die die Identität des Teilnehmers und die Netzwerkdienste anzeigen, die diesem Teilnehmer an seinem Heimat-Telefonapparat zur Verfügung stehen,

Sendereinrichtungen (50,51), die von einem Teilnehmer getragen werden können und in der Lage sind, ein vorgegebenes Hochfrequenzsignal auszusenden,

Eingabeeinrichtungen (62,63) an den Sendereinrichtungen, die es dem Teilnehmer ermöglichen, das vorgegebene Hochfrequenzsignal zu modifizieren, um einen vorgegebenen Netz-Dienst einzuleiten,

mehrfache Empfängereinrichtungen (11,12,14), die zur Verbindung und zur Verteilung läng des Telefonnetzes

ausgebildet sind und die vorgegebenen und modifizierten Hochfrequenzsignale empfangen können, die einen speziellen Netz-Dienst anzeigen, der von dem Teilnehmer angefordert wird,

Signalmodulationseinrichtungen (83) an den mehrfachen Empfängereinrichtungen zur Modulation der vorgegebenen und modifizierten Hochfrequenzsignale in ein moduliertes Signal,

Einrichtungen (84) zum Aussenden des modulierten Hochfrequenzsignals über eine mit den mehrfachen Empfängereinrichtungen verbundene Telefonleitung an eine Vermittlung (16), die mit dem Netz verbunden ist, und

Einrichtungen (17) zur Registrierung des Teilnehmer-Dienstprofils an dem besuchten Telefonapparat, der der zweiten Empfängereinrichtung zugeordnet ist, wenn der Teilnehmer die Eingabeeinrichtung aktiviert, derart, daß die Netzwerkdienste und Telefonmerkmale des Teilnehmers, die diesem an seinem Heimat-Telefonapparat zur Verfügung stehen, an dem besuchten Telefonapparat freigegeben werden können.

2. System nach Anspruch 1,
dadurch gekennzeichnet, daß die Sendereinrichtung in eine Identifikations-Ausweiskarte (10a,10b) eingebettet ist, die von dem Teilnehmer getragen wird, und daß die Eingabeeinrichtung programmierbare Druckknopfeinrichtungen umfaßt, um es dem Benutzer zu ermöglichen, das vorgegebene Hochfrequenzsignal zu modifizieren.

3. System nach Anspruch 1 oder 2,
dadurch gekennzeichnet, daß die Sendereinrichtung weiterhin folgende Teile umfaßt:

Mikrocontrollereinrichtungen (61), die mit den programmierbaren Druckknopfeinrichtungen verbunden sind,

Hochfrequenzoszillator- und Modulatoreinrichtungen, die mit der Mikrocontrollereinrichtung verbunden sind,

Antenneneinrichtungen (60) zur Aussendung eines Hochfrequenzsignals, das von den Hochfrequenzoszillator- und Modulatoreinrichtungen erzeugt wird, und

Einrichtungen zur Lieferung von Leistung an den Mikro-controller und die Hochfrequenzoszillator- und Modulatoreinrichtungen.

4. System nach Anspruch 3,
dadurch gekennzeichnet, daß die Antenneneinrichtung ein Rundstrahldiagramm und Raumdiversity ergibt.

5. System nach Anspruch 4,
dadurch gekennzeichnet, daß die Antenneneinrichtung allgemein kreuzförmig ist.

6. System nach Anspruch 4,
dadurch gekennzeichnet, daß die Antenneneinrichtung einen spiralförmig geätzten Metallfilm umfaßt, der sich um den Umfang der Ausweiskarte herum erstreckt.

7. System nach einem der Anspruch 1 - 6,
dadurch gekennzeichnet, daß die Empfängereinrichtung folgende Teile umfaßt:

Hochfrequenz-Sendeempfängereinrichtungen (80),

eine Antenneneinrichtung (81), die mit der Hochfrequenz-Sendeempfängereinrichtung verbunden ist, um das Hochfrequenzsignal von der Sendeeinrichtung aufzufangen,

eine mit der Hochfrequenz-Sendeempfängereinrichtung und einer Telefon-Schnittstelleneinrichtung verbundene Mikrocontrollereinrichtung (82), wobei die Telefon-Schnittstelleneinrichtung einen Zugriff der Hochfrequenz-Sendeempfängereinrichtung auf das Telefonnetz ermöglicht,

eine Leistungsversorgungseinrichtung, die mit der Telefon-Schnittstelleneinrichtung verbunden ist, um Leistung von einer Telefonleitung zu gewinnen, die mit der Empfängereinrichtung verbunden ist, und

eine Eingabe-/Ausgabeeinrichtung (87) zum Verbinden mit Zubehöreinrichtungen, die zur Schaffung des

Standortbestimmungs- und Zugangskontrolldienstes erforderlich sind.

8. System nach Anspruch 7,
dadurch gekennzeichnet, daß die Empfängereinrichtung einen einstückigen Teil eines Telefonapparates bildet, der mit dem Netz verbunden ist.

9. System nach Anspruch 7,
dadurch gekennzeichnet, daß die Empfängereinrichtung einen Teil einer unabhängigen Einheit bildet, die mit dem Telefonnetz über eine Telefonleitung verbunden ist.

10. System nach Anspruch 9,
dadurch gekennzeichnet, daß die Empfängereinrichtung in der Nähe eines Zugangskontrollpunktes angeordnet ist, um den Zugang für vorgegebene Identifikations-Ausweiskarten-Benutzer zu überwachen, zu ermöglichen oder zu verweigern.

11. System nach Anspruch 10,
dadurch gekennzeichnet, daß die Empfängereinrichtung in einem Durchgang zur Steuerung des Zuganges durch den Durchgang angeordnet ist.

12. System nach Anspruch 11,
dadurch gekennzeichnet, daß die Eingabe-/Ausgabeeinrichtung mit einem Türriegel des Durchganges verbunden ist.

13. System nach Anspruch 10,
dadurch gekennzeichnet, daß die Empfängereinrichtung in einem Sockel an einem Gebäudeeingang zur Steuerung des Zuganges durch das Gebäude angeordnet ist.

14. System nach Anspruch 13,
dadurch gekennzeichnet, daß die Eingabe-/Ausgabeeinrichtung mit photoelektrischen Sensoren und einem Alarmsystem des Sockels verbunden ist.

15. System nach Anspruch 10,
dadurch gekennzeichnet, daß die Empfängereinrichtung an Büro-Trennwänden angeordnet ist.

16. System nach einem der Ansprüche 1 - 15,
dadurch gekennzeichnet, daß das Hochfrequenzsignal einen Hochfrequenz-Datenblock umfaßt, der zu zufälligen Intervallen ausgesandt wird.

17. System nach Anspruch 16,
dadurch gekennzeichnet, daß der Hochfrequenz-Datenblock eine Serie von Vorspannbits, gefolgt von einem Anfangsblock, einem Ausweiscode-Identifikationscode, einer Sequenznummer und CRC-Bits umfaßt.

18. Verfahren zum Betrieb eines Systems zur Bereitstellung eines Personalkommunikations- und Standortbestimmungsdienstes, bei dem Sendereinrichtungen (50,51), die von einem Teilnehmer des Dienstes getragen werden, zu periodischen Zeitintervallen die Identität des Teilnehmers anzeigende Hochfrequenzsignale aussenden und mit Einrichtungen (62,63) zur Modifikation des Hoch frequenzsignals versehen sind, mehrfache Empfängereinrichtungen (11,12,14), die mit einem Telefonnetz verbunden und längs dieses Netzes verteilt sind, zum Empfang der Hochfrequenzsignale ausgebildet sind, während sich der Teilnehmer entlang des Netzes von einer ersten Empfängereinrichtung, die seinem Heimat-Telefonapparat zugeordnet ist, zu einer zweiten Empfängereinrichtung bewegt, die einem besuchten Telefonapparat zugeordnet ist, wobei das Verfahren die folgenden Schritte umfaßt:

Speichern an einer Datenbankeinrichtung (17) einer Liste von Teilnehmerprofilen, die die Identität des Teilnehmers und die diesem Teilnehmer an seinem Heimat-Telefon zur Verfügung stehenden Netzdienste anzeigen,

Aussenden des Hochfrequenzsignals, während sich der Teilnehmer zu der zweiten Empfängereinrichtung bewegt, die dem besuchten Telefonapparat zugeordnet ist,

Modulieren des ausgesandten Hochfrequenzsignals zur Gewinnung eines modulierten Hochfrequenzsignals,

Aussenden des modulierten Hochfrequenzsignals an mit dem Netz verbundene Vermittlungseinrichtungen (16) über eine mit der zweiten Empfängereinrichtung verbundene Telefonleitung,

Zugreifen auf die Datenbankeinrichtung, wenn die Vermittlungseinrichtung das modulierte Signal empfängt,

Durchsuchen der Datenbankeinrichtung zum Auffinden eines Profils, das dem modulierten Signal zugeordnet ist, um den Teilnehmer und das Dienstprofil zu identifizieren, und

Registrieren des Teilnehmer-Dienstprofils bei dem besuchten Telefonapparat, der der zweiten Empfängereinrichtung zugeordnet ist, wenn der Teilnehmer die Modifikationseinrichtung aktiviert, derart, daß die Netzwerkdienste und Telefonmerkmale des Teilnehmers, die diesem an seinem Heimat-Telefonapparat zur Verfügung stehen, an dem besuchten Telefonapparat freigegeben werden können.

19. Verfahren nach Anspruch 18,
dadurch gekennzeichnet, daß ein an den Heimat-Telefonapparat des Teilnehmers gerichteter Anruf automatisch zu dem besuchten Telefonapparat weitergeleitet wird, wenn der Teilnehmer sein Dienstprofil an diesem registriert hat.

20. Verfahren nach Anspruch 19,
dadurch gekennzeichnet, daß ein Anruf zwischen einem ersten Teilnehmer und einem zweiten Teilnehmer aufgebaut werden kann, wenn beide Teilnehmer sich bei nahegelegenen Empfangseinrichtungen registriert haben.

21. Verfahren nach Anspruch 19,
dadurch gekennzeichnet, daß ein ankommender Anruf, der an einen Teilnehmer gerichtet ist, der sich an einer Empfangseinrichtung befindet, die mehrere Hochfrequenzsignale empfängt, zu einer Sprachmitteilungseinrichtung weitergeleitet wird.

Revendications

1. Système destiné à donner des services de communications personnelles et de localisation dans un réseau téléphonique lorsqu'un abonné se déplace le long du réseau, d'un premier dispositif récepteur associé à son poste téléphonique de domicile à un second dispositif récepteur associé à un poste téléphonique visité, le système comprenant :

un dispositif (17) de mémorisation de base de données destiné à mémoriser une liste de profils d'abonné représentative de l'identité de l'abonné et des services du réseau disponibles pour cet abonné à son poste téléphonique de domicile,
un dispositif émetteur (50, 51) destiné à être porté par l'abonné et qui peut transmettre un signal prédéterminé à hautes fréquences,
un dispositif de saisie (62, 63) du dispositif émetteur destiné à permettre à l'abonné de modifier le signal prédéterminé à hautes fréquences pour déclencher un service prédéterminé du réseau,
plusieurs dispositifs récepteurs (11, 12, 14) destinés à être connectés au réseau téléphonique, distribués dans celui-ci et capables de recevoir les signaux prédéterminés et modifiés à hautes fréquences représentatifs d'un service particulier du réseau demandé par l'abonné,
un dispositif (83) de modulation de signaux placé aux divers dispositifs récepteurs pour la modulation des signaux prédéterminés et modifiés à hautes fréquences sur un signal modulé,
un dispositif (84) d'émission, le long d'une ligne téléphonique connectée aux divers dispositifs récepteurs, du signal modulé à hautes fréquences à un commutateur (16) connecté au réseau, et
un dispositif (17) d'enregistrement du profil de service d'abonné pour le poste téléphonique visité associé au second dispositif récepteur lorsque l'abonné active le dispositif de saisie, si bien que les caractéristiques de téléphonie et de service du réseau de l'abonné disponibles à son poste téléphonique de domicile peuvent être autorisées au poste téléphonique visité.

2. Système selon la revendication 1, caractérisé en ce que le dispositif émetteur est enrobé dans un badge d'identification (10a, 10b) porté par l'abonné et le dispositif de saisie comprend un dispositif à bouton programmable

destiné à permettre à l'utilisateur de modifier le signal prédéterminé à hautes fréquences.

3. Système selon la revendication 1 ou 2, caractérisé en ce que le dispositif émetteur comprend en outre :

un dispositif (61) à organe de commande à microcontrôleur connecté au dispositif à bouton programmable,
un dispositif oscillateur à hautes fréquences et modulateur connecté au dispositif à organe de commande,
un dispositif à antenne (60) destiné à transmettre un signal à hautes fréquences créé par le dispositif oscillateur à hautes fréquences et modulateur, et
un dispositif destiné à transmettre de l'énergie à l'organe de commande et au dispositif oscillateur à hautes fréquences et modulateur.

4. Système selon la revendication 3, caractérisé en ce que le dispositif à antenne donne un diagramme omnidirectionnel de rayonnement et une diversité spatiale.

5. Système selon la revendication 4, caractérisé en ce que le dispositif à antenne a une forme générale en croix.

6. Système selon la revendication 4, caractérisé en ce que le dispositif à antenne comporte un film métallique gravé en spirale placé autour de la périphérie du badge.

7. Système selon l'une quelconque des revendications 1 à 6, caractérisé en ce que le dispositif récepteur comporte :

un dispositif émetteur-récepteur radioélectrique (80),
un dispositif à antenne (81) connecté au dispositif émetteur-récepteur radioélectrique pour la saisie du signal à hautes fréquences provenant du dispositif émetteur,
un dispositif (82) à organe de commande à microcontrôleur connecté au dispositif émetteur-récepteur radioélectrique et au dispositif d'interface téléphonique, le dispositif d'interface téléphonique permettant au dispositif émetteur-récepteur à hautes fréquences d'avoir accès au réseau téléphonique,
un dispositif d'alimentation connecté au dispositif d'interface téléphonique pour l'obtention d'énergie à partir d'une ligne téléphonique connectée au dispositif récepteur, et
un dispositif d'entrée-sortie (87) destiné à assurer la connexion à des accessoires nécessaires pour le service de localisation et de contrôle d'accès.

8. Système selon la revendication 7, caractérisé en ce que le dispositif récepteur est partie intégrante d'un poste téléphonique connecté au réseau.

9. Système selon la revendication 7, caractérisé en ce que le dispositif récepteur fait partie d'une unité autonome connectée au réseau téléphonique par une ligne téléphonique.

10. Système selon la revendication 9, caractérisé en ce que le dispositif récepteur est positionné près d'un point de contrôle d'accès pour le contrôle de l'accès d'utilisateurs prédéterminés à base d'identification, en permettant ou en interdisant cet accès.

11. Système selon la revendication 10, caractérisé en ce que le dispositif récepteur est placé à une entrée de porte pour le contrôle d'accès par la porte.

12. Système selon la revendication 11, caractérisé en ce que le dispositif d'entrée-sortie est connecté à une serrure de porte de l'entrée.

13. Système selon la revendication 10, caractérisé en ce que le dispositif récepteur est placé dans un socle à l'entrée d'un bâtiment pour le contrôle de l'accès dans le bâtiment.

14. Système selon la revendication 13, caractérisé en ce que le dispositif d'entrée-sortie est connecté à des capteurs photoélectriques et un système d'alarme du socle.

15. Système selon la revendication 10, caractérisé en ce que le dispositif récepteur est placé dans des cloisons de bureau.

16. Système selon l'une quelconque des revendications 1 à 15, caractérisé en ce que le signal à hautes fréquences

comprend une salve de données à hautes fréquences émise à des intervalles aléatoires.

17. Système selon la revendication 16, caractérisé en ce que la salve à hautes fréquences comprend une série de bits de préambule suivie d'un en-tête, d'un code d'identification de badge, d'un numéro de séquence et de bits de code CRC.

18. Procédé d'exploitation d'un système destiné à assurer un service de communications personnelles et de localisation, dans lequel les dispositifs de transmission (50, 51) qui sont transportés par un abonné du service transmettent à intervalles périodiques des signaux à hautes fréquences représentatifs de l'identité de l'abonné et comportent un dispositif (62, 63) destiné à modifier le signal à hautes fréquences, et plusieurs dispositifs récepteurs (11, 12, 14) qui sont connectés à un réseau téléphonique et distribués sur celui-ci, sont destinés à recevoir les signaux à hautes fréquences lorsque l'abonné se déplace le long du réseau d'un premier dispositif récepteur associé à son poste téléphonique de domicile à un second dispositif récepteur associé à un poste téléphonique visité, le procédé comprenant les étapes suivantes :

la mémorisation, dans un dispositif à base de données (17) d'une liste de profils d'abonné représentative de l'identité de l'abonné et des services du réseau disponibles pour cet abonné à son téléphone de domicile,
la transmission du signal à hautes fréquences lorsque l'abonné se déplace vers le second dispositif récepteur associé au poste téléphonique visité,
la modulation du signal transmis à hautes fréquences pour l'obtention d'un signal modulé à hautes fréquences,
l'émission, par une ligne téléphonique connectée au second dispositif récepteur, du signal modulé à hautes fréquences à un dispositif de commutation (16) connecté au réseau,
l'accès au dispositif à base de données lorsque le dispositif de commutation reçoit le signal modulé,
la recherche dans le dispositif à base de données pour la détermination d'un profil associé au signal modulé en vue de l'identification de l'abonné et du profil de service, et
l'enregistrement du profil de service de l'abonné pour le poste téléphonique visité, associé au second dispositif récepteur, lorsque l'abonné active le dispositif de modification, si bien que les caractéristiques de téléphonie et de service de réseau de l'abonné disponibles à son poste téléphonique de domicile peuvent être autorisées par le poste téléphonique visité.

19. Procédé selon la revendication 18, caractérisé en ce qu'un appel dirigé vers le poste téléphonique du domicile de l'abonné est transmis automatiquement au poste téléphonique visité lorsque l'abonné a enregistré son profil de service à ce poste.

20. Procédé selon la revendication 19, caractérisé en ce qu'un appel réalisé entre un premier abonné et un second abonné peut être exécuté lorsque les deux abonnés se sont enregistrés à des dispositifs récepteurs voisins.

21. Procédé selon la revendication 19, caractérisé en ce qu'un appel entrant dirigé vers un abonné placé à un dispositif récepteur qui reçoit plusieurs signaux à hautes fréquences est transmis à un dispositif de messagerie vocale.

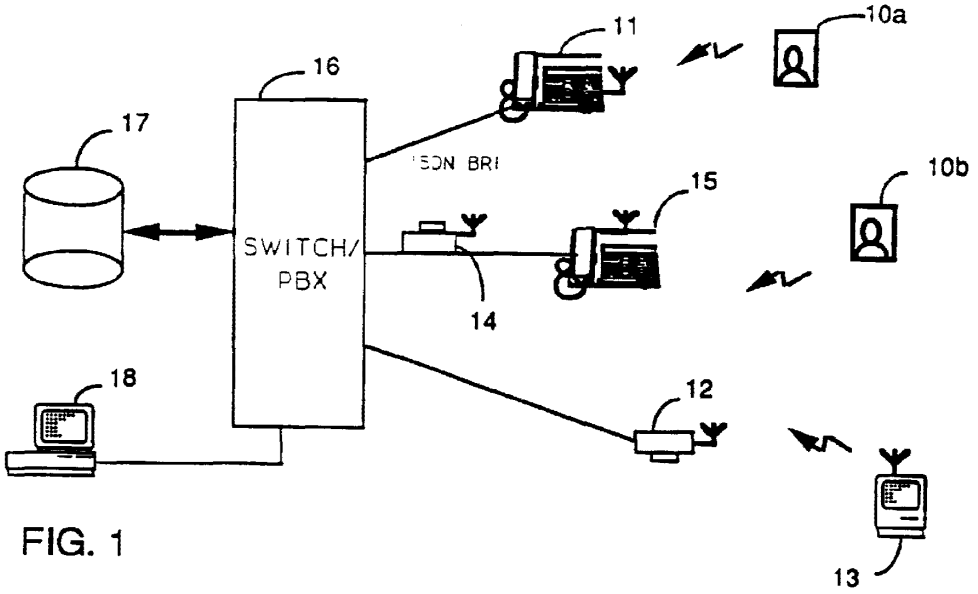


FIG. 1

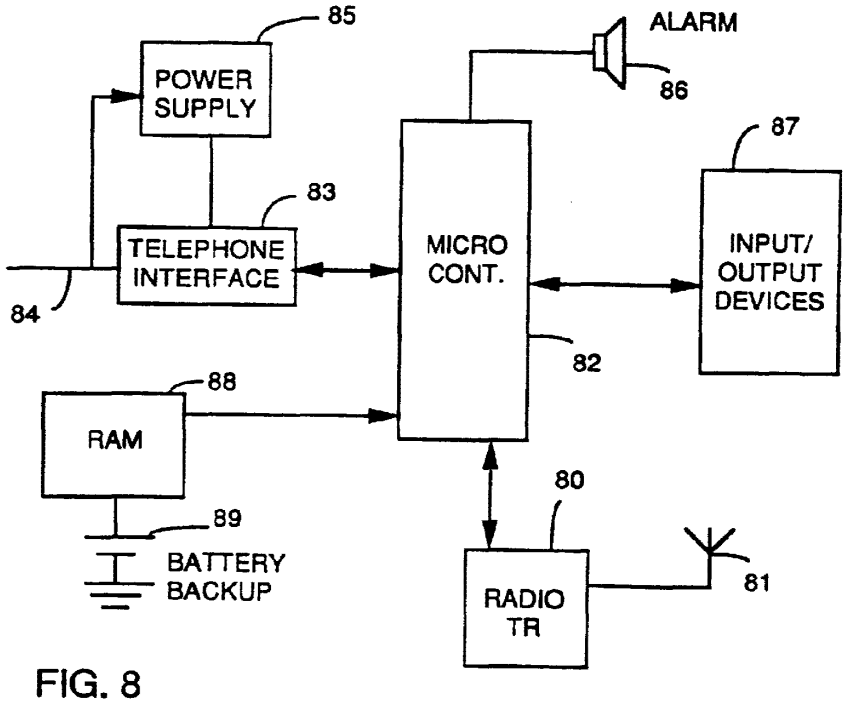


FIG. 8

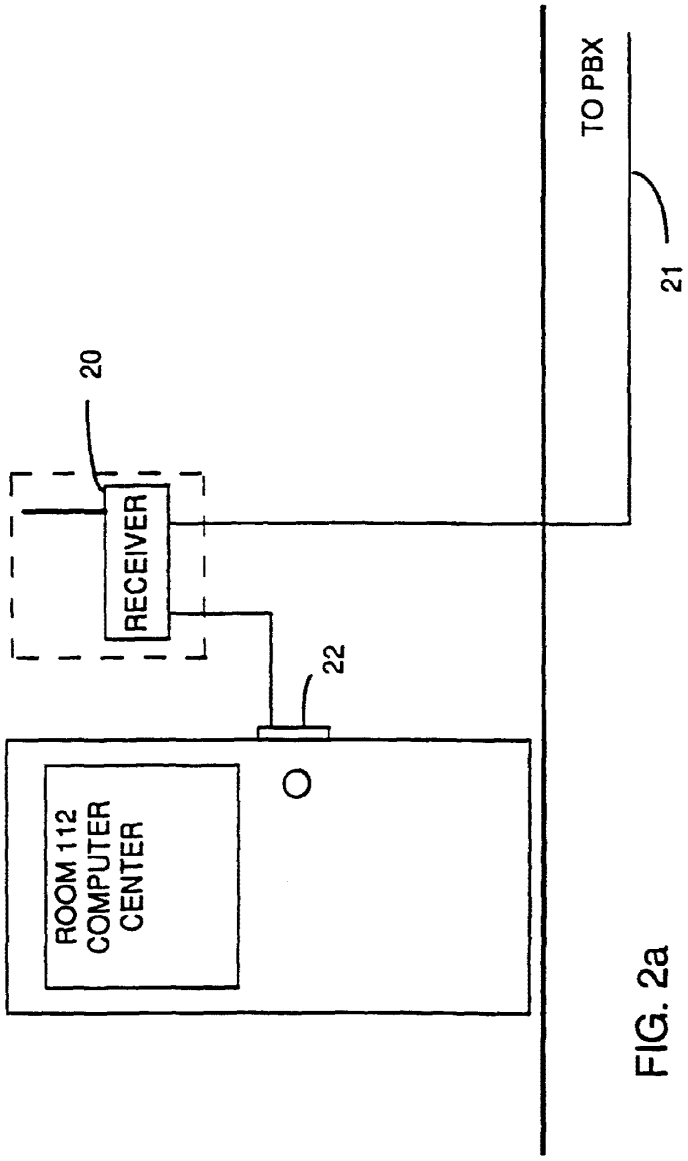


FIG. 2a

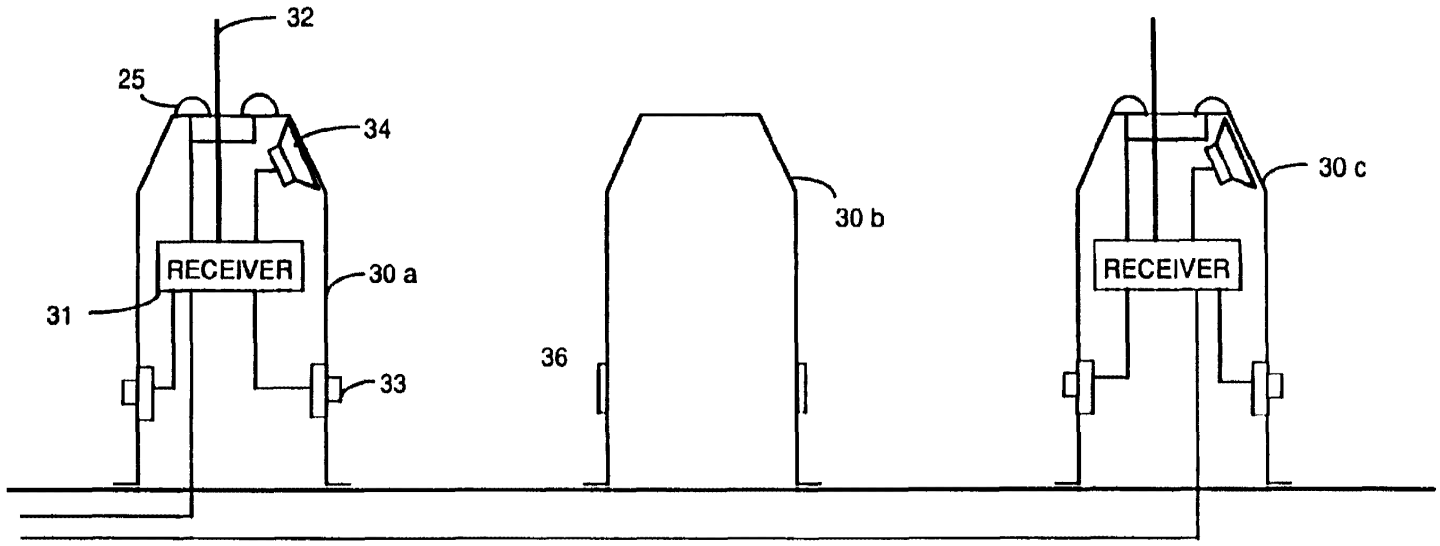

32
25
34
RECEIVER
30 a
31
33
36
30 b
RECEIVER
30 c

FIG. 2b

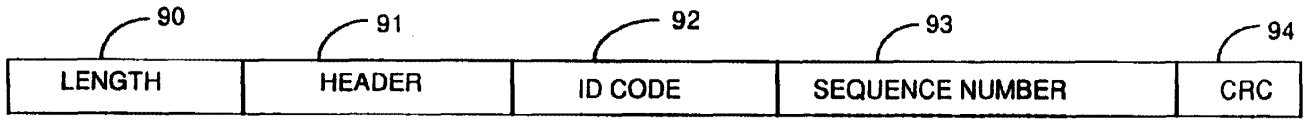

90
91
92
93
94
LENGTH
HEADER
ID CODE
SEQUENCE NUMBER
CRC

FIG. 9

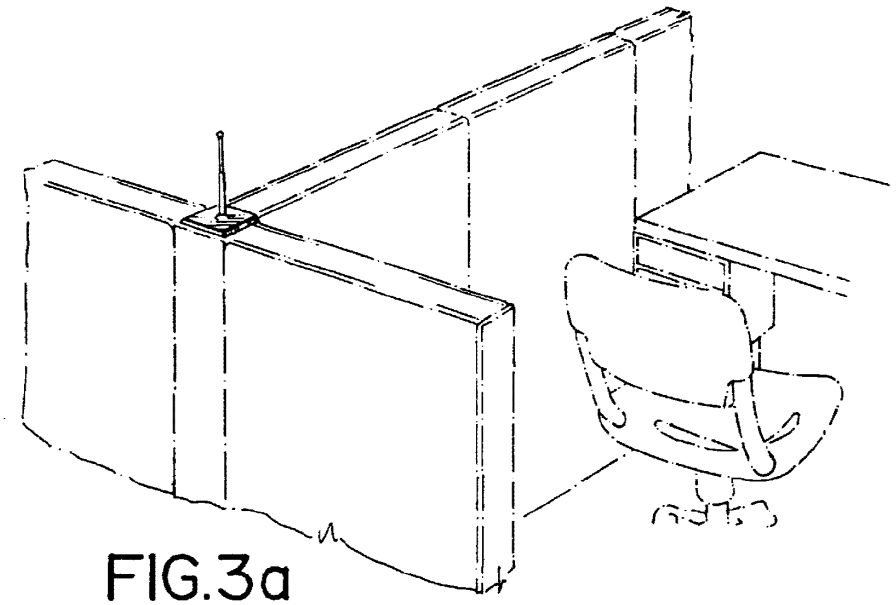


FIG.3a

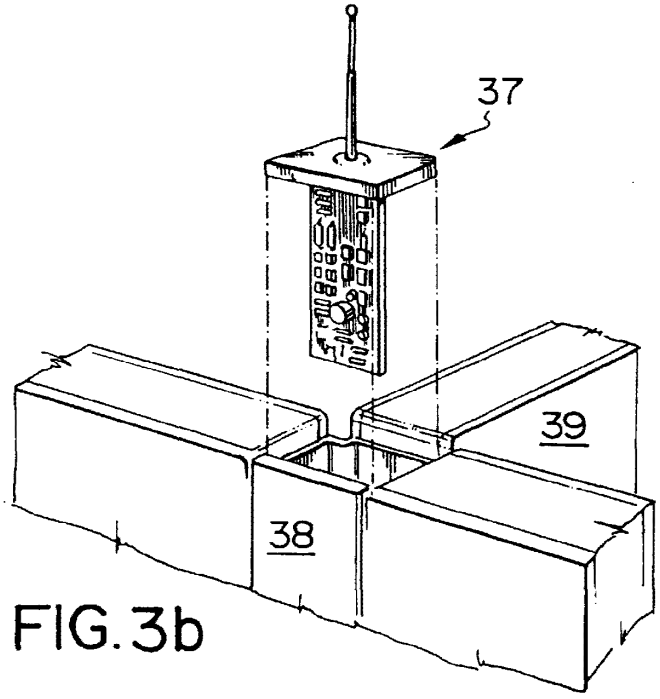


FIG.3b

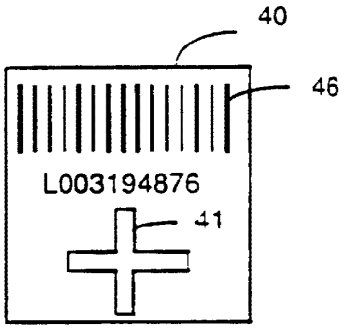


FIG. 4a

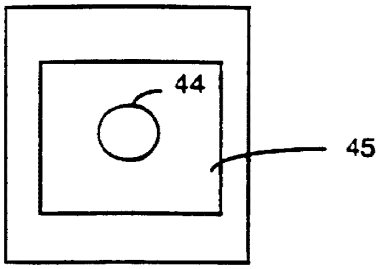


FIG. 4b

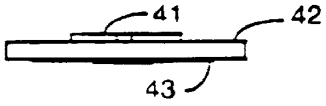


FIG. 4c

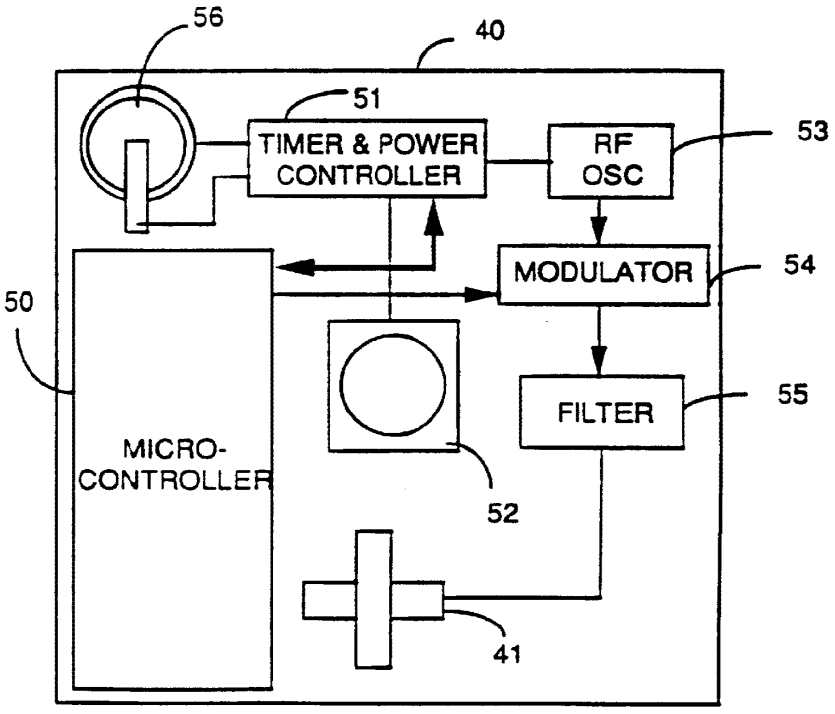


FIG. 5

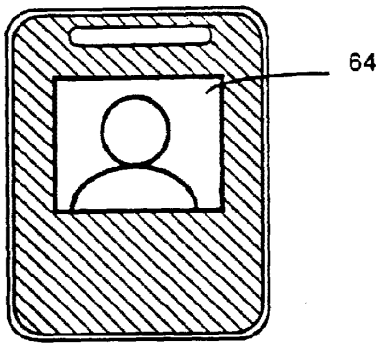


FIG. 6 a

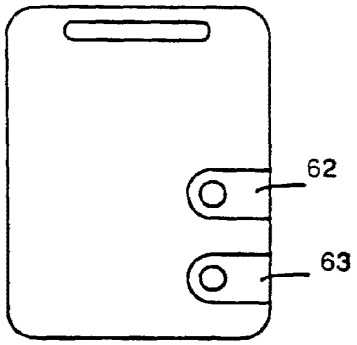


FIG. 6 b

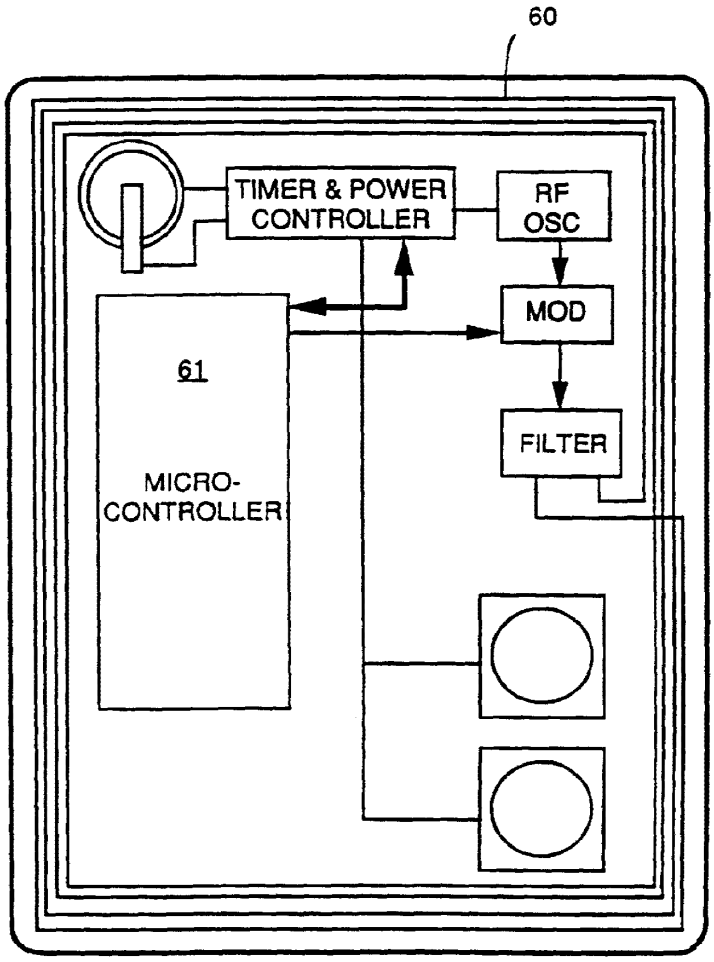


FIG. 7

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 704 788 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
03.04.1996 Bulletin 1996/14

(51) Int Cl.[6]: **G06F 1/16**

(21) Application number: **95306475.5**

(22) Date of filing: **14.09.1995**

(84) Designated Contracting States:
DE FR GB

(30) Priority: **22.09.1994 US 310297**

(71) Applicant: **AT&T Corp.**
New York, NY 10013-2412 (US)

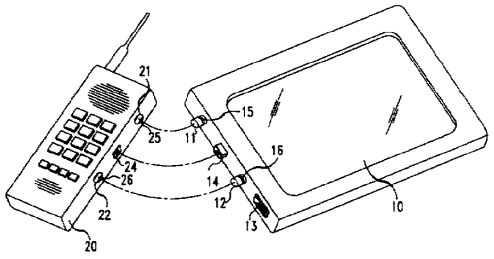
(72) Inventors:
- **Grewe, Anthony James**
  Holmdel, New Jersey 07733 (US)
- **Ledbetter, Carl S., Jr.**
  Summit, New Jersey 07901 (US)
- **Kerwin, Michael**
  West Orange, New Jersey 07052 (US)
- **Partridge III, Waring B.**
  Far Hills, New Jersey 07931 (US)

(74) Representative:
Johnston, Kenneth Graham et al
AT&T (UK) Ltd.
5 Mornington Road
Woodford Green Essex, IG8 OTU (GB)

(54) Communication apparatus

(57) A versatile device is obtained with a PDA that includes means for cordless connecting to specialized accessories. The PDA can operate in its conventional mode, or it can be enhanced by interconnecting it with some or all of its accessories. In one embodiment, the PDA is combined with a cellular telephone that is adapted to physically mate with the PDA and form thereby a single integrated apparatus. In another embodiment, the PDA is combined with a landline telephone that is adapted to mate with the PDA and form thereby another single integrated apparatus. In a still another embodiment, the PDA (whether or not mated with a telecommunication device) is combined with a keyboard to form a laptop computer.

FIG. 1



EP 0 704 788 A2

Printed by Jouve (FR), 18, rue Saint-Denis, 75001 PARIS

Description

Field of the Invention

This invention generally relates to communication apparatus and, more particularly, to apparatus that at times performs telecommunication functions and at times performs processing functions.

Description of the Prior Art

The market offers a number of portable processing devices that assist people with their processing and information needs. In size order, for example, that includes calculators, organizers, personal digital assistants (PDAs), and notebook/laptop computers.

Calculators are, of course, limited to mathematical operations. Some of the more expensive ones can store calculation programs, but most do not.

Organizers are able to receive information, store it, process it, and display it. Typically, they are used for keeping track of appointments and the like. Organizers differ from calculators in that they handle text. Physically, they are small enough to fit in a man's pocket or a woman's purse. While in some sense these organizers can be thought of as computers, they nevertheless hold a separate niche in the market because of their small size and the collection of specialized software packages that they come with, including a specialized operating system. An operating system is a set of fixed programs that control the general operation of the organizer, including the manner of interaction with the user.

PDAs, which are much more versatile computers, are characterized by a relatively large touch sensitive screen which serves as both the input and output interface with the user. These PDAs boast a unique operating system that accomplishes most tasks by guiding the user through a sequence of selections. Typically, the operating system also includes an application for character recognition of script writing, and that allows the user to enter information that is not included in an anticipated set of possible inputs.

Lastly, there is the notebook/laptop computer that typically includes a keyboard, a screen, a memory, and a generalized operating system that allows the user to apply information directly, as well as execute application programs that guide the user through a sequence of selections.

In the realm of telecommunication, there is another portable device that is sweeping the market and that is the cellular telephone. Not unexpectedly, the art has attempted to combine computing and telecommunication, and there are devices now on the market that are basically a combination of the laptop computer and the cellular telephone.

What is needed, however, is more flexible devices that can operate as PDAs when that is desired, as laptop computers when that is desired, and as computers that interact with cellular or landline telecommunication apparatus when that is desired.

Summary of the Invention

A versatile device is obtained, in accordance with the principles of this invention, with a PDA that includes means for connecting to specialized accessories. The PDA can operate in its conventional mode, or it can be enhanced by interconnecting it with some or all of its accessories. In one embodiment, the PDA is combined with a cellular telephone that is adapted to physically mate with the PDA and form thereby a single integrated apparatus. In another embodiment, the PDA is combined with a landline telephone that is adapted to mate with the PDA and form thereby another single integrated apparatus. In a still another embodiment, the PDA (whether or note mated with a telecommunication device) is combined with a keyboard to form a laptop computer.

Brief Description of the Drawing

FIG. 1 depicts a PDA and a wireless telephone that are adapted for physical and electrical connection to each other;

FIG. 2 presents the PDA and the wireless telephone of FIG. 1 mated to form an integral apparatus;

FIG. 3 shows, in exploded view, the means for physical and electrical coupling of the PDA to the wireless telephone;

FIG. 4 shows the elements of FIG. 3 in assembled form;

FIG. 5 presents a keyboard adapted for connection to a PDA to form a laptop computer;

FIG. 5A presents the details of the physical interconnection between the PDA and the keyboard;

FIG. 6 illustrates the electrical port of a PDA that allows it to interconnect with a landline telephone;

FIG. 7 illustrates a landline telephone adapted for interconnection with the PDA of FIG. 6;

FIG. 8 presents an arrangement where a PDA is connected to a landline telephone and concurrently to a wireless telephone and a keyboard; and

FIG. 9 is a schematic diagram of a simultaneous voice and data modem and its associated circuitry.

Detailed Description

FIG. 1 depicts a PDA 10 in a top-left handed view

and a cellular telephone 20 in a top-right handed view. Portions of a connector arrangement are shown on the left side of the PDA. They include coupling elements 11 and 12, activator element 13 and connector 14. The right side of the cellular telephone includes corresponding elements of an arrangement that includes coupling elements 21 and 22, and connector 24. More specifically, elements 11 and 12 are posts with grooves 15 and 16, respectively, and the posts protrude out of the left side surface of the PDA. Connector 14 is a multi-pin male connector that also protrudes from the left side surface of the PDA. Coupling elements 21 and 22 are cavities that are positioned in cellular telephone 20 to concurrently mate with posts 11 and 12, respectively, and sized for a reasonably tight fits of posts 11 and 12 within cavities 21 and 22. Cavities 21 and 22 include spring elements 25 and 26 that are arranged to engage with grooves 15 and 16 when posts 11 and 12 are fully inserted into cavities 21 and 22. Connector 24 is a female connector that is adapted to mate with connector 14 when posts 11 and 12 are inserted into cavities 21 and 22.

To couple cellular telephone 20 to PDA 10, posts 11 and 12 and connector 14 are aligned with cavities 21 and 22 and connector 24, respectively, and snapped, or forced, together. The result is a physically connected assembly that appears as a unitary PDA with an integral cellular telephone (or vice-versa). This is depicted in FIG. 2. The connection strength imparted by the posts and the connector allows the assembly of FIG. 2 to be handled as a single device.

Electrically in the cellular telephone, connector 24 is the very same connector that is currently available in many cellular telephones. The only difference, if any, is in the physical placement of the connector in the side of the telephone.

When cellular telephone 20 is an analog telephone, then connector 14 is coupled to a modem within PDA 10. When cellular telephone 20 is a digital telephone, then a modem is not required. The exact electrical interface between PDA 10 and telephone 20 is not a part of this invention, so it is not described here in detail. Suffice it to say that the interface must satisfy the requirements of both the telephone and the PDA. U.S. Patent 5,127,041, issued June 30, 1992, illustrates one approach.

FIG. 3 presents an exploded view of connector 30, and FIG. 4 shows connector 30 in its assembled mode. The connector of FIG. 3 is merely illustrative, of course. Other connector arrangements are also possible and are within the scope and contemplation of this invention.

The connector of FIGS. 3 and 4 comprises the two primary components 31 and 36, springs 41 and 42, and housing 40. Member 31 is characterized by posts 11 and 12 extending from one surface thereof and connector 14 attached to the same surface. That same surface also includes two blind bores 32 and 33 with a diameter that is large enough (in diameter) to allow springs 41 and 42 to be inserted into the bores, and shallow enough to merely maintain the springs in position. Opposite the surface on which posts 11 and 12 are found there are ramp surfaces 34 and 35.

Member 36 is characterized by corresponding ramp surfaces 37 and 38, and an activator element 13 which, advantageously, is a capped post that is screwed into the body of member 36.

Housing 40 is a molded part of the housing of PDA 10 and it includes appropriate openings in its outside wall to allow posts 11 and 12, connector 14 and the post portion of activator element 13 to extend through the openings.

The general principle of the FIGS 3 and 4 connector is that member 31 is situated in housing 40 either in a retracted position or in an extended position (in FIG. 4 it is depicted in the extended position). In the retracted position, posts 11 and 12 and connector 14 do not extend outside housing 40 (i.e., are flush with the outside wall of housing 40), and member 31 is kept in this position by the force of springs 41 and 42 acting to separate member 31 from the outside wall of housing 40. In the extended position, ramp surfaces 37 and 38 are engaged with ramp surfaces 34 and 35, respectively, to push member 31 toward the outer wall of housing 40, against the force of springs 41 and 42. In this extended position, posts 11 and 12 and connector 14 extend through the outer wall of housing 14. Such extending allows the connection of cellular telephone 20 to the housing of PDA 10, as described above. Member 36 is caused to engage its ramps 36 and 37 with ramps 34 and 35 by applying a force to the cap of activator element 13 to slide member 36 in the direction of the arrow marked "extend" in FIG. 4. Correspondingly, ramps 36 and 37 are disengaged from ramps 34 and 35 by sliding element 36 in the direction marked "retract".

In addition to converting the PDA of FIG. 1 to a communicating processor unit by coupling to it the cellular telephone, it is desirable to enhance the PDA by allowing it to support a keyboard. That is, while it is expected that many applications will be well served through the touch screen interface of the PDA, it is also anticipated that some applications would be better served when a "full fledged" keyboard is included. To that end, FIG. 5 shows a PDA that includes two somewhat cylindrical recesses 17 at two corners of the PDA and a connector 16. The cylindrical recesses end with holes 18.

FIG. 5 also illustrates a keyboard that is adapted for connection to holes 18 and to connector 16. More specifically, FIG. 5 presents a keyboard 50 that includes, at each of two end corners, a connection assembly for connecting to cylindrical recesses 17 and holes 18. Each assembly includes a slightly flexible protrusion 52 with a cylindrical end portion 51 that is at 90 degrees with respect to protrusion 52. End portion 51 fits into hole 18 and pivots within it to allow keyboard 50 to swing into an open position or a closed position. In the closed position the keyboard covers the display of the PDA. In the open position, a connector 53 swings into and mates with connector 16, thereby making an electrical connection be-

tween keyboard 50 and PDA 10.

Keyboard 50 includes conventional keys such as key 55, function keys such as key 54, a track ball 56, and a floppy disk drive (not shown) coupled to port 57. It could also include a hard disk (also not shown). Port 57 could alternatively comprise a PCMCIA connector to which various other devices can be connected, etc.

While it is novel to have these computer accessories in the keyboard housing, particularly in the arrangement disclosed herein where those accessories are not likely to be used unless a "laptop" computer configuration is desired, the electrical connection between those accessories and the processor within PAD 10 is completely conventional. The same connections that are normally made to these accessories are made via connectors 16 and 53 in the FIG. 5 arrangement.

While it will be very useful to allow users to travel with PDA 10 and to even allow such users to communicate data to and from PDA 10 via cellular telephone 20, it is also realized that PDA 10 can be used in the office, where cellular telephony need not be used. Moreover, in an office environment it would be useful to operate the PDA from an external power source to save on battery power. To that end, PDA 10 is provided with a connector strip 80 on a face of PDA 10 that, illustratively, is opposite the face where the keyboard is coupled. Strip 80, shown in FIG. 6, includes enough contacts to provide both power and data connectivity to a landline telephone. Looking at FIG. 6, note might be taken of handle 83 which is included for carrying convenience.

FIG. 7 illustrates a novel design for a landline telephone 90 with a housing that is adapted to receive, and operate with, a PDA such as the one illustrated in FIG. 6. In particular, the FIG. 7 telephone includes a tray, or receptacle, 82 that is fashioned to hold PDA 10, whether connected to keyboard 50 or not. Tray 82 includes a connector strip 81 that is positioned in the tray to mate with contacts in strip 80 when PDA 10 is in the tray.

Lastly, FIG. 8 illustrates a landline telephone with a housing which includes a tray that is large enough to hold PDA 10 when it is coupled to cellular telephone 20.

It would be obviously advantageous for PDA 10 to automatically recognize when it is connected to the various accessories disclosed above and modify its operating style accordingly. This capability is easily achieved by detecting signal conditions at connectors 14, 16 and 80. A number of such capabilities are presented below for illustrative purposes, and others are easily visualized.

FIG. 9 is a schematic diagram of circuitry between connector 81 and the terminals adapted for connection to the central office. In FIG. 9, the landline telephone is connected to the central office POTS line through a simultaneous voice and data (SVD) modem 95, such as the one disclosed in copending application Serial No. 08/076505, filed June 14, 1993, and titled "Simultaneous Analog and Digital Communication". A digital signal port represented by lines 91 and 92 is also connected to the central office through SVD modem 95.

To describe this modem in a nutshell, it modulates applied digital signals and analog signals onto a carrier. More specifically, it forms symbols from groups of bits, maps the symbols onto two signals, samples the analog signal an also maps the analog signals onto the two signals. It then modulates the mapped signals with two orthogonal carriers, sums the result and outputs the sum. All this is done under command of a modem controller within modem 95 that is also sensitive to signal conditions on the telephone line side, on the digital port, and on the analog port.

In particular, the controller detects dial tone and ringing (as all modem controllers do), it detects the presence of digital signals on the digital port (also as all modems do), and it detects an "off hook" condition on the analog port. The latter is accomplished by including a voltage source and current detection means in the controller, to emulate a central office. In the FIG. 9 embodiment, sensing of an "off hook" condition in telephone 90 can be done outside the controller because a power supply 93 is provided for the digital port. Thus, dc power is supplied to telephone 90 through lead 94 and resistor 96, and that dc power is isolated from the modem by capacitors 97 and 98. The "off hook" condition is detected by amplifier 99 having two inputs that straddle resistor 96. The output of amplifier 99 is applied to the controller within modem 95.

Power supply 93 also supplies power to the modem and to connector strip 81. The path to strip 81 also includes a current sensor, comprising series resistor 61 that straddles the two inputs of differential amplifier 62 that applies a control signal to modem 95. A current through resistor 61 that exceeds a predesigned threshold switches amplifier 62 from "off" to "on", indicating that PDA 10 is resting on its tray. It does not mean, of course, that data is flowing through leads 91 and 92, but it does suggest to modem 95 that it should become sensitive to the presence of data.

FIG. 9 also includes accessories 65 which are powered by supply 93 and which interact with PDA 10 via connector strip 81. Accessories 65 can be one or more of the devices that are commonly connected to a computer bus, such as a mouse, a floppy disk, a hard disk, a PCMCIA connector port, semiconductor memory, CD ROMS, etc. The connection of these elements to the processor within PDA 10 is completely conventional.

The above description illustrates actions taken by the apparatus associated with telephone 90, i.e., by the apparatus between strip 91 and the port connecting to the central office. On the PDA side, the interactions are with strip 80, with connector 16 and with connector 14. The most basic interactions that PDA 10 may wish to include is the ability to automatically realize that cellular telephone 20 is connected, that keyboard 50 is connected, and that landline telephone 90 is coupled. Additionally, it may be useful to know whether any of the connected telephones go "off-hook". With each of these pieces of knowledge, the operating system of PDA 10 adjusts

itself to a different mode of operation, and may even trigger application software.

For example, when the PDA rests in the tray of telephone 90 and a power supply voltage is supplied to PDA 10 from power supply 93 through strip connectors 81 and 80, it is advantageous for this power source to power the PDA itself, to power the accessories in keyboard 50, and to power, and/or charge the internal battery of cellular telephone 20. This is easily achieved by connecting the power leads in strip 80 to power leads in connectors 14 and 16.

To automatically determine that cellular telephone 20, keyboard 50 and/or telephone 90 are connected to PDA 10, all that is necessary is to detect the presence of a known signal, or voltage level at the respective terminals. Clearly, looking at the power leads coming from connector strip 80 is a simple solution, and a similar solution can be had in with other connectors. If there is no inherent dc voltage that can be derived from connectors 24 and 53 (when they are coupled to connectors 14 and 16, respectively), one can be created by applying the battery voltage of PDA 10 to one pin of connector 24, for example, shorting that pin to another pin, and observing the voltage at a corresponding pin in connector 14.

Lastly, to recognize an "off-hook" state of telephone 90, lead 66 (in FIG. 9) couples the output of amplifier 99 to strip 80 and to PDA 10, and the voltage on that lead provides the necessary information.

The entire operating system of PDA 10 can be altered when any of the above-considered elements are connected to PDA 10. It is expected, however, that the biggest change in the operating system will take place when a keyboard is connected to the PDA, converting the PDA to laptop computer.

Claims

1. Apparatus including a personal digital assistant (PDA) that contains a housing, a processor in said housing and an input/output device arrangement in said housing coupled to said processor for inputting data to, and outputting data from, said processor, the improvement comprising:

   first connector in said housing for cordless physical coupling of said connector to a telephone and for coupling said connector to said process; and

   first means, integral to said housing, for physically connecting said housing to a telephone to effectively form a single physical unit that comprises said housing and said telephone.

2. The apparatus of claim 1 wherein said telephone is a wireless telephone, or a landline telephone.

3. The apparatus of claim 2, wherein the wireless telephone includes a housing with a connector adapted to mate with said first connector and a means for physically connecting the housing of the wireless telephone to the housing of the PDA, said wireless telephone having its connector engaged with said first connector and its means for physically connecting engaged with said first means for physically connecting.

4. The apparatus of claim 2 or 3, wherein said means for physically connecting comprises at least one spring-action fastener in said housing.

5. The apparatus of claim 2, wherein the landline telephone includes a housing that includes tray means for accepting the PDA of claim 1.

6. The apparatus of claim 5, where said tray includes a connector adapted for connecting said landline telephone to a PDA.

7. The apparatus of claim 6, wherein said connector included in the tray is coupled to said first connector through direct pressure contact.

8. The apparatus of claim 6, wherein said connector includes contacts for providing dc power to the PDA.

9. The apparatus of claim 5, wherein said telephone includes a modem, for example a simultaneous voice and data modem.

10. The apparatus of claim 6, wherein the landline telephone includes memory connected to the connector and adapted for interaction with the PDA.

11. The apparatus of claim 1, further comprising a second connector in said housing, where the first connector is adapted for physical connection to a wireless telephone and the second connector is adapted for physical connection to a connector in a housing of a landline telephone.

12. The apparatus of claim 11, further comprising a landline telephone with a housing that includes tray for accepting the apparatus of claim 13 and a third connector, where said second connector is coupled to said third connector.

13. The apparatus of claim 12, wherein said second connector and said third connector are arranged to mate and make electrical contact by the mere placement of said apparatus of claim 14 in said tray.

14. The apparatus of claim 11, further comprising a wireless telephone that includes a housing with a connector adapted to mate with said first connector and a means for physically connecting the housing of the wireless telephone to the housing of the PDA, said wireless telephone having its connector engaged

with said first connector and its means for physically connecting engaged with said first means for physically connecting present in the PDA, thereby forming a unitary, integral apparatus.

15. The apparatus of claim 14, further comprising a landline telephone with a housing that includes tray for accepting the apparatus of claim 14 and a third connector, where said second connector is coupled to said third connector.

16. The apparatus of claim 1, further comprising a second connector in said housing for coupling a keyboard interface to said processor, and second means, integral to said housing, for physically connecting said housing to said keyboard interface to effectively form a single physical unit that comprises said housing and said keyboard interface.

17. The apparatus of claim 16 wherein said second means includes a swivel mechanism to allow said keyboard interface means to cover said touch sensitive screen.

18. The apparatus of claim 16 further comprising a keyboard interface unit coupled to said second connector.

19. The apparatus of claim 18 wherein said keyboard interface unit either includes a PCMCIA connector electronically coupled to said second connector, or includes memory, for example a hard disk memory, coupled to said second connector.

FIG. 1

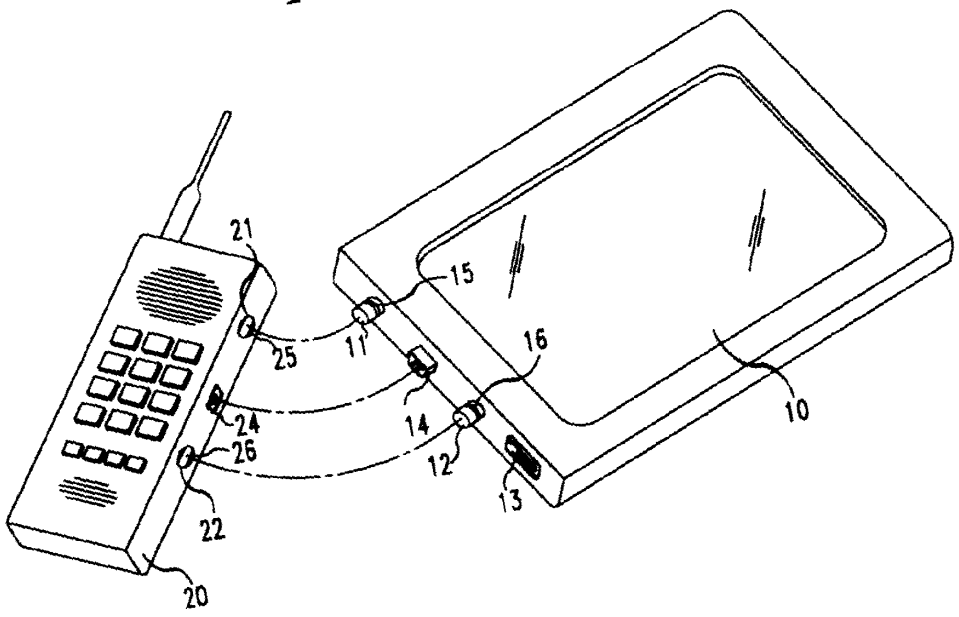


FIG. 2

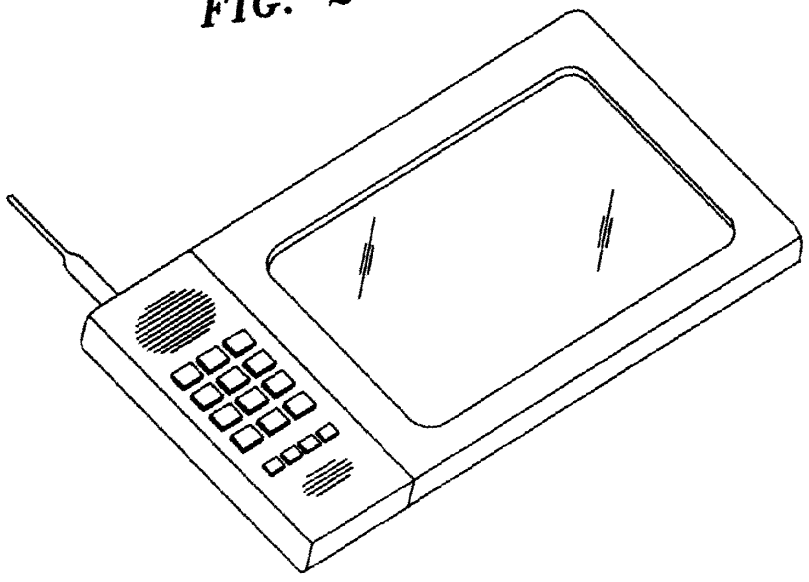


FIG. 3

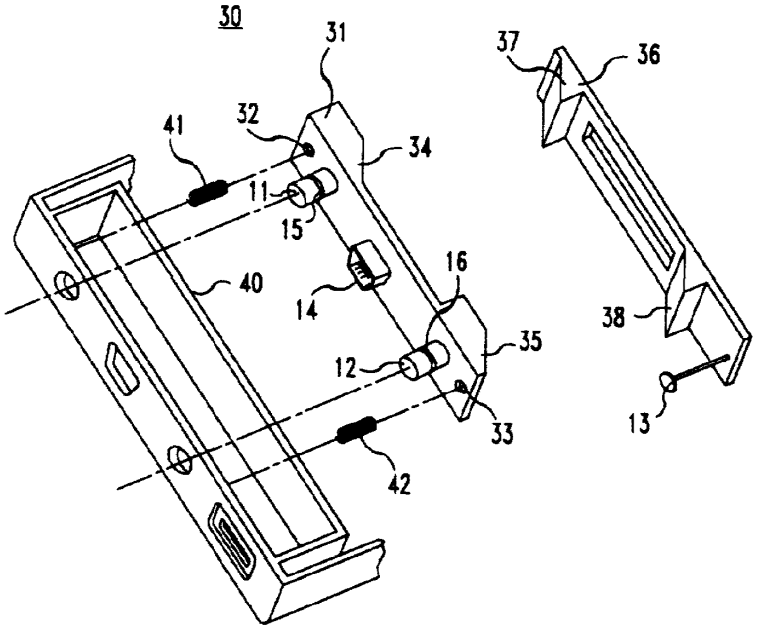


FIG. 4

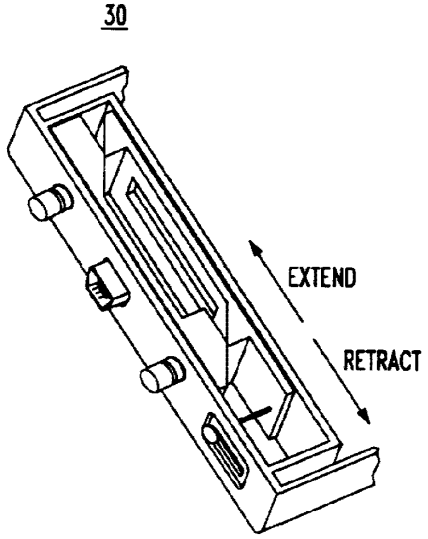


FIG. 5

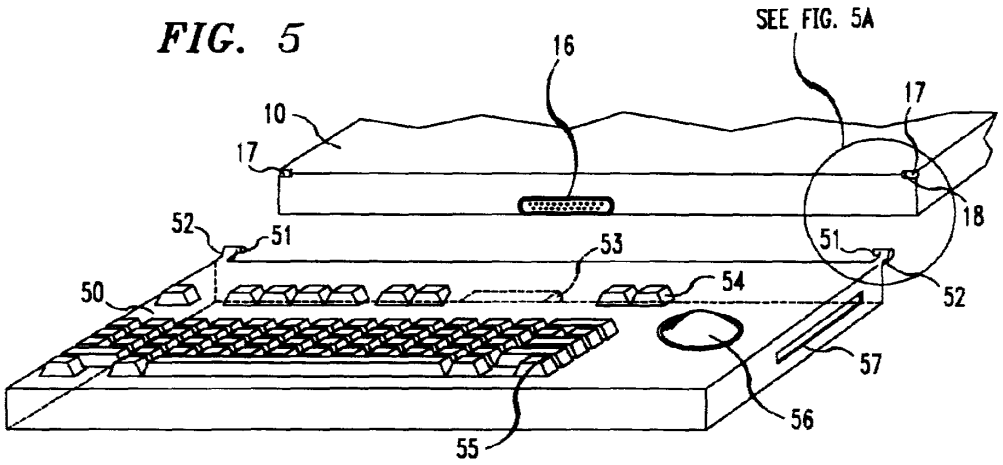


FIG. 5A

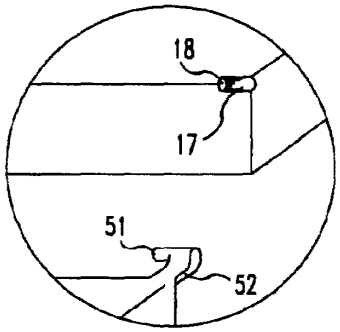


FIG. 6

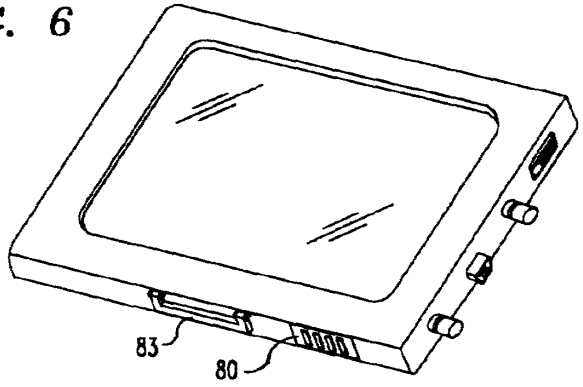


FIG. 7

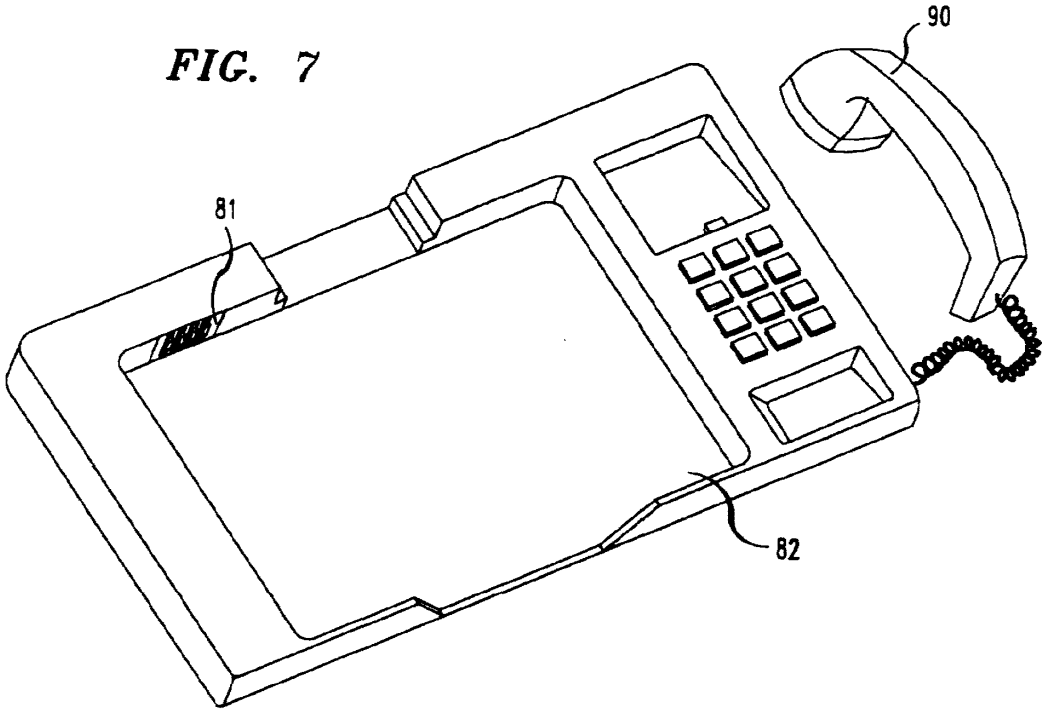


FIG. 8

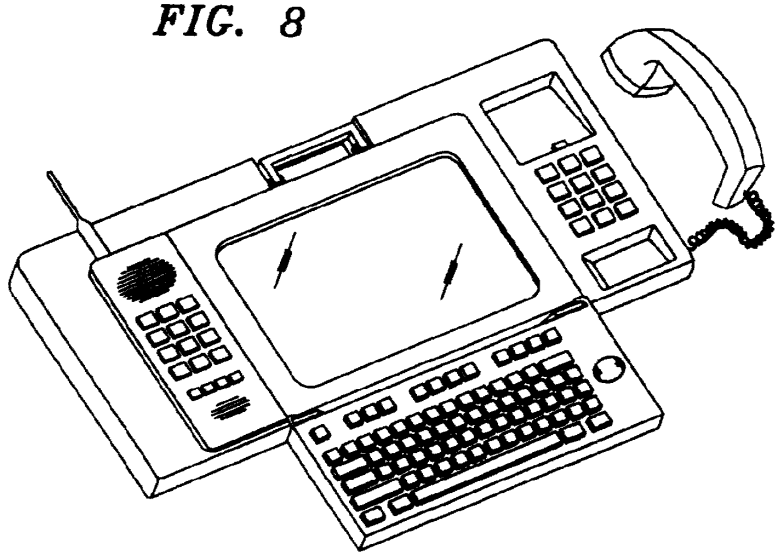
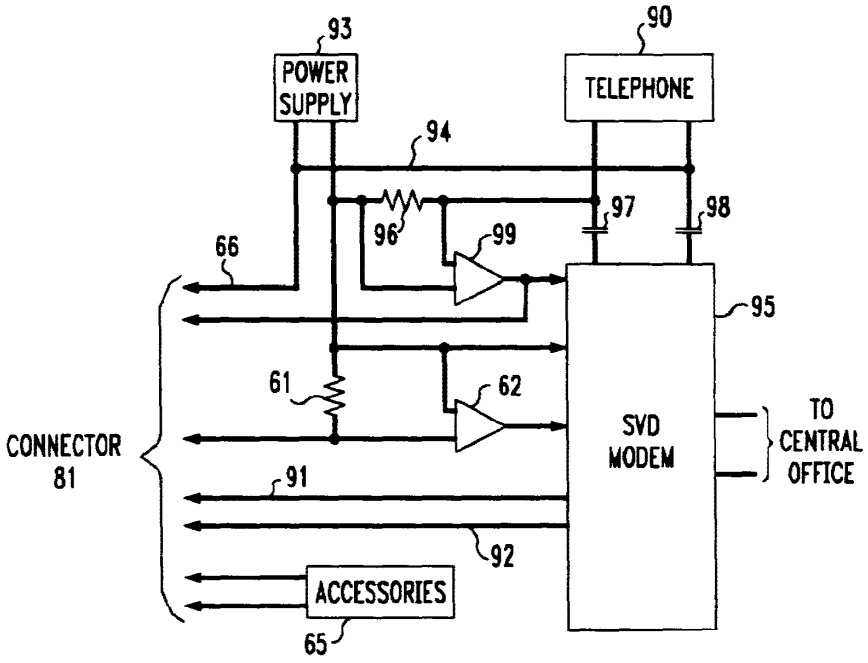


FIG. 9



(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 738 093 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
04.06.2003 Bulletin 2003/23

(51) Int Cl.[7]: **H04Q 3/00**, H04M 3/42

(21) Application number: **96850065.2**

(22) Date of filing: **28.03.1996**

(54) **Personal number communications system**

Kommunikationssystem mit Personenrufnummer

Système de télécommunications par numéro d'appel personnel

(84) Designated Contracting States:
CH DE DK ES FR GB IT LI NL

(30) Priority: **11.04.1995 SE 9501346**

(43) Date of publication of application:
16.10.1996 Bulletin 1996/42

(73) Proprietor: **TELIA AB**
123 86 Farsta (SE)

(72) Inventor: **Jonsson, Ulf**
233 33 Svedala (SE)

(74) Representative: **Hopfgarten, Nils et al**
L.A. Groth & Co. KB
P.O. Box 6107
102 32 Stockholm (SE)

(56) References cited:
EP-A- 0 520 194 **US-A- 5 353 331**

- **DE SADABA R: "PERSONAL COMMUNICATIONS IN THE INTELLIGENT NETWORK" BRITISH TELECOMMUNICATIONS ENGINEERING, vol. 9, no. SPEC, 1 August 1990 (1990-08-01), pages 80-83, XP000160978 ISSN: 0262-401X**

Printed by Jouve, 75001 PARIS (FR)

EP 0 738 093 B1

Description

TECHNICAL FIELD

[0001] The present invention relates to a device and a procedure which make possible the introduction of a general personal telephone number which functions in both fixed and mobile telecommunication networks as well as in cordless access systems connected to such network.

PRIOR ART

[0002] Today all telephone networks have numbers which are related to a fixed access point (a telephone jack), a certain terminal (NMT-telephone) or possibly a certain card (GSM:s SIM-card). The different networks have number series of their own, also the mobile telephone networks have among themselves number series of their own; in Sweden for instance 010 for NMT (Nordic Mobile Telephony, and 0705 for Telia's GSM (Global Service Mobile).

[0003] Before long, functions will turn up in the fixed networks which support mobility of cordless telephones between cordless access systems (for instance DECT), called CTM (Cordless Terminal Mobility). A specific terminal identity is used at incoming calls to the terminal and to identify the terminal at outgoing calls. This identity must follow the numbering schemes which are used in the fixed networks (E. 164).

[0004] The users, however, don't want to keep in mind a set of numbers depending on where the wanted person is or which terminal he/she is using at the moment. A number which uniquely identifies the user, a personal number, is required.

[0005] Within ETSI and ITU an international standard for personal numbers is under completion; Universal Personal Telecommunications service (UPT). Here the user and not the terminal has a unique identity of its own. Phase one which is concentrated on the fixed network (PSTN) has been completed during 1994. The specification of phase two, which also includes GSM, has recently started. Because the fixed networks are lacking mobility functions, and for other technical and safety reasons, complicated user procedures, tone transmitters etc are required. Since UPT phase 1 is restricted to the fixed networks, the UPT-number must in the same way as is described above, follow the numbering scheme which is valid there (E.164) and be located to a number serie of its own.

[0006] The use of cards for registration and use of services will improve the user interface. Today there are SIM-cards for GSM, and before long the equivalent to DECT, DAM will be approved as European standard. A special UPT-card is under construction, and ETSI's work group TE9 has produced a standard for multi-application cards for, for instance telecommunications and bank services. The coordination between these standards has been arranged but complete compatibility does not exist. That consequently implies one card for each network/service.

[0007] The mobile telephone networks' equivalent to personal numbers is GSM's SIM (Subscriber Identity Module), but also this only allows that the own network, or the networks of "allied" operators, can be accessed, and only with a GSM telephone.

[0008] To sum up one can say that the fixed telephone networks of today have telephone numbers related to a certain place, and the mobile telephone systems of today have telephone numbers related to a certain terminal or card. A network service which allows that cordless telephones can be used in many places, public and private, is under standardization. Also here the number is related to a certain terminal or a certain card. A standardized personal telephone number is "universal" and shall in the long run function in all systems and terminals, which makes the user procedures complicated and the standardization work slow.

[0009] US 5,353,331 describes a personal communication service allowing a user to send and receive calls from a single portable handset using a single assigned number whether at home or roaming. A call is, independent of from which telecommunication network the call emanates, connected to a central service control point, which converts a received assigned number to the specific number of the telecommunication network where the subscriber is registered. The central service control point then connects the call to the access point which corresponds to the specific number.

[0010] The aim of the present invention is to introduce a general personal telephone number which functions in all fixed and mobile networks as well as in cordless access systems connected to these networks. Further aims with the present invention is to simplify (automatize as far as possible and in an appropriate way) the user procedures, at least at the use of personal number in own mobile or cordless terminal, and to rapidly meet the demands of the market by preceding the slow standardization work and at the same time create competition advantage by concrete, specific solutions.

Summary of the invention

[0011] The invention relates, as has been mentioned above, to create one for each subscriber general personal number which can be used in all existing telecommunications networks and in cordless access systems connected to these networks. This is achieved by placing a central network node at, or in connection to, existing networks including a personal number which defines one for respective subscriber user specific service profile. In the node are in addition stored for instance current routing address, addresses to a personal voice mail box and other existing services, as well as necessary administrative information such as debiting parameters, invoice addresses etc. At call to the subscriber the call,

independent of from which type of network the call emanates, is connected to the central network node which converts the received number to the number the subscriber has registered himself/herself at, whereafter the central network node executes connection towards the current access point in the network. By that is achieved one for the subscriber personal subscriber number, where he/she can be reached by calls independent of to which telecommunications network the subscriber is connected. Further, the central network node identifies a user at outgoing calls by the related terminal identity and by that allows a collected debiting.

[0012] The invention consequently gives the network operator possibility, in the existing mobile telephone networks, for instance NMT, GSM (without influencing network functions, numbering schemes or terminals), in fixed networks, for instance PSTN, ISDN for fixed and cordless access, for instance DECT with addition of a central network node and only at manual registration by means of the user procedures, to offer the customer a personal number for all mobile and fixed services and a collected debiting.

[0013] Further characteristics of the present invention are indicated more in detail in the following patent claims.

[0014] The invention will now be described in more details below with reference to the enclosed drawings.

Short description of the drawings

[0015] Figure 1 shows schematically the central network node and the existing telecommunications systems.

[0016] Figure 2 shows schematically the architecture of the network node and the existing telecommunications systems.

Description of a number of scenarios and detailed description of a technical realization of the invention

[0017] Network operators shall be able to offer the customer a number which can be used in both NMT and GSM, as well as in DECT and fixed telephones. A number of scenarios will now describe the different possibilities.

[0018] A customer has an NMT-telephone 1 as his/her normal access (default routing access). With a personal number he/she need not do anything special to use it (and be debited), neither at incoming or outgoing calls. Registration is not required, since the central network node in the normal position or in the "default"-position is adjusted to or related to a terminal identity 1,2 in NMT or GSM.

[0019] Another customer has a GSM-telephone 2 as his/her normal access. When he/she uses his/her own or a borrowed GSM-telephone, he/she uses his/her SIM-card, at which the central network node 9 directly relates this telephone to his/her personal number. In the same way as is described above, no special user procedures, telephones or new network functions in addition to the central network node 9, are required.

[0020] The customer also can have a cordless telephone 3. When it comes into the coverage area of a cordless access system 6 an automatic registration process can be initiated, at which current registration address is changed in the central network node 9 from the mobile telephone to the access system 6. No user procedures are required.

[0021] The customers also can register themselves at a borrowed fixed or cordless telephone 3, NMT-telephone 1 or GSM-telephone 2 with somebody else's SIM-card for incoming or occasional outgoing calls (and personal debiting) by manual registration. In this case is needed that the customer actively informs the central network node 9 where he/she is, for instance at fixed telephone by manually keying a code on the keyset. Consequently extended user procedures are here required. One way to simplify the user's handling is to use a number transmitter. This can be a separate unit or the abbreviated number memory of the own telephone. In principle number transmitter is not required, but the amount of figures which are transmitted is extraordinary big, and the procedure is not user friendly.

[0022] The personal number is used as identification of the subscriber and by that functions as account number and the customer can get a collected debiting from the mobile telephone operator for all his/her services in fixed and mobile networks.

[0023] A condition for the general personal number is a central network node 9 (suitably according to IN-technology; Intelligent Network) in the network. It constitutes the heart in the concept where the personal number is created, is related to terminal identities and is adminstered.

[0024] The personal number defines a personal service profile which is stored in the network node and which can be accessed by the customer for certain modification. Here normal or current routing address is stored, addresses to a personal mail box and other services, as well as administrative information such as debiting information, invoice address etc.

[0025] Due to the fact that the execution of the service is managed by the IN-node, the introduction of the personal number need not influence the fixed NMT- or GSM-networks of today. Fixed telephones, NMT-telephones and SIM-cards preserve their identities. At an incoming call conversion is made from the keyed (personal) number to current number (NMT-, GSM- fixed or cordless telephone) in the network node. At outgoing calls the user of the NMT-telephone, the SIM-card, the cordless telephone (or its DAM-card) or the identification- and authentication procedure which is managed by the number transmitter is defined.

[0026] Two changes of the network of today which gives a more efficient mobility management relate to the possibility to direct communication between the network

node 9 and GSM's HLR (Home Location Register) 8, respective NMT's HMTX 8, and the introduction of a new functionality in local station of digital telephone exchange AXE , called MMF (Mobility Management Function). In addition the IN-node (Intelligent network node) should be separated in a central (home) node, and a number of local (visiting) nodes. This is well in accordance with Telia's IN-strategy.

[0027] The first change is restricted and comparatively easy to realize, whereas the second one is more expensive due to the big number of local stations which are upgraded. The procedures which will be described later presuppose the two changes. The functional architecture which is implied for the cordless access is described below with reference to Figure 2.

[0028] The functionality for mobility in public fixed networks is localized to separate IN-nodes and/or in the local and transit exchanges (LX respective FX). At short sight SSF-functionality will exist in FX, but in the long run there will also be a possibility to place it in certain or all LX. There are advantages and disadvantages with all these alternatives, but here the last alternative has been chosen.

[0029] In the local stations are in addition to CCF, SSF and SRF a functional unit for management of CTM (MMF).

[0030] Two levels of IN-nodes are also included in the architecture, i.e. SCF/SDFV (System Control Function/ System Directory Function) and SCF/SDFH (System Control Function/System Directory Funtion H) (see Figure 2). These manage local (visit, temporary) respective central (home, permament) service control and data management for mobile users.

[0031] Two access forms are included in the architecture. CCAF is realized in a conventional keyset code telephone for personal mobility and CSF/CLCF is realized in a cordless access system (FT) for terminal mobility. The PT-functionality exists in the cordless terminal.

[0032] Below is described a number of procedures for the above mentioned scenarios:

Automatic registration of personal number/cordless telephone number in cordless access system.
Incoming call to personal number/cordless telephone number registered in cordless access system.
Outgoing call from personal number/cordless telephone registered in cordless access system.
Manual registration of personal number at borrowed fixed telephone.
Incoming call to personal number registered at borrowed fixed telephone.
Outgoing call from personal number registered at borrowed fixed telephone.

[0033] These procedures describes the information which flows between involved network nodes. They intend to give a somewhat more than detailed description of the invention and its influence on network functions and user procedures.

[0034] The first three cases imply cordless telephony and cordless access system according to the DECstandard (GAP-compatible) and communication with the IN-node, which is called CTM (Cordless Terminal Mobility).

[0035] It should be emphasized that no procedures for management of the personal number are performed in the mobile telephone system, as no such specific handling as we know according to what has been described is performed.

[0036] What has been described above of the present invention is only to be regarded as example and the invention is only restricted by what is indicated in the patent claims.

Claims

1. Procedure to call a subscriber located in any fixed or mobile telecommunication networks (7), or in cordless access systems (6), connected to said telecommunication networks by using a general personal number, wherein, when a subscriber is called, independent of from which telecommunication network the call emanates, the call is connected to a central network node (9) which converts the received personal number to the specific number corresponding to the telecommunication network at which the subscriber in question has registered himself/herself, whereupon said network node (9) executes connection of said call to the current access point which corresponds to said specific number, **characterized in that** the central network node (9) is connected to existing telecommunication networks (7) without influencing network functions, numbering schemes and terminals in said telecommunication networks (7).

2. Procedure according to claim 1, **characterized in that** the central network node (9) utilises the automatic registration functions of the mobile telephone networks and the cordless telephone systems for simplified management.

3. Procedure according to claim 1, **characterized in that** the central network node (9) in the normal case relates the personal number to a terminal identity (1, 2) in Nordic Mobile Telephony (NMT) or Global Service Mobile (GSM) networks.

4. Procedure according to claim 1, **characterized in that** the central network node (9) relates the personal number to a current access point in a cordless access system (6) at automatic registration of a cordless telephone (3) in the access system (6).

5. Procedure according to claim 1, **characterized in that** the central network node (9) relates the personal number to a current fixed access point, for instance telephone jack, at manual registration.

6. Procedure according to any of the previous claims, **characterized in that** the central network node (9) manages number conversion from the dialled number to a related mobile terminal identity, a related cordless or related fixed access point at incoming calls.

7. Procedure according to any of the previous claims, **characterized in that** the central network node (9) identifies a user at outgoing call by the related terminal identity (1, 2, 3, 4, 5) and thereby allows a collected debiting.

8. Procedure according to any of the previous claims, **characterized in that** a direct communication is realised between the central network node and Home Location Register (HLR) of the GSM, respective HMTX of the NMT, to achieve a more efficient mobility management.

9. Procedure according to any of the previous claims, **characterized in that** a new functionality called MMF Mobility Management Function (MMF) is introduced in the local station of the digital telephone exchange AXE to get a more efficient mobility management.

10. Device for introduction of one general personal number for each subscriber for use in all existing telecommunication networks (7) and in cordless access systems (6) connected to said telecommunication networks (7), wherein a call from a subscriber, located in any of the telecommunication networks (7) or utilising a cordless access systems (6) connected to said telecommunication networks (7), to another subscriber, located in the same telecommunication networks (7)/cordless access system (6) or in another telecommunication networks (7)/cordless access system (6), is connected to a central network node (9) arranged to convert the received personal number to the specific number corresponding to the telecommunication network at which the called subscriber has registered himself/herself, and said central network node (9) being arranged to execute connection of said call to the current access point which corresponds to the specific number of the called subscriber, **characterized in that** said central network node (9) is connected to existing telecommunication networks (7) without influencing network functions, numbering schemes and terminals in said networks (7).

11. Device according to claim 10, **characterized in that** said central network node (9) includes said personal number which defines one for the respective subscriber a user specific service profile, said node (9) further including information of current "routing" addresses, addresses to personal mail boxes and other existing services as well as necessary administrative information such as debiting parameters, invoice addresses etc.

12. Device according to any of the claims 10 or 11, **characterized in that** said central network node (9) in the normal case is arranged to relate the personal number to a terminal identity (1, 2) in NMT or GSM.

13. Device according to any of the claims 10-12, **characterized in that** said central network node (9) is arranged to relate the personal number to a current access point in a cordless access system (6) at automatic registration of a cordless telephone (3) in the access system (6).

14. Device according to any of the claims 10-13, **characterized in that** said central network node (9) is arranged to relate the personal number to a current fixed access point, for instance telephone jack, at manual registration.

15. Device according to any of the claims 10-14, **characterized in that** said central network node (9) is an Intelligent Network (IN) node.

16. Device according claims 14, **characterized in that** two levels of IN-node (9) are utilised, the first level being System Control Function (SCF)/System Directory Function v (SDF_v) and the second level being SCF/SDF_h arranged for management of local respective central service controls and data management for mobile users.

Patentansprüche

1. Verfahren zum Anrufen eines Teilnehmers, der in irgendwelchen festen oder mobilen Fernmeldenetzen (7) oder in schnurlosen Zugangssystemen (6) lokalisiert ist, die mit den Bernmeldenetzen verbunden sind, unter Verwendung einer allgemeinen persönlichen Nummer, wobei, wenn ein Teilnehmer angerufen wird, unabhängig davon, von welchem Fernmeldenetz der Anruf ausgeht, der Anruf zu einem zentralen Netzknoten (9) verbunden wird, der die empfangene persönliche Nummer in eine besondere Nummer umwandelt, die dem Fernmeldenetz entspricht, bei dem sich der fragliche Teilnehmer/die fragliche Teilnehmerin registriert hat, woraufhin der Netzknoten (9) Verbindung des Anrufs zum gegenwärtigen Zugangspunkt ausführt, der der besonderen Nummer entspricht, **dadurch ge-**

kennzeichnet, daß der zentrale Netzknoten (9) mit existierenden Fernmeldenetzen (7) verbunden wird, ohne Netzfunktionen, Nummernschemata und Endgeräte in den Fernmeldenetzen (7) zu beeinflussen.

2. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) die automatischen Registrierungsfunktionen der Mobiltelefonnetze und der schnurlosen Telefonsysteme für vereinfachte Verwaltung verwendet,

3. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) im Normalfall die persönliche Nummer in Bezug setzt zu einer Endgeräteidentität (1, 2) in Netzen der Nordischen Mobiltelefonie (Nordic Mobile Telephony, NMT) oder Globalen Dienstmobilnetzen (Global Service Mobile, GSM).

4. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) die persönliche Nummer mit einem gegenwärtigen Zugangspunkt in einem schnurlosen Zugangssystem (6) bei automatischer Registrierung eines schnurlosen Telefons (3) im Zugangssystem (6) setzt.

5. Verfahren nach Anspruch 1, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) die persönliche Nummer mit einem gegenwärtigen festen Zugangspunkt in Bezug setzt, z.B. einer Telefonsteckdose, bei manueller Registrierung.

6. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) die Nummernumwandlung von der gewählten Nummer in eine damit in Bezug stehende Mobilendgerätidentität, einen damit in Bezug stehenden schnurlosen oder einen damit in Bezug gesetzten festen Zugangspunkt bei ankommenden Anrufen verwaltet.

7. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) einen Benutzer bei einem abgehenden Anruf durch die damit in Bezug stehende Endgeräteidentität (1, 2, 3, 4, 5) identifiziert und dadurch eine gesammelte Rechnungsstellung ermöglicht.

8. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** eine direkte Kommunikation zwischen dem zentralen Netzknoten und dem Heimortregister (Home Location Register, HLR) des GSM bzw. HMTX des NMT realisiert wird, um eine wirksamere Mobilitätsverwaltung zu erzielen.

9. Verfahren nach einem der vorangehenden Ansprüche, **dadurch gekennzeichnet, daß** eine neue Funktionalität, die MMF Mobilitätsverwaltungsfunktion (Mobility Management Function; MMF) genannt wird, in der lokalen Station der digitalen Telefonvermittlung AXE eingeführt wird, um eine wirksamere Mobilitätsverwaltung zu erhalten.

10. Vorrichtung zum Einführen einer allgemeinen persönlichen Nummer für jeden Teilnehmer für Verwendung in allen existierenden Fernmeldenetzen (7) und in schnurlosen Zugangssystemen (6), die mit den Fernmeldenetzen (7) verbunden sind, wobei ein Anruf von einem Teilnehmer, der in irgendeinem der Fernmeldenetze (7) angeordnet ist oder ein schnurloses Zugangssystem (6) verwendet, das mit den Fernmeldenetzen (7) verbunden ist, zu einem anderen Teilnehmer, der in denselben Fernmeldenetzen (7)/schnurlosen Zugangssystemen (6) oder in anderen Fernmeldenetzen (7)-/schnurlosen Zugangssystemen (6) angeordnet ist, zu einem zentralen Netzknoten (9) verbunden wird, der dazu ausgebildet ist, die empfangene persönliche Nummer in eine besondere Nummer umzuwandeln, die dem Fernmeldenetz entspricht, bei dem der gerufene Teilnehmer/die gerufene Teilnehmerin sich registriert hat, und bei dem der zentrale Netzknoten (9) so ausgebildet ist, daß er Verbindung des Anrufs zum gegenwärtigen Zugangspunkt ausführt, der der besonderen Nummer des angerufenen Teilnehmers entspricht, **dadurch gekennzeichnet, daß** der zentrale Netzwerkknoten (9) mit existierenden Fernmeldenetzen (7) verbunden wird, ohne Netzwerkfunktionen, Nummerierungsschemata und Endgeräte in den Netzen (7) zu beeinflussen.

11. Vorrichtung nach Anspruch 10, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) die persönliche Nummer einschließt, die ein für den entsprechenden Teilnehmer teilnehmerspezifisches Dienstprofil definiert, wobei der Knoten (9) weiter Information gegenwärtiger "Leitweg"-Adressen, Adressen zu persönlichen Mailboxen und anderen existierenden Diensten als auch notwendige Verwaltungsinformation wie z.B. Rechnungsstellungsparameier, Rechnungsadressen usw, einschließt.

12. Vorrichtung nach einem der Ansprüche 10 oder 11, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) im Normalfall so ausgebildet ist, daß er die persönliche Nummer zu einer Endgeräteidentität (1, 2) in NMT oder GSM in Bezug setzt.

13. Vorrichtung nach einem der Ansprüche 10 bis 12, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) so ausgebildet ist, daß er die persönliche Nummer zu einem gegenwärtigen Zugangspunkt in

einem schnurlosen Zugangssystem (6) bei automatischer Registrierung eines schnurlosen Telefons (3) im Zugangssystem (6) in Bezug setzt.

14. Vorrichtung nach einem der Ansprüche 10 bis 13, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) so ausgebildet ist, daß er die persönliche Nummer mit einem gegenwärtigen festen Zugangspunkt, z.B, einer Telefonsteckdose, bei manueller Registrierung in Bezug setzt.

15. Vorrichtung nach einem der Ansprüche 10 bis 14, **dadurch gekennzeichnet, daß** der zentrale Netzknoten (9) ein Knoten eines intelligenten Netzwerkes (IN) ist.

16. Vorrichtung nach Anspruch 14, **dadurch gekennzeichnet, daß** zwei Niveaus des IN-Knotens (9) verwendet werden, wobei das erste Niveau Systemsteuerfunktion (System Control Function, SCF)/Systemverzeichnisfunktion v (System Directory Function v, SDF_v) und das zweite Niveau SCF/SDF_h ist, ausgebildet für Verwaltung von lokalen zentralen Dienststeuerungen und Datenverwaltung für mobile Benutzer.

Revendications

1. Procédé d'appel d'un abonné faisant partie de réseaux de télécommunication fixe ou mobile quelconques (7) ou de systèmes d'accès autonomes (6) connectés aux dits réseaux de télécommunication, par utilisation d'un numéro personnel général, dans lequel, lorsqu'un abonné est appelé, quel que soit le réseau de télécommunication d'où provient l'appel, l'appel est connecté à un noeud central de réseaux (9) qui convertit le numéro personnel reçu en le numéro spécifique correspondant au réseau de télécommunication auquel l'abonné concerné s'est enregistré, après quoi le dit noeud de réseaux (9) exécute une connexion du dit appel au point d'accès courant qui correspond au dit numéro spécifique, **caractérise en ce que** le noeud central de réseaux (9) est connecté aux réseaux de télécommunication existants (7) sans influencer les fonctions de réseau, les principes de numérotation et les terminaux dans les dits réseaux de télécommunication (7).

2. Procédé selon la revendication 1, **caractérisé en ce que** le noeud central de réseaux (9) utilise les fonctions d'enregistrement automatique des réseaux de téléphonie mobile et des systèmes de téléphonie autonomes pour une gestion simplifiée.

3. Procédé selon la revendication 1, **caractérisé en ce que** le noeud central de réseaux (9) dans le cas normal lie le numéro personnel à une identité de terminal (1, 2) dans des réseaux de type Nordic Mobile Telephony (NMT) ou Global Service Mobile (GSM).

4. Procédé selon la revendication 1, **caractérisé en ce que** le noeud central de réseaux (9) lie le numéro personnel à un point d'accès courant d'un système d'accès autonome (6), lors de l'enregistrement automatique d'un téléphone sans fil (3) dans le système d'accès (6).

5. Procédé selon la revendication 1, **caractérisé en ce que** le noeud central de réseaux (9) lie le numéro personnel à un point d'accès fixe courant, par exemple une prise de téléphone, lors de l'enregistrement manuel.

6. Procédé selon une quelconque des revendications précédentes, **caractérisé en ce que** le noeud central de réseaux (9) gère la conversion de numéro du numéro composé à une identité de terminal mobile associée, un point d'accès autonome associé ou un point d'accès fixe associé, lors d'appels entrants.

7. Procédé selon une quelconque des revendications précédentes, **caractérisé en ce que** le noeud central de réseaux (9) identifie un utilisateur, lors d'un appel sortant, par l'identité de terminal associée (1, 2, 3, 4, 5) et permet ainsi une facturation groupée.

8. Procédé selon une quelconque des revendications précédentes, **caractérisé en ce qu'**une communication directe est réalisée entre le noeud central de réseaux et le registre de situation de domicile « Home Location Register (HLR) » du réseau GSM, respectivement HMTX du réseau NMT, pour obtenir une gestion de mobilité plus efficace.

9. Procédé selon une quelconque des revendications précédentes, **caractérisé en ce qu'**une nouvelle fonctionnalité appelée fonction de gestion de mobilité « Mobility Management Function (MMF) » est introduite dans la station locale de l'échangeur téléphonique numérique AXE pour obtenir une gestion de mobilité plus efficace.

10. Dispositif d'introduction d'un numéro personnel général pour chaque abonné, à utiliser dans tous les réseaux de télécommunication existants (7) et dans les systèmes d'accès autonomes (6) connectés aux dits réseaux de télécommunication (7), dans lequel un appel d'un abonné, situé dans un quelconque des réseaux de télécommunication (7) ou utilisant un système d'accès autonome (6) connecté aux dits réseaux de télécommunication (7), vers un autre abonné, situé dans les mêmes réseaux de télécom-

munication (7) / système d'accès autonome (6) ou dans d'autres réseaux de télécommunication (7) / système d'accès autonome (6), est connecté à un noeud central de réseaux (9) agencé de manière à convertir le numéro personnel reçu en le numéro spécifique correspondant au réseau de télécommunication auquel l'abonné appelé s'est enregistré, et le dit noeud central de réseaux (9) étant agencé pour exécuter une connexion du dit appel au point d'accès courant qui correspond au numéro spécifique de l'abonné appelé, **caractérisé en ce que** le dit noeud central de réseaux (9) est connecté à des réseaux de télécommunication existants (7) sans influencer les fonctions de réseau, les principes de numérotation et les terminaux dans les dits réseaux (7).

11. Dispositif selon la revendication 10, **caractérisé en ce que** le dit noeud central de réseaux (9) inclut le dit numéro personnel qui définit un profil de service spécifique d'utilisateur pour l'abonné respectif, le dit noeud (9) incluant en outre des informations d'adresses « d'acheminement » courantes, des adresses à des boîtes aux lettres personnelles et d'autres services existants, ainsi que des informations administratives nécessaires telles que des paramètres de débit, des adresses de facturation, etc.

12. Dispositif selon une quelconque des revendications 10 ou 11, **caractérisé en ce que** le dit noeud central de réseaux (9) dans le cas normal est prévu pour lier le numéro personnel à une identité de terminal (1, 2) dans NMT ou GSM.

13. Dispositif selon une quelconque des revendications 10 à 12, **caractérisé en ce que** le dit noeud central de réseaux (9) est agencé pour lier le numéro personnel à un point d'accès courant dans un système d'accès autonome (6) lors d'un enregistrement automatique d'un téléphone sans fil (3) dans le système d'accès (6).

14. Dispositif selon une quelconque des revendications 10 à 13, **caractérisé en ce que** le dit noeud central de réseaux (9) est prévu pour lier le numéro personnel à un point d'accès fixe courant, par exemple une prise de téléphone, lors d'un enregistrement manuel.

15. Dispositif selon une quelconque des revendications 10 à 14, **caractérisé en ce que** le dit noeud central de réseaux (9) est un noeud de réseaux intelligent (IN).

16. Dispositif selon la revendication 14, **caractérisé en ce qu'**on utilise deux niveaux de noeud IN (9), le premier niveau étant une fonction de contrôle de système (SCF) / fonction de répertoire de système v (SDF_v) et le deuxième niveau étant SCP/SDF_h agencé pour gestion de commandes de service central respectif local et gestion de données pour utilisateurs mobiles.

Figure 1

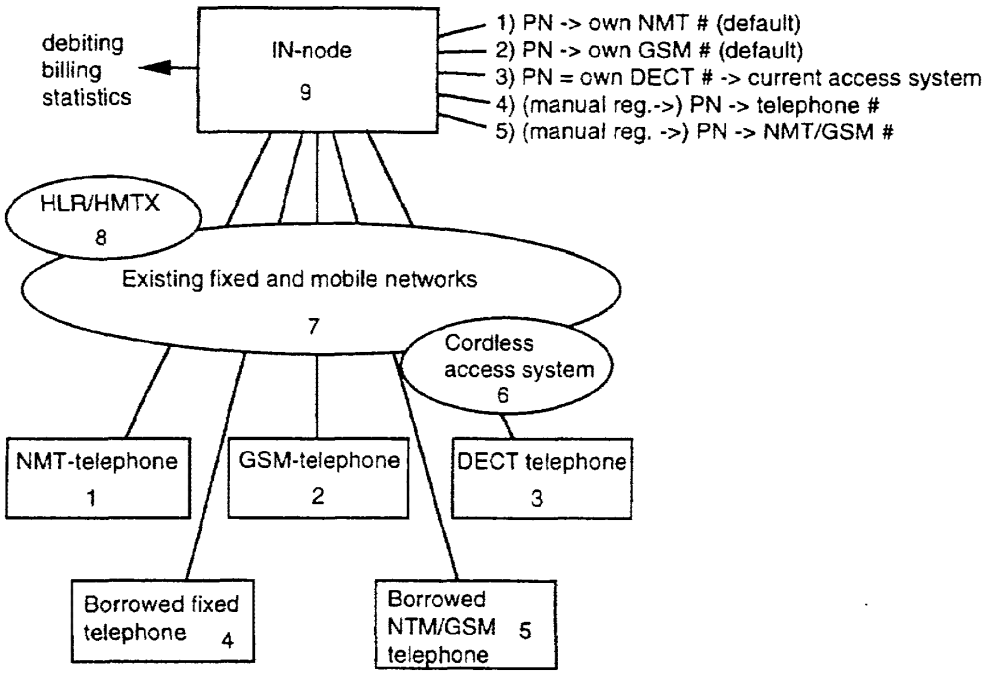
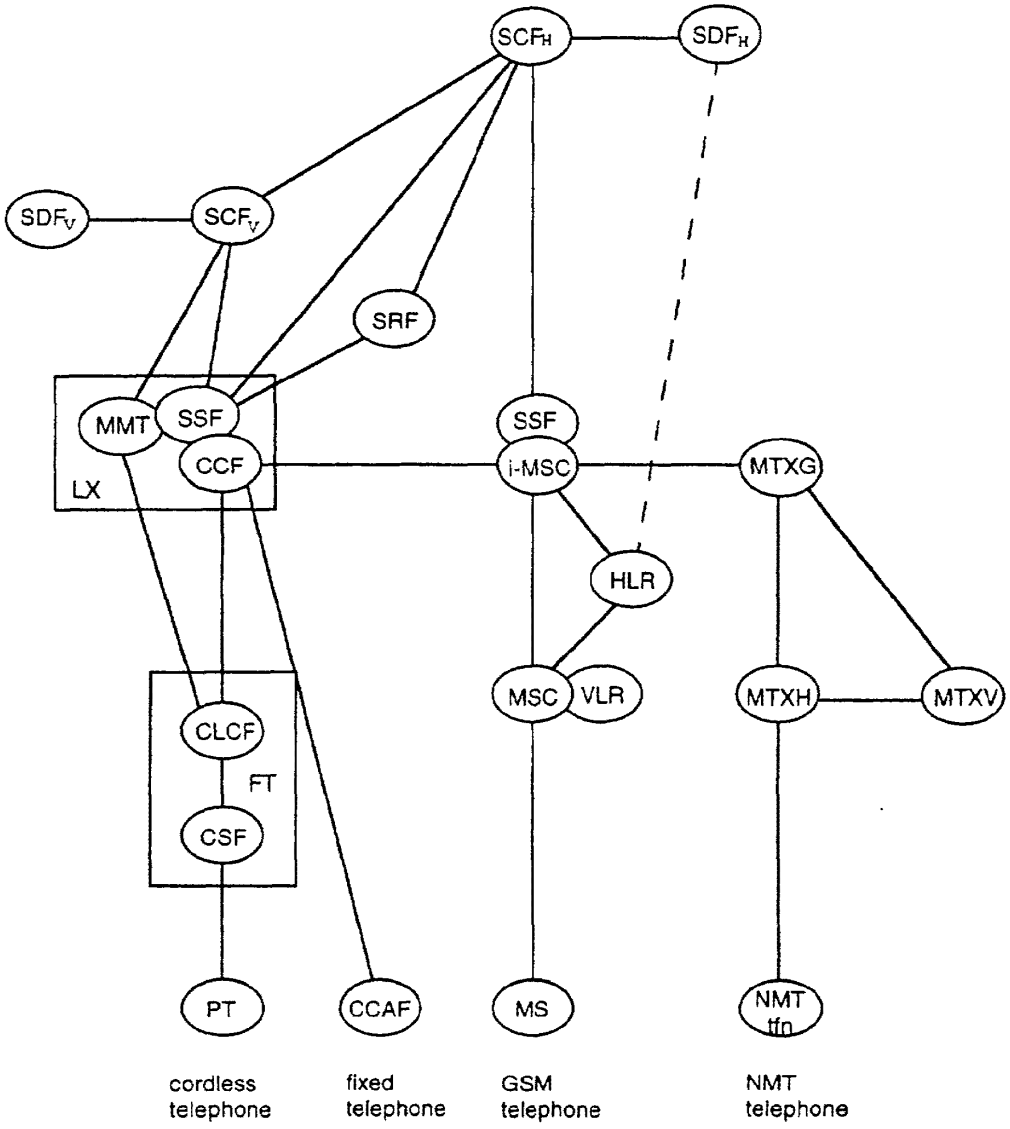


Figure 2



(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 858 202 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
10.10.2007 Bulletin 2007/41

(51) Int Cl.:
H04M 1/274 *(2006.01)* ***H04M 1/57*** *(2006.01)*

(21) Application number: **98300975.4**

(22) Date of filing: **10.02.1998**

(54) **A graphic user interface for use with a telephone directory**

Graphische Benutzerschnittstelle zum Gebrauch mit einem Fernsprechverzeichnis

Interface utilisateur graphique pour usage avec un répertoire téléphonique

(84) Designated Contracting States:
DE FR GB

(30) Priority: **10.02.1997 US 798521**

(43) Date of publication of application:
12.08.1998 Bulletin 1998/33

(73) Proprietor: **Nokia Corporation**
02150 Espoo (FI)

(72) Inventors:
- **Rosecrans, Michael W.**
  Santee,
  California 92071 (US)
- **Simon, Mitchell**
  San Diego,
  California 92130 (US)

(74) Representative: **Piotrowicz, Pawel Jan Andrzej et al**
Venner Shipley LLP
Byron House
Cambridge Business Park
Cowley Road
Cambridge CB4 0WZ (GB)

(56) References cited:
EP-A- 0 493 084
WO-A-94/30023
GB-A- 2 306 078

- **PATENT ABSTRACTS OF JAPAN vol. 1997, no. 06, 30 June 1997 (1997-06-30) & JP 09 036945 A (SONY CORP), 7 February 1997 (1997-02-07) -& US 5 778 054 A (KIMURA YUJI ET AL) 7 July 1998 (1998-07-07)**
- **PATENT ABSTRACTS OF JAPAN vol. 011, no. 245 (E-531), 11 August 1987 (1987-08-11) & JP 62 057347 A (NIPPON TELEGR & TELEPH CORP), 13 March 1987 (1987-03-13)**

Printed by Jouve, 75001 PARIS (FR)

EP 0 858 202 B1

Description

[0001] The present invention relates to telephones and, more particularly, to telephones, such as cellular phones, containing electronic phonebooks and a Graphic User Interface for such phonebooks.

[0002] In the new wireless world, people do not think of connecting with a place, a phone number, or a name, such as found in a phone directory, but rather with a particular person or entity. Still, existing phone equipment for the most part requires directory-type dialing or data entry in memory for normal functioning instead of being more compatible with the present mobile, intuitive society. Also, currently, computers, the Internet, and PDAs have become more icon-based, so that cellular phone and PCS handsets should be more graphically oriented, particularly in view of the availability of Dot Matrix Displays which can allow cell phones to display graphics, logos, and black & white pictures.

[0003] Current telephones, including cellular phones, have the capability of storing names and numbers in an electronic phonebook, but the user must manually enter the information and then remember which person or place is related to the name or number when accessing the information later. The user may get some respite from number entry with this technology since the phone can be automatically dialed using the information if it is properly recalled. In this regard, present SMS technology allows for the ability to send an alphanumeric message tied to a phone number, but in general there is a need for a more user-friendly format with more use of graphics and reduced burdensome user input in sending and managing messages and information.

[0004] Present phone technology is still not sufficiently user-friendly and digital cellular phones need to utilize greater graphical capabilities to offer enhanced, easier, informative, and more personal service.

[0005] EP-A-0493084 describes a communication apparatus including a storage unit for storing image information associated with a distant station, an instruction unit for instructing a read operation of image information stored in the storage unit, a display unit for reading out and displaying a plurality of pieces of image information instructed by the instruction unit and a communication control unit for generating a call to one of distant stations corresponding to the pieces of image information displayed on the display unit. A received image signal and a selection signal for a telephone number of a calling party may be registered in correspondence with each other. An operator selects an image to make a telephone call to a calling party of the image using a telephone number corresponding to the image. In this manner, an image of a party to be called can be visually recognised before calling, and a calling operation can be reliably performed to a required party with a simple operation.

[0006] US-5778054 describes a communication terminal apparatus receiving and storing access information and video information corresponding to the access information. The video information is retrieved from storage for display to a user. A selection of one video information is received from a user and one access information corresponding to the one video information is retrieved from storage.

[0007] The present invention seeks to provide an improved graphic user interface, a telephone with a graphic user interface and a method of using a graphic identifier.

[0008] According to the present invention there is provided a graphic user interface for use with an electronic phonebook in a telephone, such as a cellular phone, comprising means for tying phone numbers in the phonebook to respective graphic identifiers, means for displaying the graphic identifiers on a display screen of the telephone, means for selecting a graphic identifier on the displaying means; and means, responsive to the selecting of a graphic identifier on the displaying means, for activating the telephone to call the respective tied phone number, means for storing and tying additional graphical information to the phone numbers in the phonebook along with the respective graphic identifiers and means, responsive to the completion of a call to the respective tied phone number, for sending the additional graphical information and tied phone numbers to the telephone at the respective tied phone number.

[0009] The interface may further comprise means for scrolling the respective graphic identifiers for successive display on the displaying means. The selecting means may comprise means, coupled to the phonebook, for accessing tied phone numbers therein, SEND means for actuation by a phone user when a respective graphic identifier to be selected is displayed and producing a signal in response to being actuated and means, coupled to the accessing means and the activating means and responsive to the signal produced by the SEND means, for communicating the phone number tied to the selected respective graphic identifier to the activating means when the SEND means is pressed. The tying means may comprise a database with fields for storing pixel information of the graphic identifiers, and with fields for storing the respective tied phone numbers and means for accessing both the graphic identifiers and the respective tied phone numbers by the same index into the database. The tying means may comprise a database record holding both a graphic identifier and its respective tied phone number.

[0010] According to the present invention there is provided a telephone comprising an electronic phonebook for storing a plurality of phone numbers tied to respective graphic identifiers and additional information tied to the respective graphic identifiers, a display screen for displaying the graphic identifiers, means for producing a scroll signal for scrolling the graphic identifiers on the display screen and interface means for controlling the providing of the graphic identifiers from the phonebook to the display screen in response to the scroll signal produced by the scrolling means, the interface means comprising the interface, wherein the means for activating the telephone to call the respective tied phone number

further comprises means for sensing when a call has been completed and sending a connect signal, indicating a phone is available for receiving at the phone number called, to the interface and the interface further comprises means, responsive to the connect signal, for sending the additional information tied to the graphic identifier displayed on the display screen to the available phone.

[0011] The activating means may comprise a microprocessor. The interface means may further comprise means for storing the graphic identifiers. The electronic phonebook may comprise means for storing the graphic identifiers.

[0012] According to the present invention there is further provided a method of using a graphic identifier with an electronic phonebook in a telephone, such as a cellular phone, to activate a phone call to a tied phone number, comprising tying phone numbers in the phonebook to respective graphic identifiers, displaying the graphic identifiers on a display screen of the cellular phone, selecting a graphic identifier on the display screen and while the selected graphic identifier is being displayed on the display screen, activating the phone to call the respective tied phone number, storing and tying additional graphical information to the phone numbers in the phonebook along with the respective graphic identifiers and in response to the completion of a call to the respective tied phone number, sending the additional graphical information and tied phone numbers to the phone at the respective tied phone number

[0013] The additional graphical information may comprise advertising material. The step of selecting may comprise actuating a phone element when a respective graphic identifier to be selected is displayed and producing a signal in response to the phone element being actuated, accessing tied phone numbers from the phonebook; and in response to a signal produced by the phone element being actuated, communicating the phone number tied to the selected respective graphic identifier for activating the phone to call the respective tied phone number. The phonebook may comprise a database with fields for storing pixel information of the graphic identifiers, and with fields for storing the respective tied phone numbers, and wherein the method comprises accessing both the graphic identifiers and the respective tied phone numbers by the same index into the database. The method may comprise the phonebook holding both a graphic identifier and its respective tied phone number in a database record. The method may comprise scrolling the respective graphic identifiers for successive display on the display screen.

[0014] Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, of which:

Figure 1 is a perspective view illustrating an example of a cellular telephone for use with the present invention; and

Figure 2 is a block diagram illustrating an exemplary set of operating components and their cooperation for producing a call.

[0015] The present invention involves the provision of a Graphic User Interface for use with telephones containing electronic phonebooks, which Interface links graphical information, e.g., a graphic image or logo or picture, stored in the phonebook to one or more selected phone numbers, also stored in the phonebook, to enable the calling of a number using the graphic image and the sending of related graphical information with linked numbers to the selected phone numbers. A preferred embodiment of Graphic User Interface for electronic phonebooks in accordance with the invention draws upon three technologies used in existing digital cellular phones. The three are:

1. Electronic Phonebook technology whereby current cellular phones can store names and/or numbers that are manually entered into a phone memory or database by a user;
2. Digital messaging technology whereby a phone can communicate with other phones with an alphanumeric message tied to a phone number; and
3. Dot Matrix Display technology whereby cell phones are able to display graphics, logos, and "black & white" pictures.

[0016] Through the linking and combining of features of these three technologies the invention enables users, companies, and advertisers to use graphic images for making phone calls and to exchange graphics, that are tied to phone numbers, and to store this exchanged information in the memory of their phones. An example of a phone for use with the invention is shown in Figure 1 in the form of a cellular phone 10, including a display 11 adapted, by means of an Interface unit 12, to present graphic images 13. The images 13 are graphic identifiers and may be stored in a separate Graphic phonebook in the Interface unit 12, or in the phone's electronic phonebook 14, along with tied phone numbers and optionally other tied information. This tying may be accomplished by means of an information database with fields for storing pixel information of the image and fields for storing the phone number or numbers and other tied information, with both the image and phone numbers being accessed by the use of the same value or index into the database. Alternatively, one database record may hold both an image's pixel information and the phone numbers and other information tied to that image.

[0017] A user wishing to make a phone call, for conversation or for sending graphical/phone number information to another, scrolls through the different images or logos or pictures 13 on the phone display 11 for one that identifies the location or person to be called. Scrolling may be accomplished by pressing a key or keys on a keypad 17 to read forwards and backwards through the

records in a database stored in the Graphic phonebook of the Interface unit 12 or a database of the electronic phonebook 14, and displaying the image fields 13 of the records read on the display 11. Each key press on keypad 17 may index an increase or a decrease in the order of the database records. This scrolling may be used to merely display a stored image for viewing purposes, such as a picture of a family member; but, more importantly, it also may be used for displaying a series of graphic identifiers 13 which have related stored images and numbers. Accordingly, each graphic identifier 13, having one or more tied phone numbers stored with it in a memory in Interface unit 12 or in the phonebook memory, may be viewed until the one that identifies the location or person to be called appears. Selection of the desired location or person is then accomplished, when the graphic identifier 13 associated with or corresponding to a desired location or person is displayed while scrolling, by ceasing scrolling and activating the phone. The phone may be activated by pressing the SEND button 15 while the associated graphic identifier 13 is being displayed, which causes the Interface unit 12 to activate the phone circuitry 16 to place a call to the location or person without other involvement of the user with the tied phone number. Thus, a user is able to call another person or location without having to remember or to dial the phone number of that person.

[0018] Figure 2 is a block diagram showing an exemplary set of operating components and their cooperation for producing a call. The Interface unit 12 contains a microprocessor 18 and an optional memory 19 for storing graphic identifiers and, optionally, one or more tied phone numbers and/or graphics with them. The microprocessor 18 has inputs from memory 19 and the phonebook memory 14' as well as from keypad 17, which controls the image information from memory 19 and/or memory 14' provided to display 11. An input from SEND key 15 will produce an appropriate output from microprocessor 18 to the phone circuitry 16 to call the phone number tied to the graphic identifier being viewed on display 11. Thus, the number to be called is selected by viewing the graphic identifier tied to the desired number and pressing the SEND key 15.

[0019] Once the sending and receiving phones are connected for transmission, a conversation may be held, or a message sent, or information may be forwarded from the sending phone's memory. The information sent to the receiving phone or phones may include the graphic identifier and/or other graphics, along with further tied phone numbers, for immediate selection at, or storage in a database in, the receiving phone. For example, as indicated in Figure 2, when the call has been completed, the phone circuitry 16 can provide a signal to the microprocessor 18 to send or download appropriate stored information, such as graphical information and/or phone numbers, from memories 19 and/or 14' to the receiving phone at the number that has been called. Consequently, the receiving phone can be enabled to perform storage and display and graphic identifier dialing in the manner of the sending phone without the need for any other data entry by the receiving phone user.

[0020] The existing technologies are preferably combined in the manner of the invention by a software-based Interface unit 12 that provides for the creation of a Graphic phonebook file or database, in memory 19 or memory 14', which enables the graphic identifiers to be tied to one or more phone numbers in an electronic phonebook accessible through the Interface. In addition, this database may tie the graphic identifiers to other graphics and phone numbers which may be sent, using the Interface, to other phone users for incorporation in other like databases in their Graphic electronic phonebooks. Further, the graphic identifiers can be tied to messages and other information. As a result, graphic images can be used as location holdings for further information, as well as phone numbers. The Graphic electronic phonebooks may be permanent in nature or location-specific temporary phonebooks.

[0021] A specific example of the use of communicating phones incorporating an Interface in accordance with the invention is as follows. Joe and Jane, who have appropriately equipped phones, meet each other and want to keep in touch. Each has a personal picture with a tied phone number in their Graphic User Interface electronic phonebooks. Joe transmits or downloads his picture/number to Jane for storage in her Graphic phonebook and she transmits or downloads her picture/number to Joe for like storage. Then, when Joe wishes to call Jane, he scrolls through the pictures of people stored in his Graphic phonebook until Jane's picture is displayed, whereupon he presses SEND and the phone calls Jane's number. Neither need remember the phone numbers or get involved in dialing them. The pictures and numbers may be part of a business card stored electronically, or a driver's license or other identification means so stored, that can be readily displayed on display 11 for this purpose.

[0022] Another example of how graphic identifiers may be used to exchange more detailed information is as follows. Advertisers and service or merchandise providers can utilize graphic identifiers in an exceptional way to communicate with people in a particular target area. For instance, a traveler entering a new geographic area, and indicating his presence there by means of his phone, can be sent several graphics, such as a Car Rental icon, an Hotel icon, a Restaurant icon, and/or an icon representing some other available service or merchant, from an advertiser database to his suitably equipped cellular phone. The transmitted information may be stored in a Graphic location-specific temporary phonebook in the traveler's phone. The graphic images or icons can be hierarchically arranged in categories with multiple entries under each category.

[0023] By selecting and pressing on any of the received icons on the Interface display, the traveler can display or receive additional information and/or directly call a Customer Service Representative at a desired

service location. Upon contacting a Representative, the traveler can discuss available choices, pictures of, or information on, which may be prestored with the icon in his Graphic phonebook for viewing and consideration during the conversation. Further graphical information may also be transmitted. The traveler may keep the icons and information in his location-specific temporary phonebook throughout the duration of his trip to be able to intuitively reach those services that are important to him, and then erase the phonebook when the trip is over.

[0024] In comparison to the known pagers that use icons to reach different parts of stored information, i.e., a phone for phone numbers, a book for addresses, the invention enables a user to utilize the airwaves to get detailed and related information into a cellular phone without having to go to the time and trouble of keying it in himself. Moreover, once the information reaches the cell phone, it is live, in the sense that it too activates the phone to make a call as the phone number is intuitively tied to the information.

[0025] The sender can also utilize graphical representations or icons to obtain selected responses to an inquiry. Recipients, having downloaded suitable graphical information in memory, can answer an inquiry by selecting one of the icons or replying with a selection of stored graphics images that have information tied to the icon, and then sending this information-rich graphic as a response to the inquiry or inquiries. Advertisers can utilize this capability to send immediately requested information in response to an icon, and have a universally recognized pictorial to lead the user to the information. For example, such pictorial information could include a map, if there is enough resolution in the display, indicating how to reach a location, as well as icons that represent different department phone numbers.

[0026] Taking a lead from off-air broadcast commercial television, which is free to the viewer in return for his sitting through commercials, it is contemplated that the geographic-specific advertising capabilities of the invention can be used by phone carriers to obtain advertising-supported revenues to subsidize the charges that they would normally charge their customers. If carriers are allowed to advertise on the handset, they could pass on this revenue in the form of lower charges to the phone user. With this subsidization, more phone customers might be able to use the service if they agree to be exposed to advertising on the network. Such advertising would work as follows. A carrier would act in the manner of a television network, in that it would sell air time for ad space. The highest price would be put on the best spot times. When users have their handsets ON, the empty space on the screen would accept advertising messages. These advertising messages could contain icons and additional information and could be tied to a phone number. Consumers could choose to call the number, or store the number in their handsets for later reference, using an icon. If no immediate action were taken, the advertisement, as on television, would just disappear.

[0027] Business to Business Users may also take advantage of the invention by utilizing a graphical representation of a person or business entity, whereby business users can swap electronic business cards. Unlike electronic organizers that require the manual entry and retrieval of phone information, and then the manual dialing of a telephone, the electronic icon addressing application of the invention allows users to exchange business cards by making a phone call using a graphic and affecting the transfer of a business card and its information to another business user. The receiver can store the landline home and business phone number, mobile number, pagers, and e-mail address with related graphical information in the cellular phone. Then, when the second user wants to contact the first user, he scrolls through his address book, and locates the person graphically; he then scrolls through the graphic icons for home, business, mobile, pager, e-mail, etc. and presses SEND upon display of the appropriate icon to contact the first user in the most desired manner and location.

[0028] It will be understood that the implementing software for the Interface unit must be written to accommodate its use with a given telephone or cellular network and first must provide the function or capability to tie a graphic to one or more phone numbers.

[0029] In addition, the software must allow one user to send his or her graphical information to another user's Graphic electronic phonebook, or location-specific temporary phonebook. The code will be written using graphics as the enabling icon to sort through and retrieve tied information, and these graphics may also be tied to a message and/or more information. The details of producing the software for these purposes and functions in accordance with the invention must depend upon the system and context in which it is to be used and, although it may take various forms, this task will be readily within the skill of the art given the details of the features and functions of the invention as disclosed herein.

[0030] It will therefore be seen that the invention enables users, companies, and advertisers to use a phone to exchange graphics that are tied to phone numbers and store the exchanged information in the memory of the phone. Users wishing to make phone calls scroll through the different graphics, logos, or pictures displayed on the phone that define the person or location to be called, and then activate an appropriate graphic, upon seeing the desired icon and pressing a SEND key, to call the person selected.

[0031] By adding graphics that can be received over the air to a cellular phone, use of that phone becomes much simpler. Names and numbers tied to the graphics are sent over the air and stored, so that people, places, and entities are easily recalled by the receiving phone's user through graphic recognition. All the necessary information may be sent via a wireless network and stored in the phone's memory. This relieves the user from having to manually enter information that is difficult to recall given the limitation of letters and numbers. This also relieves

the user from having to carry a PDA or computer to generate responses or look up information that can be stored on the cellular phone. Thus, the disclosed use of graphics, which are readily recognized and utilized, renders the operation of telephones, such as cellular phones, extremely user-friendly.

Claims

1. A graphic user interface (12) for use with an electronic phonebook (14) in a telephone (10), such as a cellular phone, comprising:

   means for tying phone numbers in said phonebook to respective graphic identifiers (13);
   means for displaying said graphic identifiers on a display screen (11) of said telephone;
   means for selecting a graphic identifier on said displaying means; and
   means, responsive to the selecting of a graphic identifier on said displaying means, for activating said telephone to call said respective tied phone number;
   characterised by
   means for storing and tying additional graphical information to said phone numbers in said phonebook along with said respective graphic identifiers; and
   means, responsive to the completion of a call to said respective tied phone number, for sending said additional graphical information and tied phone numbers to the telephone at said respective tied phone number.

2. An interface as in claim 1 further comprising:

   means for scrolling said respective graphic identifiers for successive display on said displaying means.

3. An interface as in claim 1 or 2, wherein said selecting means comprises:

   means, coupled to said phonebook, for accessing tied phone numbers therein;
   SEND means (15) for actuation by a phone user when a respective graphic identifier to be selected is displayed and producing a signal in response to being actuated; and
   means, coupled to said accessing means and said activating means and responsive to said signal produced by said SEND means, for communicating the phone number tied to said selected respective graphic identifier to said activating means when said SEND means is pressed.

4. An interface as in any preceding claim wherein said tying means comprises:

   a database with fields for storing pixel information of said graphic identifiers, and with fields for storing said respective tied phone numbers; and means for accessing both said graphic identifiers and said respective tied phone numbers by the same index into said database.

5. An interface as in any of claims 1 to 4 wherein said tying means comprises a database record holding both a graphic identifier and its respective tied phone number.

6. A telephone comprising:

   an electronic phonebook for storing a plurality of phone numbers tied to respective graphic identifiers and additional information tied to said respective graphic identifiers;
   a display screen for displaying said graphic identifiers;
   means for producing a scroll signal for scrolling said graphic identifiers on said display screen; and
   interface means for controlling the providing of said graphic identifiers from said phonebook to said display screen in response to said scroll signal produced by said scrolling means, said interface means comprising an interface according to any preceding claim, wherein:

      said means for activating said telephone to call said respective tied phone number further comprises means for sensing when a call has been completed and sending a connect signal, indicating a phone is available for receiving at the phone number called, to said interface; and
      said interface further comprises means, responsive to said connect signal, for sending said additional information tied to said graphic identifier displayed on said display screen to said available phone.

7. A telephone as in claim 6 wherein said activating means comprises a microprocessor.

8. A telephone as in claim 6 or 7 wherein said interface means further comprises means for storing said graphic identifiers.

9. A telephone as in any of claims 6 to 8 wherein said electronic phonebook comprises means for storing said graphic identifiers.

10. A method of using a graphic identifier with an elec-

tronic phonebook in a telephone, such as a cellular phone, to activate a phone call to a tied phone number, comprising:

tying phone numbers in said phonebook to respective graphic identifiers;
displaying said graphic identifiers on a display screen of said cellular phone;
selecting a graphic identifier on said display screen; and
while the selected graphic identifier is being displayed on said display screen, activating said phone to call said respective tied phone number;
characterised by
storing and tying additional graphical information to said phone numbers in said phonebook along with said respective graphic identifiers; and
in response to the completion of a call to said respective tied phone number, sending said additional graphical information and tied phone numbers to the phone at said respective tied phone number

11. The method of claim 10 wherein said additional graphical information comprises advertising material.

12. The method of claim 10 or 11 wherein said step of selecting comprises:

actuating a phone element when a respective graphic identifier to be selected is displayed and producing a signal in response to said phone element being actuated;
accessing tied phone numbers from said phonebook; and
in response to a signal produced by said phone element being actuated, communicating the phone number tied to said selected respective graphic identifier for activating said phone to call said respective tied phone number.

13. The method of any one of claims 10 to 12 wherein said phonebook comprises a database with fields for storing pixel information of said graphic identifiers, and with fields for storing said respective tied phone numbers, and wherein the method comprises accessing both said graphic identifiers and said respective tied phone numbers by the same index into said database.

14. The method of any one of claims 10 to 12 wherein the method comprises said phonebook holding both a graphic identifier and its respective tied phone number in a database record.

15. The method of any one of claims 10 to 14 comprising:

scrolling said respective graphic identifiers for successive display on said display screen.

Patentansprüche

1. Grafische Benutzerschnittstelle (12) für die Verwendung mit einem elektronischen Telefonbuch (14) in einem Telefon (10) wie zum Beispiel einem Mobiltelefon, umfassend

- Mittel zum Verknüpfen von Telefonnummern in dem Telefonbuch mit jeweiligen grafischen Kennungen (13);
- Mittel zum Anzeigen der grafischen Kennungen auf einem Anzeigeschirm (11) des Telefons;
- Mittel zum Auswählen einer grafischen Kennung auf den Anzeigemitteln; und
- Mittel, die auf das Auswählen einer grafischen Kennung auf den Anzeigemitteln ansprechen, zum Aktivieren des Telefons, um die jeweilige verknüpfte Telefonnummer anzurufen;

gekennzeichnet durch

- Mittel zum Speichern und Verknüpfen von zusätzlichen grafischen Informationen mit den Telefonnummern in dem Telefonbuch zusammen mit den jeweiligen grafischen Kennungen; und
- Mittel, die auf den Abschluss eines Anrufs an die jeweilige verknüpfte Telefonnummer ansprechen, zum Senden der zusätzlichen grafischen Informationen und verknüpften Telefonnummern an das Telefon bei der jeweiligen verknüpften Telefonnummer.

2. Schnittstelle nach Anspruch 1, weiter umfassend

- Mittel zum Blättern durch die jeweiligen grafischen Kennungen für aufeinander folgende Anzeige auf den Anzeigemitteln.

3. Schnittstelle nach Anspruch 1 oder 2, wobei die Auswahlmittel umfassen

- Mittel, gekoppelt mit dem Telefonbuch, zum Zugreifen auf verknüpfte Telefonnummern darin;
- SENDE-Mittel (15) zum Betätigen durch einen Telefonbenutzer, wenn eine jeweilige auszuwählende grafische Kennung angezeigt wird, und Erzeugen eines Signals in Reaktion darauf, dass sie betätigt werden; und
- Mittel, gekoppelt mit den Zugriffsmitteln und den Aktivierungsmitteln und ansprechend auf das Signal, das von den SENDE-Mitteln erzeugt wird, zum Übermitteln der Telefonnummer, die

mit der jeweiligen grafischen Kennung verknüpft ist, an die Aktivierungsmittel, wenn die SENDE-Mittel gedrückt werden.

4. Schnittstelle nach irgendeinem der vorhergehenden Ansprüche, wobei das Verknüpfungsmittel umfasst

- eine Datenbank mit Feldern zum Speichern von Bildpunktinformationen der grafischen Kennungen, und mit Feldern zum Speichern der jeweiligen verknüpften Telefonnummern; und
- Mittel zum Zugreifen auf sowohl die grafischen Kennungen als auch die jeweiligen verknüpften Telefonnummern durch denselben Index in die Datenbank.

5. Schnittstelle nach irgendeinem der Ansprüche 1 bis 4, wobei das Verknüpfungsmittel einen Datenbank-Eintrag umfasst, der sowohl eine grafische Kennung als auch deren jeweilige verknüpfte Telefonnummer beinhaltet.

6. Telefon, umfassend

- ein elektronisches Telefonbuch zum Speichern von mehreren Telefonnummern, die mit jeweiligen grafischen Kennungen verknüpft sind, und von zusätzlichen Informationen, die mit den jeweiligen grafischen Kennungen verknüpft sind;
- einen Anzeigeschirm zum Anzeigen der grafischen Kennungen;
- Mittel zum Erzeugen eines Blätter-Signals zum Blättern durch die grafischen Kennungen auf dem Anzeigeschirm; und
- Schnittstellenmittel zum Steuern der Bereitstellung der grafischen Kennungen von dem Telefonbuch an den Anzeigeschirm in Reaktion darauf, dass das Blätter-Signal von den Blätter-Mitteln erzeugt wird, wobei die Schnittstellenmittel eine Schnittstelle nach irgendeinem vorhergehenden Anspruch umfassen;

wobei

- das Mittel zum Aktivieren des Telefons, um die jeweilige verknüpfte Telefonnummer anzurufen, weiter Mittel umfasst, um zu erfassen, wenn ein Anruf abgeschlossen wurde und zum Senden eines Verbindungs-Signals, das angibt, dass ein Telefon zum Empfangen an der angerufenen Telefonnummer verfügbar ist, an die Schnittstelle; und
- die Schnittstelle weiter Mittel umfasst, die auf das Verbindungs-Signal ansprechen, zum Senden der zusätzlichen Informationen, die mit der grafischen Kennung, die auf dem Anzeigeschirm angezeigt wird, verknüpft sind, an das verfügbare Telefon.

7. Telefon nach Anspruch 6, wobei das Aktivierungsmittel einen Mikroprozessor umfasst.

8. Telefon nach Anspruch 6 oder 7, wobei das Schnittstellenmittel weiter Mittel zum Speichern der grafischen Kennungen umfasst.

9. Telefon nach irgendeinem der Ansprüche 6 bis 8, wobei das elektronische Telefonbuch Mittel zum Speichern der grafischen Kennungen umfasst.

10. Verfahren zum Verwenden einer grafischen Kennung mit einem elektronischen Telefonbuch in einem Telefon wie zum Beispiel einem Mobiltelefon, um einen Anruf an eine verknüpfte Nummer zu aktivieren, umfassend

- Verknüpfen von Telefonnummern in dem Telefonbuch mit jeweiligen grafischen Kennungen;
- Anzeigen der grafischen Kennungen auf einem Anzeigeschirm des Mobiltelefons;
- Auswählen einer grafischen Kennung auf dem Anzeigeschirm; und
- Aktivieren des Telefons, um die jeweilige verknüpfte Telefonnummer anzurufen, während die ausgewählte grafische Kennung auf dem Anzeigeschirm angezeigt wird;

gekennzeichnet durch

- Speichern und Verknüpfen von zusätzlichen grafischen Informationen mit den Telefonnummern in dem Telefonbuch zusammen mit den jeweiligen grafischen Kennungen; und
- Senden, in Reaktion auf den Abschluss eines Anrufs an die jeweilige verknüpfte Telefonnummer, der zusätzlichen grafischen Informationen und verknüpften Telefonnummern an das Telefon bei der jeweiligen verknüpften Telefonnummer.

11. Verfahren nach Anspruch 10, wobei die zusätzlichen grafischen Informationen Werbematerial umfassen.

12. Verfahren nach Anspruch 10 oder 11, wobei der Schritt des Auswählens umfasst

- Betätigen eines Telefonelements, wenn eine jeweilige auszuwählende grafische Kennung angezeigt wird, und Erzeugen eines Signals in Reaktion darauf, dass das Telefonelement betätigt wird;
- Zugreifen auf verknüpfte Telefonnummern aus dem Telefonbuch; und
- Übermitteln, in Reaktion auf ein Signal, das von dem betätigten Telefonelement erzeugt wird, der Telefonnummer, die mit der ausgewählten jeweiligen grafischen Kennung ver-

knüpft ist, zum Aktivieren des Telefons, um die jeweilige verknüpfte Telefonnummer anzurufen.

13. Verfahren nach irgendeinem der Ansprüche 10 bis 12, wobei das Telefonbuch eine Datenbank umfasst, mit Feldern zum Speichern von Bildpunktinformationen der grafischen Kennungen, und mit Feldern zum Speichern der jeweiligen verknüpften Telefonnummern, und wobei das Verfahren umfasst, sowohl auf die grafischen Kennungen als auch die jeweiligen verknüpften Telefonnummern durch denselben Index in die Datenbank zuzugreifen.

14. Verfahren nach irgendeinem der Ansprüche 10 bis 12, wobei das Verfahren umfasst, dass das Telefonbuch sowohl eine grafische Kennung als auch deren jeweilige verknüpfte Telefonnummer in einem Datenbank-Eintrag beinhaltet.

15. Verfahren nach irgendeinem der Ansprüche 10 bis 14, umfassend

- Blättern durch die jeweiligen grafischen Kennungen für die aufeinanderfolgende Anzeige auf dem Anzeigeschirm.

Revendications

1. Interface utilisateur graphique (12) à utiliser avec un répertoire téléphonique électronique (14) dans un téléphone (10), tel qu'un téléphone mobile, comprenant :

des moyens pour attribuer des numéros de téléphone dans ledit répertoire téléphonique à des identifiants graphiques (13) respectifs;
des moyens pour afficher lesdits identifiants graphiques sur un écran d'affichage (11) dudit téléphone ;
des moyens pour sélectionner un identifiant graphique sur lesdits moyens d'affichage ; et
des moyens, réactifs à la sélection d'un identifiant graphique sur lesdits moyens d'affichage, pour activer ledit téléphone pour appeler ledit numéro de téléphone attribué respectif ;
caractérisée par
des moyens pour stocker et attribuer des informations graphiques supplémentaires aux dits numéros de téléphone dans ledit répertoire téléphonique avec lesdits identifiants graphiques respectifs ; et
des moyens, réactifs à la fin d'un appel vers ledit numéro de téléphone attribué respectif, pour envoyer lesdites informations graphiques supplémentaires et lesdits numéros de téléphone attribués au téléphone, au dit numéro de téléphone attribué respectif.

2. Interface selon la revendication 1, comprenant également :

des moyens pour faire défiler lesdits identifiants graphiques respectifs pour un affichage successif sur lesdits moyens d'affichage.

3. Interface selon la revendication 1 ou 2, dans laquelle lesdits moyens de sélection comprennent :

des moyens, couplés au dit répertoire téléphonique, pour accéder aux numéros de téléphone attribués qu'il contient ;
des moyens d'ENVOI (15) à actionner par un utilisateur de téléphone lorsqu'un identifiant graphique respectif à sélectionner est affiché, et produisant un signal en réponse au fait d'être actionnés ; et
des moyens, couplés aux dits moyens d'accès et aux dits moyens d'activation, et réactifs au dit signal produit par lesdits moyens d'ENVOI, pour communiquer le numéro de téléphone attribué au dit identifiant graphique respectif sélectionné, aux dits moyens d'activation lorsque l'on presse lesdits moyens d'ENVOI.

4. Interface selon l'une quelconque des revendications précédentes, dans laquelle lesdits moyens d'attribution comprennent :

une base de données comprenant des champs pour stocker des informations relatives aux pixels desdits identifiants graphiques, et des champs pour stocker lesdits numéros de téléphone attribués respectifs ; et
des moyens pour accéder à la fois aux dits identifiants graphiques et aux dits numéros de téléphone attribués respectifs par le même index dans ladite base de données.

5. Interface selon l'une quelconque des revendications 1 à 4, dans laquelle lesdits moyens d'attribution comprennent un enregistrement de la base de données contenant à la fois un identifiant graphique et son numéro de téléphone attribué respectif.

6. Téléphone comprenant :

un répertoire téléphonique électronique pour stocker une pluralité de numéros de téléphone attribués à des identifiants graphiques respectifs et des informations supplémentaires attribuées aux dits identifiants graphiques respectifs ;
un écran d'affichage pour afficher lesdits identifiants graphiques ;
des moyens pour produire un signal de défilement pour faire défiler lesdits identifiants graphi-

ques sur ledit écran d'affichage ; et
des moyens d'interface pour contrôler l'approvisionnement desdits identifiants graphiques dudit répertoire téléphonique vers ledit écran d'affichage en réponse au dit signal de défilement produit par lesdits moyens de défilement, lesdits moyens d'interface comprenant une interface selon l'une quelconque des revendications précédentes, dans lequel :

lesdits moyens pour activer ledit téléphone pour appeler ledit numéro de téléphone attribué respectif comprennent également des moyens pour détecter quand un appel est terminé et pour envoyer un signal de connexion, indiquant qu'un téléphone est disponible pour recevoir au numéro de téléphone appelé, à ladite interface ; et
ladite interface comprend également des moyens, réactifs au dit signal de connexion, pour envoyer lesdites informations supplémentaires attribuées au dit identifiant graphique affiché sur ledit écran d'affichage au dit téléphone disponible.

7. Téléphone selon la revendication 6, dans lequel lesdits moyens d'activation comprennent un microprocesseur.

8. Téléphone selon la revendication 6 ou 7, dans lequel lesdits moyens d'interface comprennent également des moyens pour stocker lesdits identifiants graphiques.

9. Téléphone selon l'une quelconque des revendications 6 à 8, dans lequel ledit répertoire téléphonique électronique comprend des moyens pour stocker lesdits identifiants graphiques.

10. Procédé d'utilisation d'un identifiant graphique avec un répertoire téléphonique électronique dans un téléphone, tel qu'un téléphone mobile, pour activer un appel téléphonique vers un numéro de téléphone attribué, comprenant les étapes consistant à :

attribuer des numéros de téléphone dans ledit répertoire téléphonique à des identifiants graphiques respectifs ;
afficher lesdits identifiants graphiques sur un écran d'affichage dudit téléphone mobile ;
sélectionner un identifiant graphique sur ledit écran d'affichage ; et
tandis que l'identifiant graphique sélectionné est affiché sur ledit écran d'affichage, activer ledit téléphone pour appeler ledit numéro de téléphone attribué respectif;
caractérisé par les étapes consistant à:

stocker et attribuer des informations graphiques supplémentaires aux dits numéros de téléphone dans ledit répertoire téléphonique avec lesdits identifiants graphiques respectifs ; et
en réponse à la fin d'un appel vers ledit numéro de téléphone attribué respectif, envoyer lesdites informations graphiques supplémentaires et lesdits numéros de téléphone attribués au téléphone, au dit numéro de téléphone attribué respectif.

11. Procédé selon la revendication 10, dans lequel lesdites informations graphiques supplémentaires comprennent du matériel publicitaire.

12. Procédé selon la revendication 10 ou 11, dans lequel ladite étape de sélection comprend les étapes consistant à :

actionner un élément de téléphone quand un identifiant graphique respectif à sélectionner est affiché et produire un signal en réponse au fait que le dit élément de téléphone est actionné ;
accéder à des numéros de téléphone attribués à partir dudit répertoire téléphonique ; et
en réponse à un signal produit lorsque ledit élément de téléphone est actionné, communiquer le numéro de téléphone attribué au dit identifiant graphique respectif sélectionné pour activer ledit téléphone pour appeler ledit numéro de téléphone attribué respectif.

13. Procédé selon l'une quelconque des revendications 10 à 12, dans lequel ledit répertoire téléphonique comprend une base de données comprenant des champs pour stocker des informations relatives aux pixels desdits identifiants graphiques, et des champs pour stocker lesdits numéros de téléphone attribués respectifs, et dans lequel le procédé comprend l'accès à la fois aux dits identifiants graphiques et aux dits numéros de téléphone attribués respectifs par le même index dans ladite base de données.

14. Procédé selon l'une quelconque des revendications 10 à 12, dans lequel procédé ledit répertoire téléphonique contient à la fois un identifiant graphique et son numéro de téléphone attribué respectif dans un enregistrement de la base de données.

15. Procédé selon l'une quelconque des revendications 10 à 14 comprenant :

le défilement desdits identifiants graphiques pour un affichage successif sur ledit écran d'affichage.

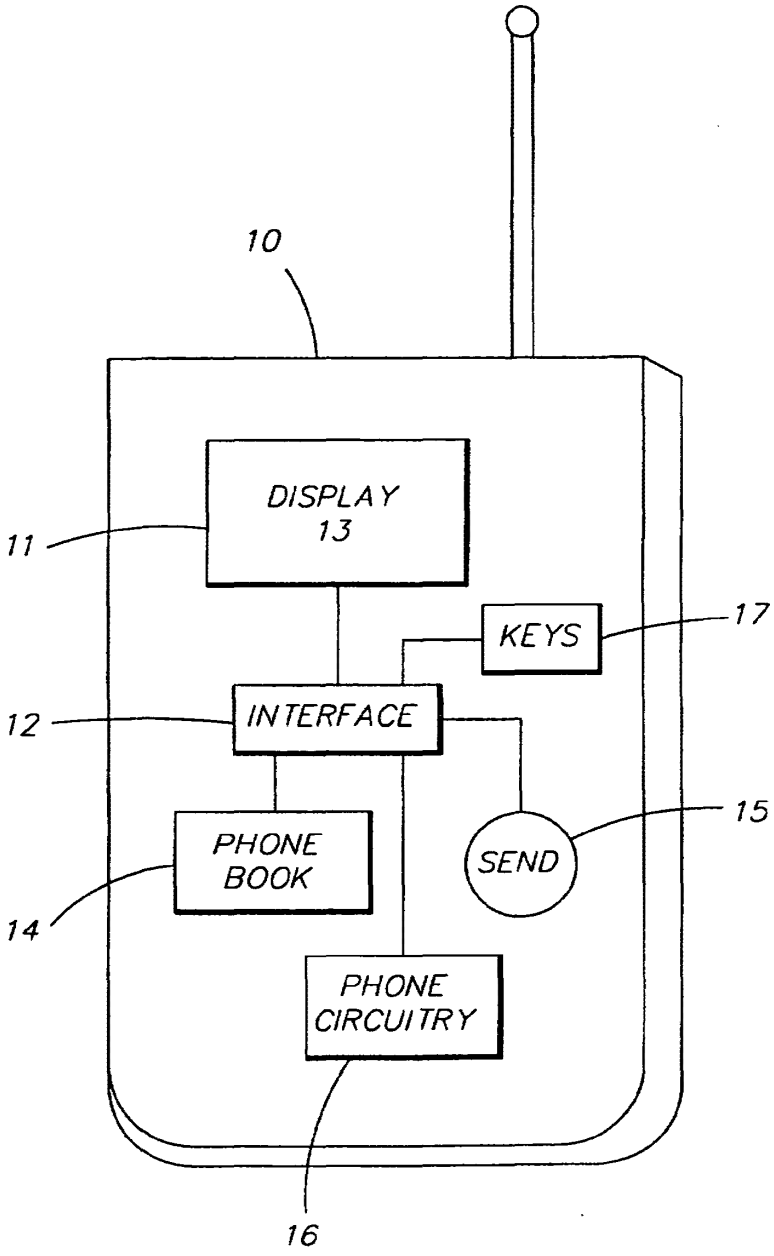


FIG. 1

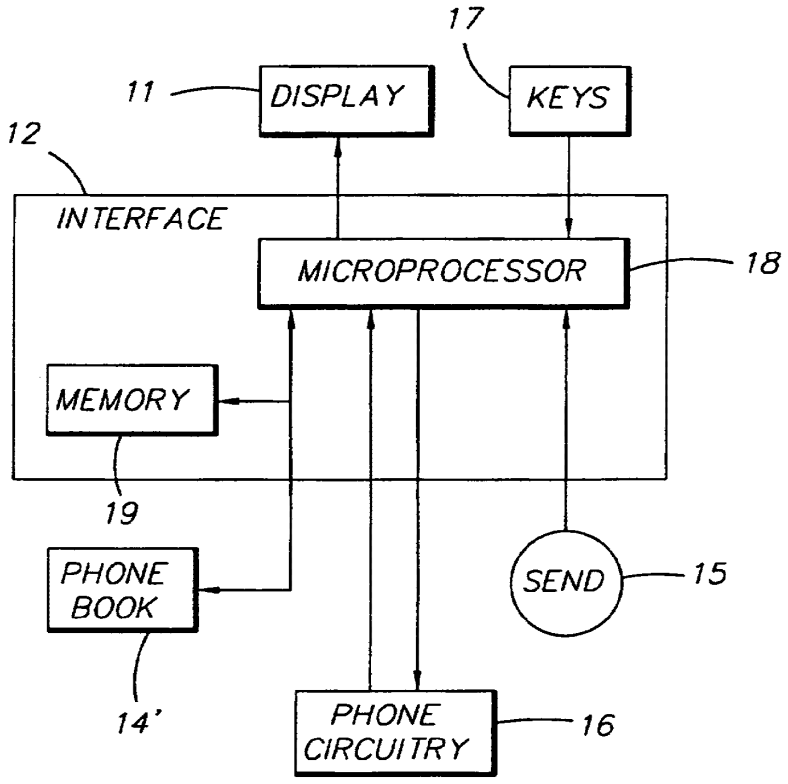


FIG. 2

REFERENCES CITED IN THE DESCRIPTION

This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.

Patent documents cited in the description

- EP 0493084 A **[0005]**
- US 5778054 A **[0006]**

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 869 688 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
28.02.2007 Bulletin 2007/09

(51) Int Cl.:
H04Q 3/00 *(2006.01)* ***H04M 3/42*** *(2006.01)*
H04Q 7/22 *(2006.01)*

(21) Application number: **98660027.8**

(22) Date of filing: **30.03.1998**

(54) **A method and means for transmitting a service page in a communication system**

Verfahren und Vorrichtung zum Übertragen einer Dienstseite in einem Kommunikationssystem

Procédé et dispositif de transmission d'une page de service dans un système de communication

(84) Designated Contracting States:
DE FR GB SE

(30) Priority: **04.04.1997 FI 971386**

(43) Date of publication of application:
07.10.1998 Bulletin 1998/41

(73) Proprietor: **Nokia Corporation**
02150 Espoo (FI)

(72) Inventors:
- **Kari, Janne**
  00670 Helsinki (FI)
- **Rautila, Heikki**
  02130 Espoo (FI)

(74) Representative: **Brax, Matti Juhani et al**
Berggren Oy Ab,
P.O. Box 16
00101 Helsinki (FI)

(56) References cited:
EP-A- 0 590 862
US-A- 5 485 511

Printed by Jouve, 75001 PARIS (FR)

EP 0 869 688 B1

Description

[0001] The present invention relates to a method and means for transmitting service pages implemented in a telecommunication network, such as in an Internet network, to a terminal. The invention is suitable for use particularly in connection with portable terminals, such as mobile stations.

[0002] Digital telephone exchanges and terminals, such as telephones of a wired network and mobile stations, provide for a number of new services to be utilised. One of them is the commonly used identification service of a caller (subscriber A), i.e., the CLIP (Calling Line Identification Presentation) service. With the help of this service, the identifier of the subscriber A, substantially the telephone number of the subscriber A, is transmitted to a receiving terminal (subscriber B), wherein it is typically displayed on the display of the terminal of the subscriber B. On the basis of this information, the subscriber B can see from which number the call is coming. It is also very common that the most frequently used telephone numbers and the names and other identifiers of the corresponding persons have been stored in the terminal of the subscriber B. This function is used particularly in mobile telephones, wherein it is possible to display, on the display of the terminal of the subscriber B, the name or some other identifier of the subscriber A, e.g., the name of the subscriber A's company, on the basis of the telephone number of the subscriber A. Another new service provided by digital telephone networks is the so-called CoLP (Connected Line Identification Presentation) service. This service transmits to the caller (subscriber A) information on what is the actual identifier (telephone number) of the opposite end (subscriber B) of the connected line. With the help of this service, the subscriber A receives information on the subscriber B's actual telephone number of that moment even if the subscriber B has carried out a call transfer.

[0003] The supplementary services relating to the identification of a line, such as the CLIP and CoLP services presented above, defined in the GSM mobile telephone system, have been presented in the GSM Standard GSM 02.81 of the ETSI (European Telecommunications Standards Institute). It defines, amongst other things, in which form the CLIP and CoLP data are transmitted in the GSM system. Both the CLIP and CoLP services contain an extremely limited amount of information. It would be useful if, in addition to the CLIP and CoLP services, it would also be possible to transmit other information.

[0004] European patent application (0 590 862 A2) discloses a method for providing information for display at a calling party telecommunications station or at an idle station. An ISDN display unit is used to display information received over a D-channel of an ISDN signal connecting an ISDN telephone to a switch, whether or not the ISDN station is calling or being called or is idle.

[0005] An increasing number of companies and corporations, in particular, but also private persons have taken into use services based on the Internet network. Due to advanced terminals and more efficient network connections, it is possible to transmit, in the Internet network, various kinds of data including speech and video pictures. Hypermedia pages that have been implemented in the HTML (Hypertext Markup Language) in a WWW (World Wide Web) environment have become particularly popular. On these hypermedia pages, it is possible to create interactive documents or purely informative service pages. Similarly, the pages can also be used for advertising or for providing the address or personal data of a company or a private person possibly together with maps and pictures.

[0006] The Internet network consists of a number of servers and telecommunication networks, which transmit messages in a digital form. The messages, such as, e.g., hypermedia pages, are transferred as files from one server to another and finally to a receiving terminal. The HTTP (HyperText Transfer Protocol) is commonly used for data transmission, the protocol transmitting the information intended for transfer in a form of a packet between the terminals on the basis of a URL (Uniform Resource Locater) address information characteristic of each terminal.

[0007] A method and means have now been invented by means of which it is possible to utilise service pages provided by a telecommunication network, e.g., the Internet network, by means of wired or wireless terminals coupled to the telecommunication network, on the basis of supplementary services, such as the CLIP and CoLP services presented above, relating to line identification. The service pages may contain, e.g., text, graphics or moving video pictures. In a communication system according to the present invention, it is possible to transmit service pages according to several principles. In a first embodiment, a caller (subscriber A) can link the address of the desired service page (in the Internet network, a URL identifier) with the subscriber's own identifier (in the GSM system, with the information transmitted by the CLIP service, i.e., one's own telephone number), on the basis of which a receiving terminal (subscriber B) can retrieve the selected service page from the telecommunication network and display it on the display of the receiving terminal. This method can be utilised, e.g., for advertising purposes, whereupon a teleseller transmits additional information to the customers called. In a second embodiment of the present invention, a receiving terminal (subscriber B) links, on the basis of the telephone number of a subscriber A, the service page he has selected with the number in question and retrieves the service page to his own display. This proceeding is suitable, e.g., for a seller (subscriber B) receiving calls for presenting customer data, whereupon he can, on the basis of the caller's CLIP information, retrieve from his own or the company's database the caller's (subscriber A) volume of orders in hand, prices or even credit information.

[0008] The chapter above presented different embodiments of the present invention, wherein the desired service page was retrieved from the subscriber A on to the display of the subscriber B on the basis of the CLIP service transmitted

to the subscriber B. Similarly, the desired service page can be transmitted on the basis of a CoLP service. In a third embodiment of the present invention, a service page selected by the subscriber B, which can be used, e.g., for advertising purposes, is transmitted on to the display of the subscriber A. This embodiment is suitable, e.g., for situations, where a customer calls the telephone number of a company providing certain products or services and receives automatically to his terminal additional information on the products or services provided by the company in the form of a service page. However, the use of the CoLP service instead of the CLIP service gives one advantage. The subscriber A, at whom the advertisement is directed, can be certain of the advertisement's origin because, for example, call transfers implemented in a telephone network cannot affect the authenticity of the CoLP service. This method is also extremely suitable for key telephone systems, wherein it is possible to implement, e.g., in a hospital on duty, a service which automatically tells the subscriber A the contact information, rank and, for example, the special expertise of the person who has answered the key telephone. On the basis of this information, the customer knows to whom he is speaking and can ask the call to be transferred to another person if necessary.

[0009] In a fourth embodiment of the present invention, a service page that he himself has selected is transmitted to the subscriber A on the basis of the CoLP service. This enables, for example, the expansion of the teleselling application presented in the second embodiment of the present invention so that the customer's volume of orders in hand, prices or even credit information, stored in the company's database, are also automatically available when a seller acts as the subscriber A, i.e., calls the customers (subscribers B). This system is safe, because the reliability of the CoLP information guarantees that the seller can be certain with whom he is doing business. However, nothing prevents the seller application presented above from being further expanded so that said service page is transmitted to both the seller and the customer, whereupon they can refer to the same database during the discussion. In this case, however, safety factors (e.g., to prevent credit information and/or other information intended for the company's internal use from being transmitted) should be taken into consideration.

[0010] In the embodiments of the present invention presented above, a reference table, typical of the invention, is required, wherefrom a URL address of the desired service page is retrieved on the basis of the information transmitted by the CLIP or CoLP service. The reference table can be located in different servers of a telecommunication network (e.g., the Internet), in servers implemented in connection with a telephone exchange or a private branch exchange, in a company's own data network (e.g., intranet) or in a user's own computer. It is also possible to store the reference table, e.g., in the memory of a portable terminal, such as a communicator like the Nokia 9000 Communicator. In this case, the transmission of the service page speeds up, because it is not necessary to retrieve the URL address of the service page from the server implemented in connection with the telecommunication network or the telephone exchange, but the communicator can download the desired service page directly from the URL address it has retrieved from its memory.

[0011] Thus, the transmission of a service page in a communication system according to the present invention enables, amongst other things, an Internet home page, characteristic of each individual or company, to be displayed on the display of the terminal of the subscriber B instead of the telephone number or the name of the subscriber A. Hence, the present invention provides versatile and flexible opportunities to increase the amount of information transmitted on the basis of the CLIP and CoLP services and lays a foundation for providing new types of information services. The invention is suitable for use in connection with both terminals coupled to a wired network and portable terminals, such as mobile stations.

[0012] The invention is characterized by what is set forth in the independent claims. Preferred embodiments of the invention are described in the dependent claims.

Figure 1 illustrates an example of a telecommunication system according to the invention and its structural parts,

Figure 2 illustrates, as a flowchart, the transmission of a service page, according to the invention, in an embodiment of the invention, wherein a subscriber B selects the desired service page,

Figure 3 illustrates how address information and identification information are included in a data packet,

Figure 4 illustrates an implementation of the implementation of a reference table, characteristic of the invention,

Figure 5 illustrates a data packet used for transmitting information in connection with the invention, and the information it contains,

Figure 6 illustrates an example of a service page that can be transmitted in a manner according to the invention,

Figures 7, 8 and 9 illustrate, as a block diagram, the transmission of a service page according to the invention in certain embodiments of the invention, and

Figure 10 illustrates a communicator according to the invention and its structural parts.

[0013] Figure 1 illustrates an example of a telecommunication system according to the present invention, wherein it is possible to transmit service pages, created and maintained in a telecommunication network, on to the display of terminals. The system comprises different kinds of terminals, such as mobile stations 10 and 11 that can be coupled to computers 20 and 21, traditional mobile stations 12, communicators 13, wired telephones 14 that can be coupled to a computer 22, as well as ordinary telephones 15. In addition to these, an extremely suitable terminal is a computer which is equipped, e.g., with a radio module, connected to the computer's PCMCIA (Personal Computer Memory Card International Association) bus, the radio module providing for a wireless communication connection to be established in telecommunication networks. Area 18, indicated by a dashed line, illustrates a telecommunication system within an office. In addition to the mobile stations 10 and 11, coupled to the computers 20 and 21, it comprises a local area network (LAN, Reference 26), as well as a server 23. The local area network 26 has been coupled to public telecommunication networks, such as an Internet network 120 by means of a router 27. Public Internet servers 24 are connected to the Internet network 120. The Internet network 120 is in contact with a public telephone network (ISDN/PSTN, Reference 110) through a gateway server 25. From the gateway server 25, there is also a connection to a mobile services switching centre 100. Base station controllers 104 and base stations 105, known to a person skilled in the art, as well as other structural parts characteristic of a mobile network are in contact with the mobile services switching centre. In connection with the mobile services switching centre, there is also provided a separate database 101 for storing CLIP OR CoLP identifiers 53 and the corresponding URL addresses 54.

[0014] In the following, the transmission of a service page according to the present invention is described in detail with the help of a preferred example, wherein a receiving terminal retrieves through the Internet network, on the basis of the information transmitted by means of a CLIP service, additional information on a caller (subscriber A) and displays it on the display of a receiving terminal (subscriber B). If no additional information is available, the receiving terminal displays on its display the mere information transmitted by the CLIP service (i.e., the caller's telephone number) in a manner known to a person skilled in the art. In this example, the traditional mobile station 12 acts as the caller (subscriber A) and the telephone 14, which is in contact with the computer 22 and the telephone network 110, is the receiving terminal. Figure 2 illustrates, in the form of a block diagram, the procedure that has been presented in detail both above and in the following chapter.

[0015] When a call is made from the mobile station 12 (subscriber A 12), through the base station 105, the base station controller 104, the mobile services switching centre 100 and the telephone network 110, to the subscriber number (Phase 30, Figure 2) of the telephone 14 (subscriber B 14), the subscriber number (telephone number) of the mobile station 12 is transmitted as a CLIP service to the telephone 14 (Phase 31) in manner known to a person skilled in the art. If the telephone 14 is, e.g., an ISDN telephone equipped with a display, the telephone number of the mobile station 12 is normally displayed on a display 16 of the telephone 14. The communication system according to the invention preferably also provides an opportunity to present other information. In this embodiment of the invention, this is implemented so that the computer 22 has been coupled, by means of a cable 28, parallel to the telephone 14 and from the computer there is a connection to the Internet network 120. When the CLIP information arrives at the telephone 14, it is also simultaneously transmitted, through the cable 28, to the computer 22, e.g., through a commercially available ISDN card installed in the computer 22. The ISDN card, installed in the computer 22, identifies the subscriber identifier (telephone number) of the subscriber A 12 and stores it in its memory, whereto an application program, installed in the computer 22, can go and read it, e.g., through the computer's PCI (Peripheral Component Interconnect) or ISA (Industry Standard Architecture) bus. Alternatively, the ISDN card can transmit the subscriber identifier directly into the computer's memory through said buses and inform the application program by means of a message informing of the reception of the CLIP information. The application program can be implemented in a manner known to a person skilled in the art by utilising an application programming interface (API) supplied by the ISDN card manufacturer. The implementation of the application program is dependent on the structure of the ISDN cards and on the implementation of the different kinds of application programming interfaces provided by the card manufacturers. After having received the CLIP identifier of the subscriber A 12, the computer 22 contacts, through the Internet network 120, a reference server (Phase 32), in this case, e.g., the address server 24, by transmitting it a contact message 40 (Figure 3).

[0016] In the contact message 40 (Figure 3), the computer 22 includes, in addition to a URL (Uniform Resource Locater) address 41 of the address server 24, a CLIP identifier 42 of the subscriber A, which is thus transmitted to the address server 24 (Phase 33). The address server 24 comprises a reference database 50 (Figure 4), wherein a number of Internet addresses (URL1-URLN, Reference 54) corresponding to the CLIP identifiers (CLIP1-CLIPN, Reference 53) of different subscribers have been stored. This reference database 50 can be maintained, e.g., by some commercial service provider in contact with the telecommunication network 120, but the reference database can also be integrated

with the mobile services switching centre 100 and/or the database 101 arranged in connection with it. When the address server 24 receives the contact message 40 from the computer 22, it goes to its reference database 50 to see whether the CLIP identifier 53, corresponding to the CLIP identifier 42 of the subscriber A in question, can be located (Phase 34). If the corresponding CLIP identifier 53 cannot be located in the reference database 50, then neither has the corresponding URL address 54 been linked with the CLIP identifier 42 in question. In that case, the address server 24 transmits to the computer 22 a response message 60 (Figure 5), wherein it informs that the URL address 54 corresponding to the CLIP identifier 42 cannot be located. The response message 60 comprises a URL address 61 of the computer 22 on the basis of which the response message 60 is routed to the computer 22, as well as the CLIP identifier 42 of the subscriber A, a URL data field 63 and an additional data field 64. The CLIP identifier 42 of the subscriber A is placed in the response message 60 so that the computer 22 is able to distinguish between the possibly many response messages 60, relating to different calls. A negative search result is indicated, e.g., so that the URL data field 63 of the response message 60 is left empty. If the URL address 54 corresponding to the CLIP identifier 42 of the subscriber A was not located, the computer 22 displays on its display, if so required, a text which informs that no URL address (i.e., an Internet address, wherefrom the service page could be retrieved) corresponding to the caller (subscriber A 12) can be located (Phase 35). If the telephone 14 is equipped with the sufficiently large display 16, it is possible to transmit the information directly on to the display 16 of the telephone 14. After the optional message mentioned above (Phase 35), the CLIP identifier (telephone number) of the subscriber A is displayed as normal on the display 16 of the telephone 14 (Phase 36).

[0017] If a CLIP1 identifier 51, corresponding to the caller's CLIP identifier 42, is located in the reference database 50, the address server 24 places a URL1 address 52 corresponding to it in the URL data field 63 of the response message 60. After this, the address server 24 sends the response message 60 to the computer 22 (Phase 37). After having received the response message 60, the computer 22 retrieves on the basis of the URL address 63, through the Internet network 120, a service page 70 corresponding to the URL address 63 (Figure 6) from one of the servers 23, 24, 25 (Phase 38) connected to the network. The server can be the same as the reference server 24, but it can just as well be the subscriber A's own server located anywhere in the Internet network 120. The server 23, 24, 25 can also be a commercial service that can be purchased from teleoperators, whereupon the server is typically on the teleoperators' premises. After having retrieved the service page (e.g., the information page 70 implemented in the HTML page description language), the subscriber B 14 preferably displays it on the high-quality display of the computer 22 (Phase 39), but depending on the properties of the display 16 of the telephone 14, it can also be displayed on the display 16 instead of the telephone number (CLIP identifier 42). In this exemplary case, the service page 70 contains, among other things, address information 71 of the subscriber A 12, a greeting 72 and a picture 73 of the user of the telephone 12. In addition, the service page 70 may comprise, e.g., links 74 to other WWW pages, as well as audio and video shots. Since separate communication connections are used for switching the call and transmitting the service page 70 (telephone network 110 and Internet network 120), the transmission of the service page according to the present invention does not affect normal call set-up at all. The time consumed on transmitting the service page 70 from the server 23, 24, 25 that is in contact with the Internet network 120, depends only on the capacity of the Internet network 120 and different components 23, 24, 25, 26, 27 that are in contact with it.

[0018] The area 18, indicated by a dashed line in Figure 1, illustrates a communication system used within an office. The local area network 26 is used as its internal communication bus. The architecture of this system differs from the one presented above in that the computers 20 and 21 are equipped with the specified mobile stations 10 and 11 to be connected to the computers. The mobile stations 10 and 11 are equipped with means which also enable calls to be transmitted through the Internet network 120. Thus, no separate direct connection to the telephone network 110 is preferably required. The usefulness of transmitting the service page 70 by means of the identification services (e.g., the CLIP and CoLP services) of a line according to the present invention is illustrated below by way of another example, wherein said office is assumed to be a teleselling office. A common database for all the telesellers comprising, among other things, the customers' contact information, volume of orders in hand, invoicing and information on previous contacts has been stored in the company's own server 23. Communication from the computers 20 and 21 to the server 23 is managed using Internet protocol and the local area network 26, but since external servers (e.g., the computer 22) have limited access to the database mentioned above, the system is called an Intranet network.

[0019] When the mobile station 10, 11 is coupled to the computer 20, 21, the computer 20, 21 identifies the mobile station 10, 11 coupled thereto, e.g., on the basis of a telephone number stored in a SIM (Subscriber Identity Module) card used in the mobile station. After this, the computer 20, 21 sends, through the local area network 26, the router 27 and the Internet network 120, the information about the coupling to the server 25. The server 25 maintains a database of those mobile stations which are connected to the computers 20 and 21 and sends the information further to the mobile services switching centre 100 or correspondingly to the telephone exchange 110, e.g., as a call transfer. Thus, the mobile services switching centre 100, the telephone exchange 110 and the server 25 can route the incoming calls through the Internet network 120 to the mobile stations 10, 11 coupled to the computers 20, 21. When the mobile station 10, 11 is connected to the computer 20, 21, the traditional radio frequency components of the mobile station 10, 11 can be switched off. The mobile station 10, 11 operates unconnected, i.e., when it has not been coupled to the terminal 20, 21, just as

the ordinary mobile station 12.

[0020] When the subscriber A, e.g., the mobile station 12, contacts the subscriber B, i.e., the mobile station 10 in this teleselling example, the CLIP information is transmitted from the mobile station 12 to the mobile station 10 through the mobile services switching centre 100, the server 25, the Internet network 120, the router 27, the local area network 26 and the computer 20. When perceiving the CLIP information 42 transmitted to the mobile station 10, a program installed in the computer 20 establishes a connection, through the local area network 26, to the office's own server 23 and retrieves therefrom the service page corresponding to the subscriber A 12 (containing the subscriber A's address information etc. as presented above), provided that it can be located in the file. In this respect, the activity corresponds to the principle described in connection with the embodiment presented above. Thus, the information retrieval procedure, implemented in this teleselling example on the basis of a CLIP identifier according to the present invention, provides for the customer data of a customer contacting by telephone to be updated on the screen of the computer 20 preferably without the user of the computer 20 being actively involved. The communication system according to the invention facilitates and speeds up the work of telesellers because, in the previous systems, it has been necessary to separately retrieve customer data from a database manually, e.g., on the basis of the caller's name.

[0021] In the two exemplary cases, presented above in detail, a wired communication connection was used to retrieve a service page from the Internet network 120 or from an intranet network (local area network 26). Advanced telecommunication terminals also provide an opportunity to utilise wirelessly the transmission of the service page 70, according to the present invention, on the basis of a CLIP or CoLP identifier. In the following, the present invention will be illustrated by way of example, wherein a telephone 15 is the subscriber A and the communicator 13 is the subscriber B. When a connection is established from the telephone 15 to the communicator 13 through the telephone network 110, the mobile services switching centre 100, the base station controller 104 and the base station 105, the CLIP identifier of the telephone 15 is transmitted to the communicator 13 in a known manner. On the basis of this information, the communicator 13 according to the present invention opens up a data connection through the mobile network 105, 104, 100 and the server 25 to the Internet network 120 and further, e.g., to the server 24, wherefrom it retrieves the service page addressed to the subscriber A (telephone 15) provided that it exists. In principle, the procedure is the same as in the two previous embodiments of the invention presented above. The structural parts of the communicator 13 according to the invention, i.e., a processor 131, a memory 132, radio parts 133, an antenna 134, a small display 135 and a keyboard 136 have been illustrated folded in Figure 10. The service page retrieval process is preferably implemented programmably in the processor 131 and the program code itself has been stored in the memory 132.

[0022] However, when using the wireless communication connection, presented in the previous chapter, we face a problem in the current mobile communication systems. In the GSM system, for example, there is only one traffic channel for transmitting speech and data. This prevents speech and data from being transmitted simultaneously from two different addresses 15, 24. The reason for this is that the call set up by the subscriber A 15 to the subscriber B 13 requires a traffic channel of its own in the same way as the data connection used for transmitting the service page 70 from the server 24 to the subscriber B 13.

[0023] What has been presented above will no longer be a problem in future mobile networks, which will provide for several different types of data to be transmitted simultaneously. An example of this is the GPRS (General Packet Radio Service), to be implemented on the GSM system, which provides a data transmission channel in the form of a packet that can be used at the same time as the normal traffic channel used for speech transmission. Thus, the service page transmission system according to the present invention is extremely suitable for use in connection with GPRS-type mobile networks, wherein normal speech communication is established using a normal GSM traffic channel and the service page is retrieved from the Internet network 120 using a GPRS data channel.

[0024] Alternatively, the problem presented above can be solved using a short message service (SMS), provided by the GSM system, for transmitting the service page 70. The short message service is a data channel originally designed for transmitting short messages consisting of a maximum of 160 ASCII characters, although the short message service is expected to be expanded. The expansion of the short message service will also provide for messages consisting of more than 160 characters to be transmitted by dividing the transferable data into several successive short messages. The short messages are transmitted in a signaling channel and, therefore, the use of the short message service does not restrict the use of the traffic channel for simultaneous speech communication.

[0025] It is also possible to implement the system for transmitting the service pages 70, according to the present invention, in the existing GSM networks without short messages by using supplementary services (SS) and unstructured supplementary service data (USSD), provided by the GSM system. In addition to the CLIP and CoLP services mentioned above these include, among other things, putting an answered call on hold and setting up a second connection. A prerequisite for the use of the supplementary services is that the terminal has certain intelligence, but preferably no changes have to made in the mobile network 100, 104, 105. In the following, an embodiment of the present invention is presented in detail by referring to Figure 7. In this embodiment, the communicator 13 retrieves the service page 70 wirelessly utilizing the supplementary services of a GSM network.

[0026] In Figure 7, the operation of the embodiment of the invention, mentioned above, has been illustrated in the

form of a flowchart. First, the subscriber A (telephone 15) calls the subscriber B, through the telephone network 110, the mobile services switching centre 100, the base station controller 104 and the base station 105, and the CLIP identifier 42 is transmitted to the subscriber B, i.e., to the communicator 13 (Phase 80). After having received the CLIP identifier, the communicator can retrieve the service page 70 in a number of ways. The CLIP service of the GSM system enables the subscriber A to be identified without the call being answered. Thus, it could be possible for the processor 131 of the communicator 13 to initiate the process of retrieving the service page 70 without answering the call coming from the subscriber A. However, because it is impossible to know the exact time consumed on the transmission of the service page 70, retrieved through the Internet network 120, it is better to answer the call and ask, e.g., by means of a message stored in the memory 132 of the communicator 13, the subscriber A 15 to hold on a moment without disconnecting the telephone 15. Naturally, this information could be transmitted orally, but one advantage of the invention is just the fact that the service page 70 can be transmitted automatically without the subscriber B being actively involved. In the embodiment illustrated in Figure 7, it is assumed that the communicator 13 answers the call automatically, transmits to the subscriber A the message telling to wait, stored in advance in the memory 131, and, after this, sets the call coming from the subscriber 15 on hold (Phase 81). Next, the communicator 13 sets up, through the radio parts 133 and the antenna 134, a data call to the server 24, which is in contact with the Internet network 120, through the mobile network 100, 104, 105 and the server 25 (Phase 82). After this, the server 24 goes through its reference table 50 to see whether the URL address 52, corresponding to the CLIP information 42 of the subscriber A, can be located (Phase 83). If a corresponding URL address cannot be located, the server 24 transmits to the communicator 13 the response message 60 informing of the negative search result. In that case, if so required, the communicator 13 displays on its display 17, e.g., a message "Service Page Unavailable", to the user (Phase 84). In the next phase, the communicator 13 disconnects the data call it has set up (Phase 85) and retums the call coming from the subscriber A 15 that has been put on hold, to an active state (Phase 87). But if the server 24 locates, in its reference database 50, the URL address 52 corresponding to the CLIP information 42 of the subscriber A 15, the server 24 transmits the URL address 52 to the communicator 13 included in the response message 60 informing of the positive search result (Phase 88). On the basis of the URL address 52 it has received, the communicator 13 makes contact, through the open data channel, with the server indicating the URL address 52 (e.g., the server 25 maintained by an operator) (Phase 89) and asks it to transmit the service page 70 corresponding to the subscriber A 15 (Phase 90). When the service page 70 has been received in full, the communicator 13 disconnects the data connection controlled by the processor 131 (Phase 91) and retums the call on hold to an active state (Phase 92). The service page 70, corresponding to the subscriber A, that has been retrieved through the Internet network 120 is displayed on the display 17 of the communicator 13 according to the present invention (Phase 93) instead of a mere telephone number provided by the CLIP service.

[0027] If the reference table 50 is located in the memory 132 of the communicator 13, instead of being in a telecommunication network server (such as the server 24 mentioned in the specification of Figure 7), the process presented above is simpler. The reason for this is that it is not necessary to first contact telecommunication network servers in order to find out the URL address of the service page 70 (Phase 82, Figure 7), but the possible URL address can be located directly in the memory 132 of the communicator 13. Thus, it is neither necessary to perform the activities illustrated in the phases 85, 86 and 88 of Figure 7, because the subscriber A is put on hold (Figure 8, Phase 81) only after the URL address has been retrieved from the memory 132 (Phase 94). Figure 8 illustrates this particular embodiment of the present invention. The phases 80, 81, 84, 87, 89, 90, 91, 92 and 93, common to Figures 7 and 8, have been illustrated using the same numbers. It is also possible to equip the memory 132 of the communicator 13 with a combination software enabling the service page 70 to be utilised irrespective of whether the reference table 50 is located in a telecommunication network server or in the actual terminal (communicator 13).

[0028] In the examples of the embodiments presented above, the service page 70 was always transmitted from a server chosen by the receiver (subscriber B). It is true that this is a natural course of action according to the nature of the transmission mechanism of CLIP information and that of call traffic, since it is always the receiver who also makes the final decision of whether he answers the incoming call at all. However, it is also possible to transmit the service page 70 on the basis of the CLIP information, according to the present invention, controlled by the subscriber A provided that the subscriber B allows this with his terminal. The practical implementation corresponds to what has been presented in connection with the specification of Figures 2-8 with the exception that the subscriber A has been provided with an opportunity to edit the reference database 50 (Figure 4). Thus, the subscriber A can specify the URL address 52 corresponding to this own CLIP identifier (e.g., CLIP1, Reference 51). Hence, when the subscriber A establishes a connection to the subscriber B, the service page selected by the subscriber A, e.g., a service price-list or some other commercial handout, is transmitted to the subscriber B.

[0029] The procedure presented above can also be utilised in connection with automatic telecommunication services. In the following, we will describe, as an exemplary embodiment, the transmission of tips for the pools and the results of ice-hockey matches from the server 25 (subscriber A) to the portable communicator 13 (subscriber B). The service page comprising the tips for the pools and the results of the matches has been implemented, e.g., in the HTML page description language as the service page 70 illustrated in Figure 6. In this example, the user of the communicator 13 has made a

contract with a public telecommunications operator for the transmission of the tips for the pools and the results of the ice-hockey matches every time the data are updated. This has been implemented so that when the data of the service page change, the server 25 contacts the communicator 13 through the mobile network 100, 104, 105. The communicator 13 identifies, on the basis of the CLIP identifier it receives, that the teleservice presented above is being transmitted. The communicator 13 according to the present invention transmits to the user, controlled by the processor 131, a specific ringing tone to inform that the service has been activated and to distinguish the service from an ordinary incoming call. The program code, stored in the memory 132 of the communicator 13, can be set on automatic response, whereupon it is possible to utilize the service completely without the user being actively involved. After this, the communicator 13 retrieves, e.g., from the URL address, agreed upon when making the service contract and stored in the memory 132 of the communicator 13, the service page comprising the tips for the pools and the results of the matches by means of the service page transmission method according to the present invention and displays it on its display 17 (folded with the small display 135). Thus, the user of the communicator 13 always receives automatically the results of the matches in real-time. A similar type of service is also suitable for advertising purposes. In that case, a service provider can transmit, e.g., a price-list that is changed monthly to all prospective customers using a terminal capable of transmitting service pages on the basis of a CLIP identifier according to the present invention.

[0030] In the detailed specification of the present invention, we have described many different types of services that provide for the versatile service pages 70 to be transmitted to the subscriber B on the basis of the information transmitted by the CLIP service. By means of the service page transmission method according to the present invention, it is also possible to transmit the service pages 70 to the subscriber A on the basis of the CoLP service of the GSM system as already stated in the short summary of the invention. In this case, the implementation of the invention substantially complies with the solutions presented in connection with Figures 2-8. Figure 9 illustrates, in the form of a flowchart, the transmission of a service page, linked with the subscriber B, to the subscriber A on the basis of the CoLP information. The flowchart, illustrated in Figure 9, can be applied to the third and fourth embodiments of the present invention presented in the short summary of the invention.

[0031] This paper presents the implementation and embodiments of the present invention with the help of examples. It is obvious to a person skilled in the art that the present invention is not restricted to details of the embodiments presented above, and that the invention can also be implemented in another form without deviating from the characteristics of the invention. The embodiments presented should be considered illustrative, but not restricting. Thus, the possibilities of implementing and using the invention are only restricted by the enclosed claims. Consequently, the various options of implementing the invention as determined by the claims, including the equivalent implementations, also belong to the scope of the invention.

Claims

1. An information transmission system comprising :

- a first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- a second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) for setting up a communication connection between said first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) and said second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), said communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) being arranged to transmit a network subscriber identifier (42, 51, 53) that is characteristic of said first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) to said second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), and
- a server (20, 21, 22, 24, 25) for storing and transmitting service pages (70), said server being connected to said communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134)

characterised in that:

- the information transmission system comprises means for enabling a user of said first terminal or a user of said second terminal to select a service page an address of which is linked to said network subscriber identifier (42, 51, 53), said service page being stored in said server and being retrievable from said server by using the address of said service page,
- the information transmission system comprises means for retrieving the address of said service page from a reference table by using said network subscriber identifier (42, 51, 53), and
- said communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) are adapted to transfer said service page (70) from said server to at least one of the following: said first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) and said second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22).

2. An information transmission system according to claim 1, **characterised in that** said network subscriber identifier (42, 51, 53) is one of the following: CLIP (Calling Line identification Presentation) information and CoLP (Connected Line Identification Presentation) information.

3. An information transmission system according to claim 1 or 2, **characterised in that** said reference table comprises a reference database (50) for storing said network subscriber identifier (42, 51, 53) and the address of said service page and that said reference database (50) is located in one of the following parts of the information transmission system: said first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) and said server (20, 21, 22, 24, 25).

4. An information transmission system according to claim 3, **characterised in that** it comprises a mobile services switching centre (100) and storage means (101, 53, 54) and that said reference database (50) is located in said storage means (101, 53, 54).

5. An information transmission system according to claim 3 or 4, **characterised in that** said communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) are adapted to transmit said service page (70) from an address specified by address information (41, 52, 54) stored in said reference database (50).

6. An information transmission system according to claim 4 or 5, **characterised in that** it comprises means for editing said reference database (50) and for rendering the editing rights and that one of the following has been arranged to edit said reference database (50): said first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), said second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) and said server (20, 21, 22, 24, 25).

7. A terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) comprising:

- means (131, 132, 133, 134) for setting up a connection and for transmitting and receiving information to and from a telecommunication network (26, 100, 104, 105, 110, 120), and
- means (131, 132, 133, 134) for receiving a network subscriber identifier (42, 51, 53) from said telecommunication network (26, 100, 104, 105, 110, 120),

characterised in that the terminal further comprises:

- means for enabling a user of the terminal to select a service page an address of which is linked to said network subscriber identifier (42, 51, 53), said service page being stored in said telecommunication network and being retrievable from said telecommunication network by using information defining the address of said service page, and
- means (131, 132, 133, 134) for retrieving said service page (70) from said telecommunication network (26, 100, 104, 105, 110, 120), said network subscriber identifier representing the information defining the address of said service page as being linked to the address.

8. A method for transmitting information, **characterised in that** the method comprises:

- enabling a user of a first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) or a user of a second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) to select a service page an address of which is linked to a network subscriber identifier (42, 51, 53) that is characteristic of said first terminal, said service page being stored in a telecommunication network and being retrievable from said telecommunication network by using the address of said service page,
- setting up a communication connection (26, 100, 104, 105, 110, 120) between said first terminal and said second terminal,
- transferring said network subscriber identifier to said second terminal,
- retrieving the address of said service page from a reference table by using said network subscriber identifier, and
- retrieving said service page from said telecommunication network by using the address of said service page.

9. A method for transmitting information according to claim 8, **characterised in that** said network subscriber identifier (42, 51, 53) is one of the following: CLIP (Calling Line Identification Presentation) information and CoLP (Connected Line Identification Presentation) information.

10. A method for transmitting information according to claim 8 or 9, **characterised in that** the reference table comprises a separate reference database (50).

11. A server (20, 21, 22, 24, 25) for an information transmission system, the information transmission system comprising:

- a first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- a second terminal (10, 11, 12, 13, 14, 15,20,21,22), and
- communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) for setting up communication connections between said first terminal, said second terminal, and the server, said communication connection set-sup means being adapted to transmit a network subscriber identifier (42, 51, 53) that is characteristic of said first terminal to said second terminal,

characterised in that the server (20, 21, 22, 24, 25) comprises:

- means for enabling a user of the first terminal or the user of the second terminal to select a service page an address of which is linked to said network subscriber identifier (42, 51, 53), said service page being stored in a telecommunication network and being retrievable from said telecommunication network by using the address of said service page, and
- means for maintaining a reference table for storing the address of said service page and said network subscriber identifier.

12. A computer program product for a server (20, 21, 22, 24, 25) for an information transmission system, the information transmission system comprising:

- a first terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- a second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), and
- communication connection set-up means (26, 100, 104, 105, 110, 120, 133, 134) for setting up communication connections between said first terminal, said second terminal, and said server, said communication connection set-up means being adapted to transmit a network subscriber identifier (42, 51, 53) that is characteristic of said first terminal, to said second terminal,

characterised in that the computer program product comprises computer program code adapted:

- to make the server to enable a user of the first terminal or the user of the second terminal to select a service page an address of which is linked to said network subscriber identifier (42, 51, 53), said service page being stored in a telecommunication network and being retrievable from said telecommunication network by using the address of said service page, and
- to make the server to maintain a reference table for storing the address of said service page and said network subscriber identifier.

13. A computer program product for a terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), the terminal comprising:

- means (131, 132, 133, 134) for setting up a connection and for transmitting and receiving information to and from a telecommunication network (26, 100, 104, 105, 110, 120), and
- means (131, 132, 133, 134) for receiving a network subscriber identifier (42, 51, 53) from said telecommunication network (26, 100, 104, 105, 110, 120),

characterised in that the computer program product comprises computer program code adapted:

- to make the terminal to enable a user of the terminal to select a service page an address of which is linked to said network subscriber identifier (42, 51, 53), said service page being stored in said telecommunication network and being retrievable from said telecommunication network by using information defining the address of said service page, and
- to make the terminal to retrieve said service page (70) from said telecommunication network (26, 100, 104, 105, 110, 120), said network subscriber identifier representing the information defining the address of said service page as being linked to the address..

Patentansprüche

1. Datenübertragungssystem umfassend:

- eine erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22),
- eine zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22),
- Mittel zum Aufbau von Kommunikationsverbindungen (26, 100, 104, 105, 110, 120, 133, 134), um eine Kommunikationsverbindung zwischen der ersten Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) und der zweiten Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) einzurichten, wobei die Mittel zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134) so angeordnet sind, um einen Netzwerkeinschreibungsidentifikator (42, 51, 53), der bezeichnend für die erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) ist, an die zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22), zu übermitteln, und
- ein Server (20, 21, 22, 24, 25) zur Speicherung und Übertragung von Angebotsseiten (70), wobei der Server mit den Mitteln zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134) verbunden ist, **dadurch gekennzeichnet, dass**:

  - das Datenübertragungssystem Mittel umfasst, um einem Benutzer der ersten Benutzeroberfläche oder einem Benutzer der zweiten Benutzeroberfläche zu ermöglichen, eine Adresse einer Angebotsseite auszuwählen, von welcher auf den Netzwerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, wobei die Angebotsseite auf dem Server gespeichert ist und von dem Server wieder abgerufen werden kann, indem die Adresse der Angebotsseite verwendet wird,
  - das Datenübertragungssystem Mittel zum Wiederaufrufen der Adresse der Angebotsseite von einer Verweistabelle unter Verwendung des Netzwerkeinschreibungsidentifikators (42, 51, 53) umfasst, und
  - die Mittel zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134) so angepasst sind, um die Angebotsseite (70) von dem Server auf mindestens eine der folgenden zu übertragen: auf die erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) und die zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22).

2. Datenübertragungssystem nach Anspruch 1, **dadurch gekennzeichnet, dass** der Netzwerkeinschreibungsidentifikator (42, 51, 53) einer der Folgenden ist: CLIP-Daten (Calling Line Identification Presentation - Anzeige der Rufnummer des Anrufers beim Angerufenen) und CoLP-Daten (Connected Line Identification Presentation - Anzeige der Rufnummer des Angerufenen beim Anrufer).

3. Datenübertragungssystem nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die Verweistabelle eine Verweisdatenbank (50) umfasst, um den Netzwerkeinschreibungsidentifikator (42, 51, 53) und die Adresse der Angebotsseite zu speichern und dass die Verweisdatenbank (50) in einer der folgenden Teile des Datenübertragungssystems angesiedelt ist: in der ersten Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) und dem Server.

4. Datenübertragungssystem nach Anspruch 3, **dadurch gekennzeichnet, dass** es ein mobiles Dienstevermittlungszentrum (100) und Mittel zur Speicherung (101, 53, 54) umfasst, und dass die Verweisdatenbank (50) in den Mitteln zur Speicherung (101, 53, 54) angesiedelt ist.

5. Datenübertragungssystem nach Anspruch 3 oder 4, **dadurch gekennzeichnet, dass** die Mittel zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134) so angepasst sind, um die Angebotsseite (70) von einer bestimmten Adresse mittels einer Adressinformation (41, 52, 54) zu übertragen, die in der Verweisdatenbank (50) gespeichert ist.

6. Datenübertragungssystem nach Anspruch 4 oder 5, **dadurch gekennzeichnet, dass** es Mittel zur Bearbeitung der Verweisdatenbank (50) und zur Wiedergabe von Bearbeitungsrechten umfasst, und dass eine der Folgenden so angeordnet wurde, um die Verweisdatenbank (50) zu bearbeiten: die erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22), die zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) und der Server (20, 21, 22, 24, 25).

7. Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) umfassend:

   - Mittel (131, 132, 133, 134) zum Aufbau einer Verbindung und zur Übertragung und Empfang von Daten an und von einem Telekommunikationsnetzwerk (26, 104, 105, 110, 120), und
   - Mittel (131, 132, 133, 134) zum Empfang eines Netzwerkeinschreibungsidentifikators (42, 51, 53) von dem Telekommunikationsnetzwerk (26, 100, 104, 105, 110, 120), **dadurch gekennzeichnet, dass** die Benutzeroberfläche ferner umfasst:
   - Mittel um einem Benutzer der Benutzeroberfläche zu ermöglichen, eine Adresse einer Angebotsseite auszuwählen, von welcher auf den Netzerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, die Angebotsseite in dem Telekommunikationsnetzwerk gespeichert ist und von dem Telekommunikationsnetzwerk wieder abruf-

bar ist, indem Daten verwendet werden, die die Adresse der Angebotsseite definieren, und
- Mittel (131, 132, 133, 134) zum Wiederaufrufen der Angebotsseite (70) von dem Telekommunikationsnetzwerk (26, 100, 104, 105, 110, 120), wobei der Netzwerkeinschreibungsidentifikator die Daten darstellt, die die Adresse der Angebotsseite definieren, so wie mit der Adresse verknüpft ist.

8. Verfahren zur Übermittlung von Daten, **dadurch gekennzeichnet, dass** das Verfahren umfasst:

- es einem Benutzer einer ersten Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) oder einem Benutzer einer zweiten Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22) zu ermöglichen, eine Adresse einer Angebotsseite auszuwählen, von welcher auf einen Netzwerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, der für die erste Benutzeroberfläche bezeichnend ist, wobei die Angebotsseite in einem Telekommunikationsnetzwerk gespeichert ist, und von dem Telekommunikationsnetzwerk wiederabrufbar ist, indem die Adresse der Angebotsseite verwendet wird,
- Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120) zwischen der ersten Benutzeroberfläche und der zweiten Benutzeroberfläche,
- Übermittlung des Netzwerkeinschreibungsidentifikators an eine zweite Benutzeroberfläche,
- Wiederaufrufen der Adresse der Angebotsseite von einer Verweistabelle unter Verwendung des Netzwerkeinschreibungsidentifikators, und
- Wiederaufrufen der Angebotsseite von dem Telekommunikationsnetzwerk unter Verwendung der Adresse der Angebotsseite.

9. Verfahren zur Übertragung von Daten nach Anspruch 8, **dadurch gekennzeichnet, dass** der Netzwerkeinschreibungsidentifikator (42, 51, 53) einer der Folgenden ist: CLIP-Daten (Calling Line Identification Presentation - Anzeige der Rufnummer des Anrufers beim Angerufenen) und CoLP-Daten (Connected Line Identification Presentation - Anzeige der Rufnummer des Angerufenen beim Anrufer).

10. Verfahren zur Übertragung von Daten nach Anspruch 8 oder 9, **dadurch gekennzeichnet, dass** die Verweistabelle eine separate Verweisdatenbank (50) umfasst.

11. Server (20, 21, 22, 24, 25) für ein Datenübertragungssystem, das Datenübertragungssystem umfassend:

- eine erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22),
- eine zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22), und
- Mittel zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134), um Kommunikationsverbindungen zwischen der ersten Benutzeroberfläche, der zweiten Benutzeroberfläche und dem Server aufzubauen, wobei die Mittel zum Aufbau der Kommunikationsverbindung angepasst sind, um einen Netzwerkeinschreibungsidentifikator (42, 51, 53) zu übertragen, der **gekennzeichnet** ist, dass der Server (20, 21, 22, 24, 25) umfasst:
- Mittel um einem Benutzer der ersten Benutzeroberfläche oder dem Benutzer der zweiten Benutzeroberfläche zu ermöglichen, eine Serviceseite einer Adresse auszuwählen, von welcher auf den Netzwerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, wobei die Serviceseite in einem Telekommunikationsnetzwerk gespeichert ist und von dem Telekommunikationsnetzwerk wiederabrufbar ist, indem die Adresse der Serviceseite verwendet wird, und
- Mittel um eine Verweistabelle zu pflegen, um die Adresse der Serviceseite und des Netzwerkeinschreibungsidentifikators zu speichern.

12. Computerprogrammprodukt für einen Server (20, 21, 22, 24, 25) für ein Datenübertragungssystem, das Datenübertragungssystem umfassend:

- eine erste Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22),
- eine zweite Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22), und
- Mittel zum Aufbau einer Kommunikationsverbindung (26, 100, 104, 105, 110, 120, 133, 134) zum Aufbau von Kommunikationsverbindungen zwischen der ersten Benutzeroberfläche, der zweiten Benutzeroberfläche, und dem Server, wobei die Mittel zum Aufbau einer Kommunikationsverbindung so angepasst sind, um einen Netzwerkeinschreibungsidentifikator (42, 51, 53), der für die erste Benutzeroberfläche bezeichnend ist, an die zweite Benutzeroberfläche zu übermitteln,

dadurch gekennzeichnet, dass das Computerprogrammprodukt einen Computerprogrammcode umfasst, so an-

gepasst:

- den Server so einzurichten, dass es dem Benutzer der ersten Benutzeroberfläche oder dem Benutzer der zweiten Benutzeroberfläche möglich ist, eine Adresse einer Angebotsseite auszuwählen, von welcher auf den Netzwerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, wobei die Angebotsseite in einem Telekommunikationsnetzwerk gespeichert ist und von dem Telekommunikationsnetzwerk wiederaufrufbar ist, unter Verwendung der Adresse der Angebotsseite, und
- den Server so einzurichten, um eine Verweistabelle zur Speicherung der Adresse der Angebotsseite und des Netzwerkeinschreibungsidentifikators zu pflegen.

13. Computerprogrammprodukt für eine Benutzeroberfläche (10, 11, 12, 13, 14, 15, 20, 21, 22), die Benutzeroberfläche umfassend:

- Mittel (131, 132, 133, 134) zum Aufbau einer Verbindung und zur Übertragung und Empfang von Daten zu und von einem Telekommunikationsnetzwerk (26, 100, 104, 105, 110, 120), und
- Mittel (131, 132, 133, 134) zum Empfang eines Netzwerkeinschreibungsidentifikators (42, 51, 53) von dem Telekommunikationsnetzwerk (26, 100, 104, 105, 110, 120), **dadurch gekennzeichnet, dass** das Computerprogrammprodukt einen Computerprogrammcode umfasst, der so angepasst ist:

  - die Benutzeroberfläche so einzurichten, um dem Benutzer der Benutzeroberfläche zu ermöglichen, eine Adresse einer Angebotsseite auszuwählen, von welcher auf den Netzwerkeinschreibungsidentifikator (42, 51, 53) verwiesen wird, wobei die Angebotsseite in dem Telekommunikationsnetzwerk gespeichert ist und von dem Telekommunikationsnetzwerk wiederaufrufbar ist, unter Verwendung von Daten, die die Adresse der Angebotsseite definieren, und
  - eine Benutzeroberfläche so einzurichten, um die Angebotsseite (70) von dem Telekommunikationsnetzwerk (26, 100, 104, 105, 110, 120) wiederaufzurufen, wobei der Netzwerkeinschreibungsidentifikator die Daten repräsentiert, die die Adresse der Angebotsseite definieren, so wie sie mit der Adresse verknüpft ist.

Revendications

1. Système de transmission d'information comportant :

- un premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- un second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- des moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) permettant d'établir une connexion de communication entre ledit premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) et ledit second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), lesdits moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) étant disposés pour transmettre un identificateur d'abonné de réseau (42, 51, 53) lequel est caractéristique dudit premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) audit second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), et
- un serveur (20, 21, 22, 24, 25) permettant de stocker et de transmettre des messages de service (70), ledit serveur étant connecté auxdits moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134),

caractérisé en ce que:

- le système de transmission d'information comporte des moyens permettant à un utilisateur dudit premier terminal ou à un utilisateur dudit second terminal de sélectionner un message de service dont une adresse est interconnectée audit identificateur d'abonné de réseau (42, 51, 53), ledit message de service étant stocké dans ledit serveur et étant récupérable à partir dudit serveur au moyen de l'adresse dudit message de service,
- le système de transmission d'information comporte des moyens permettant de récupérer l'adresse dudit message de service à partir d'un tableau de référence au moyen dudit identificateur d'abonné de réseau (42, 51, 53), et
- lesdits moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) sont adaptés pour transférer ledit message de service (70) à partir dudit serveur à au moins un parmi les suivants : ledit premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) et ledit second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22).

2. Système de transmission d'information selon la revendication 1, **caractérisé en ce que** ledit identificateur d'abonné de réseau (42, 51, 53) est l'un parmi ce qui suit : une information de présentation d'identification de la ligne appelante (CLIP) et une information de présentation d'identification de la ligne connectée (CoLP).

3. Système de transmission d'information selon la revendication 1 ou 2, **caractérisé en ce que** ledit tableau de référence comporte une base de données de référence (50) pour stocker ledit identificateur d'abonné de réseau (42, 51, 53) et l'adresse dudit message de service et **en ce que** ladite base de données de référence (50) est située dans l'une des parties suivantes du système de transmission d'information: ledit premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) et ledit serveur (20, 21, 22, 24, 25).

4. Système de transmission d'information selon la revendication 3, **caractérisé en ce qu'**il comporte un centre de commutation de services mobiles (100) et des moyens de stockage (101, 53, 54) et **en ce que** ladite base de données de référence (50) est située dans lesdits moyens de stockage (101, 53, 54).

5. Système de transmission d'information selon la revendication 3 ou 4, **caractérisé en ce que** lesdits moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) sont adaptés pour transmettre ledit message de service (70) à partir d'une adresse spécifiée par une information d'adresse (41, 52, 54) stockée dans ladite base de données de référence (50).

6. Système de transmission d'information selon la revendication 4 ou 5, **caractérisé en ce qu'**il comporte des moyens pour éditer ladite base de données de référence (50) et pour rendre les droits d'édition et **en ce que** l'un parmi les éléments suivants a été disposé pour éditer ladite base de données de référence (50): ledit premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), ledit second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) et ledit serveur (20, 21, 22, 24, 25).

7. Terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) comportant :

- des moyens (131, 132, 133, 134) pour établir une connexion et pour transmettre et recevoir de l'information à, et à partir de, un réseau de télécommunication (26, 100, 104, 105, 110, 120), et
- des moyens (131, 132, 133, 134) pour recevoir un identificateur d'abonné de réseau (42, 51, 53) à partir dudit réseau de télécommunication (26, 100, 104, 105, 110, 120),

caractérisé en ce que le terminal comporte en outre :

- des moyens pour permettre à un utilisateur du terminal de sélectionner un message de service dont une adresse est interconnectée audit identificateur d'abonné de réseau (42, 51, 53), ledit message de service étant stocké dans ledit réseau de télécommunication et étant récupérable à partir dudit réseau de télécommunication au moyen d'information définissant l'adresse dudit message de service, et
- des moyens (131, 132, 133, 134) pour récupérer ledit message de service (70) à partir dudit réseau de télécommunication (26, 100, 104, 105, 110, 120), ledit identificateur d'abonné de réseau représentant l'information définissant l'adresse dudit message de service comme étant interconnectée à l'adresse.

8. Procédé permettant de transmettre des informations, **caractérisé en ce que** le procédé comporte les étapes consistant à :

- permettre à un utilisateur d'un premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) ou à un utilisateur d'un second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) de sélectionner un message de service dont une adresse est interconnectée à un identificateur d'abonné de réseau (42, 51, 53) lequel est caractéristique dudit premier terminal, ledit message de service étant stocké dans un réseau de télécommunication et étant récupérable à partir dudit réseau de télécommunication au moyen de l'adresse dudit message de service,
- établir une connexion de communication (26, 100, 104, 105, 110, 120) entre ledit premier terminal et ledit second terminal,
- transférer ledit identificateur d'abonné de réseau audit second terminal,
- récupérer l'adresse dudit message de service à partir d'un tableau de référence au moyen dudit identificateur d'abonné de réseau, et
- récupérer ledit message de service à partir dudit réseau de télécommunication au moyen de l'adresse dudit message de service.

9. Procédé pour transmettre de l'information selon la revendication 8, **caractérisé en ce que** ledit identificateur d'abonné de réseau (42, 51, 53) est l'un parmi les éléments suivants : une information de présentation d'identification de la ligne appelante (CLIP) et une information de présentation d'identification de la ligne connectée (CoLP).

10. Procédé pour transmettre de l'information selon la revendication 8 ou 9, **caractérisé en ce que** le tableau de référence comporte une base de données de référence séparée (50).

11. Serveur (20, 21, 22, 24, 25) d'un système de transmission d'information, le système de transmission d'informations comportant :

- un premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- un second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), et
- des moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) pour établir des connexions de communications entre ledit premier terminal, ledit second terminal, et le serveur, lesdits moyens d'établissement de connexion de communication étant adaptés pour transmettre un identificateur d'abonné de réseau (42, 51, 53) lequel est caractéristique dudit premier terminal audit second terminal,

caractérisé en ce que le serveur (20, 21, 22, 24, 25) comporte :

- des moyens pour permettre à un utilisateur du premier terminal ou à l'utilisateur du second terminal de sélectionner un message de service dont une adresse est interconnectée audit identificateur d'abonné de réseau (42, 51, 53), ledit message de service étant stocké dans un réseau de télécommunication et étant récupérable à partir dudit réseau de télécommunication au moyen de l'adresse dudit message de service, et
- des moyens pour entretenir un tableau de référence pour stocker l'adresse dudit message de service et ledit identificateur d'abonné de réseau.

12. Produit de programme informatique relatif à un serveur (20, 21, 22, 23, 24, 25) pour un système de transmission d'information, ledit système de transmission d'information comportant :

- un premier terminal (10, 11, 12, 13, 14, 15, 20, 21, 22),
- un second terminal (10, 11, 12, 13, 14, 15, 20, 21, 22), et
- des moyens d'établissement de connexion de communication (26, 100, 104, 105, 110, 120, 133, 134) afin d'établir des connexions de communication entre ledit premier terminal, ledit second terminal, et ledit serveur, lesdits moyens d'établissement de connexion de communication étant adaptés pour transmettre un identificateur d'abonné de réseau (42, 51, 53) qui est caractéristique dudit premier terminal, audit second terminal,

caractérisé en ce que le produit programme informatique comporte un code de programme informatique adapté :

- pour forcer le serveur à permettre à un utilisateur du premier terminal ou l'utilisateur du second terminal de sélectionner un message de service dont une adresse est interconnectée audit identificateur d'abonné de réseau (42, 51, 53), ledit message de service étant stocké dans un réseau de télécommunication et étant récupérable à partir dudit réseau de télécommunication au moyen de l'adresse dudit message de service, et
- pour forcer le serveur à maintenir un tableau de référence pour stocker l'adresse dudit message de service et ledit identificateur d'abonné de réseau.

13. Produit de programme informatique relatif à un terminal (10, 11, 12, 13, 14, 15, 20, 21, 22) ledit terminal comportant :

- des moyens (131, 132, 133, 134) pour établir une connexion et pour transmettre et recevoir de l'information à, et à partir de, un réseau de télécommunication (26, 100, 104, 105, 110, 120), et
- des moyens (131, 132, 133, 134) pour recevoir un identificateur d'abonné de réseau (42, 51, 53) à partir dudit réseau de télécommunication (26, 100, 104, 105, 110, 120),

caractérisé en ce que le produit programme informatique comporte un code de programme informatique adapté :

- pour forcer le terminal à permettre à un utilisateur du terminal de sélectionner un message de service dont une adresse est interconnectée audit identificateur d'abonné de réseau (42, 51, 53), ledit message de service étant stocké dans ledit réseau de télécommunication et étant récupérable à partir dudit réseau de télécommunication au moyen d'informations définissant l'adresse dudit message de service, et

- pour forcer le terminal à récupérer ledit message de service (70) à partir dudit réseau de télécommunication (26, 100, 104, 105, 110, 120), ledit identificateur d'abonné de réseau représentant l'information définissant l'adresse dudit message de service comme étant liée à l'adresse.

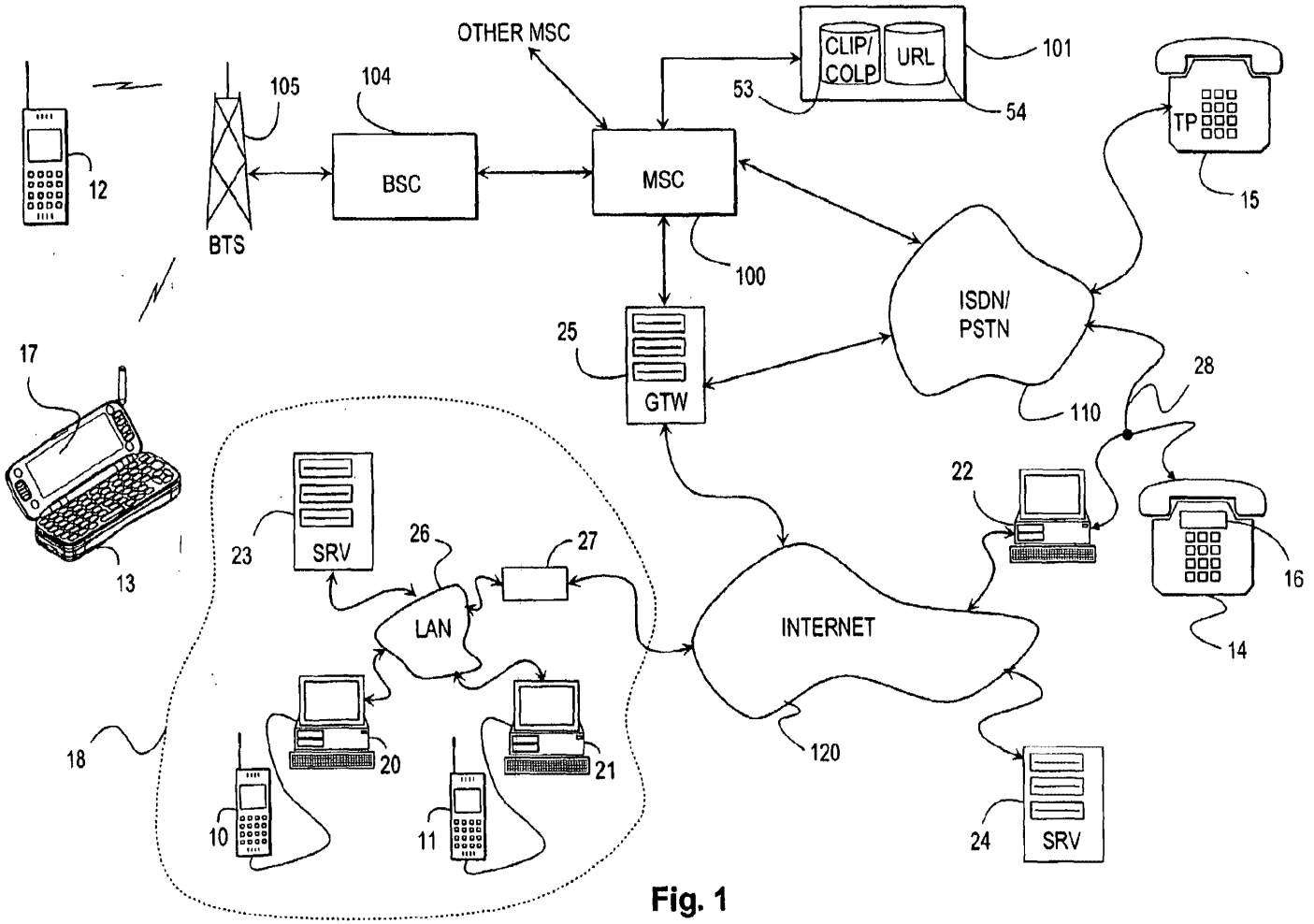


Fig. 1

EP 0 869 688 B1

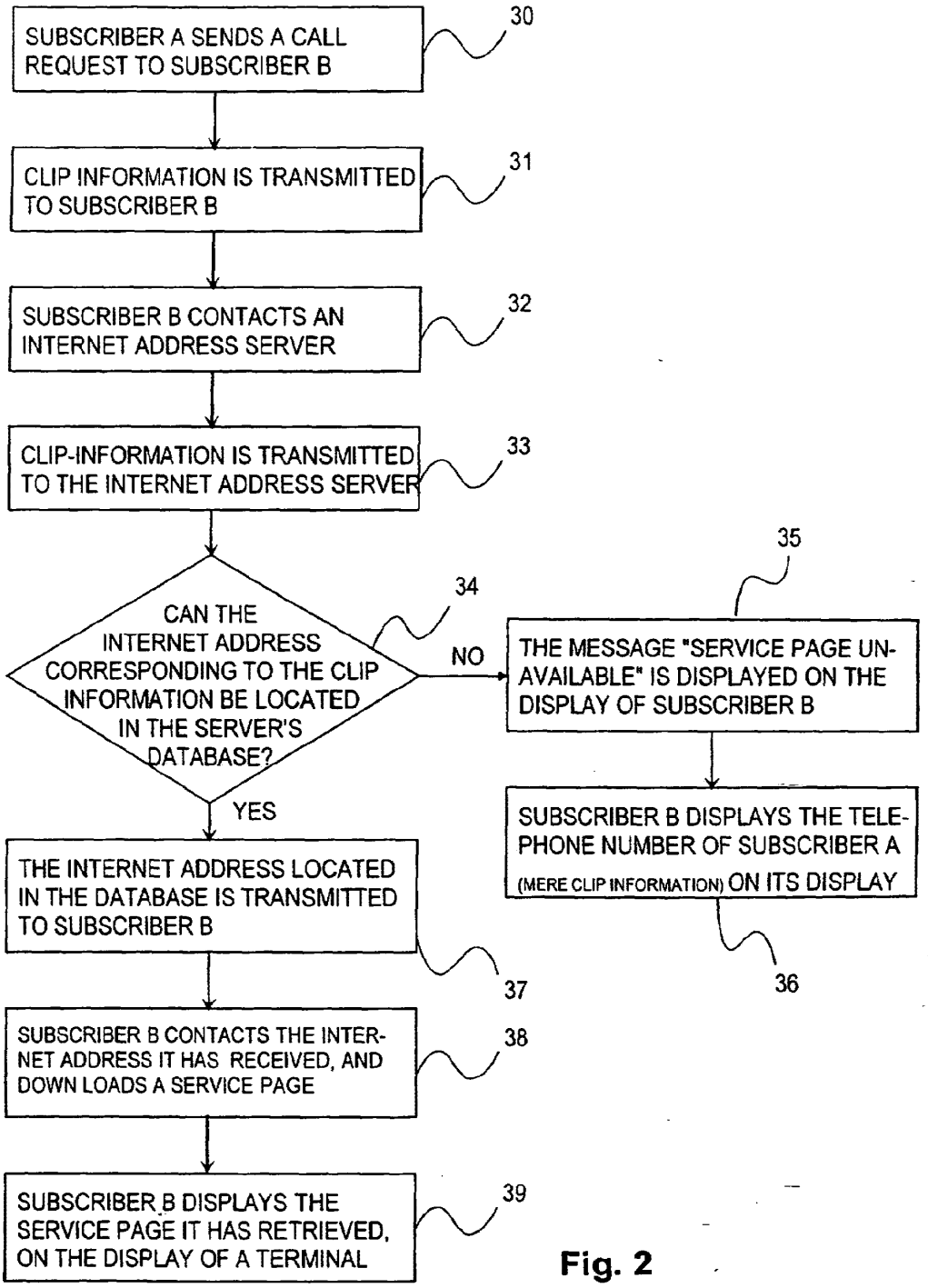


Fig. 2

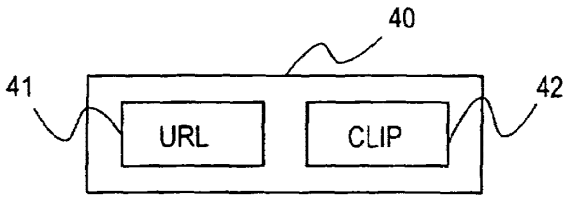


Fig. 3

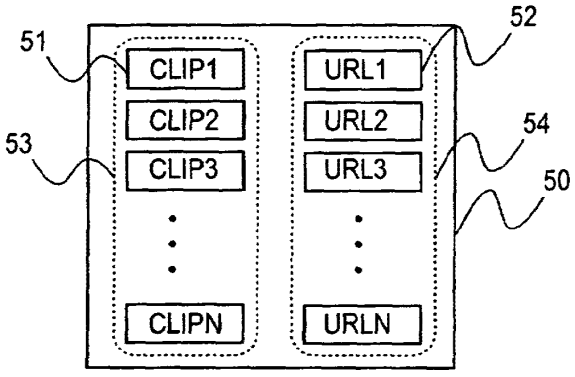


Fig. 4

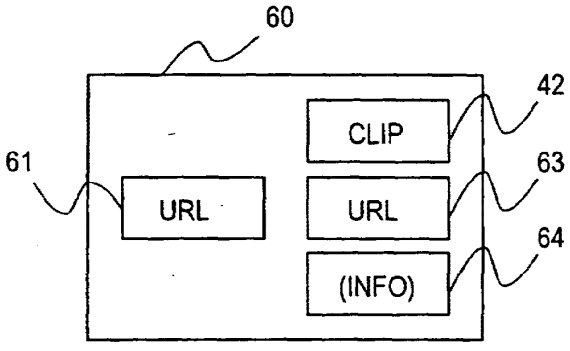


Fig. 5

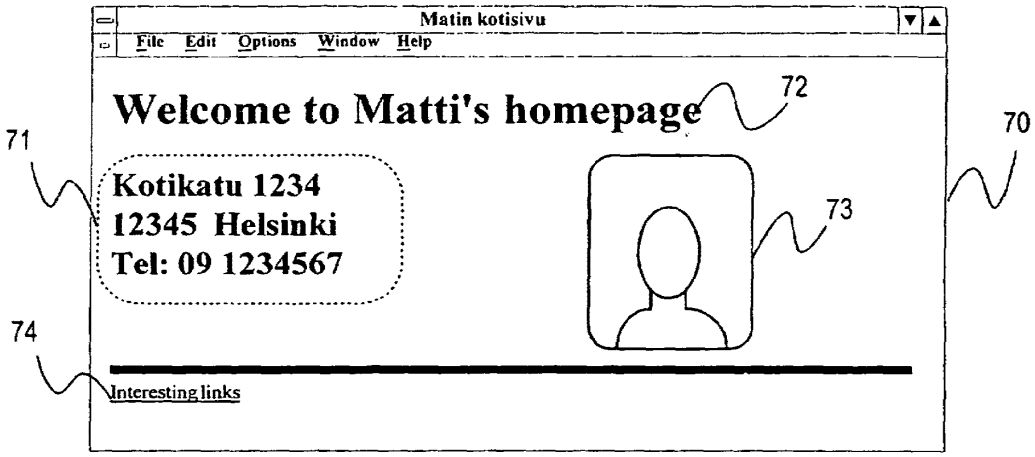


Fig. 6

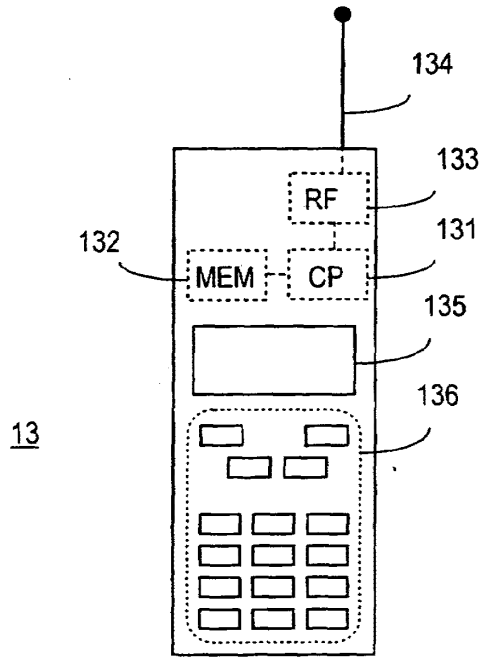


Fig. 10

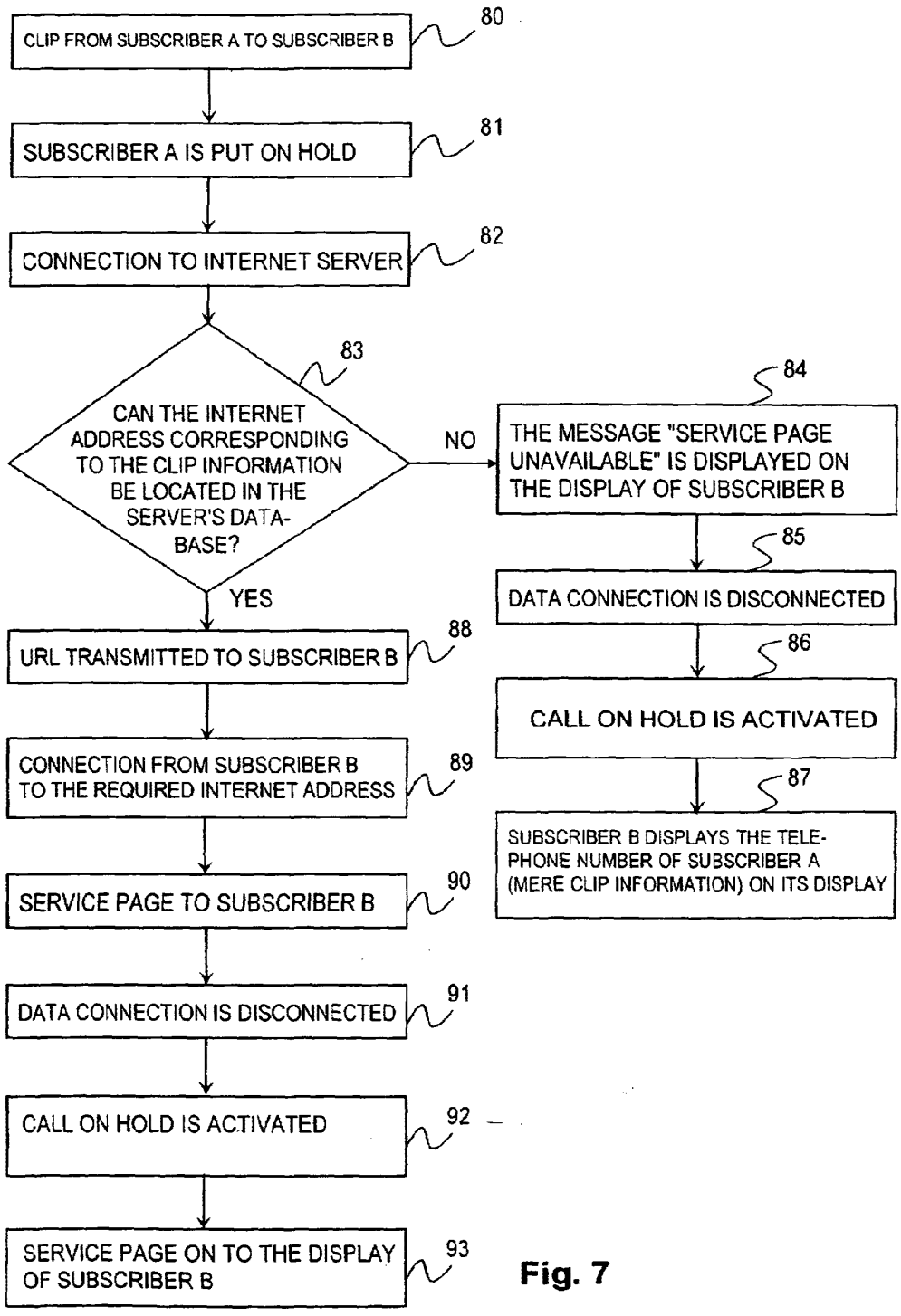


Fig. 7

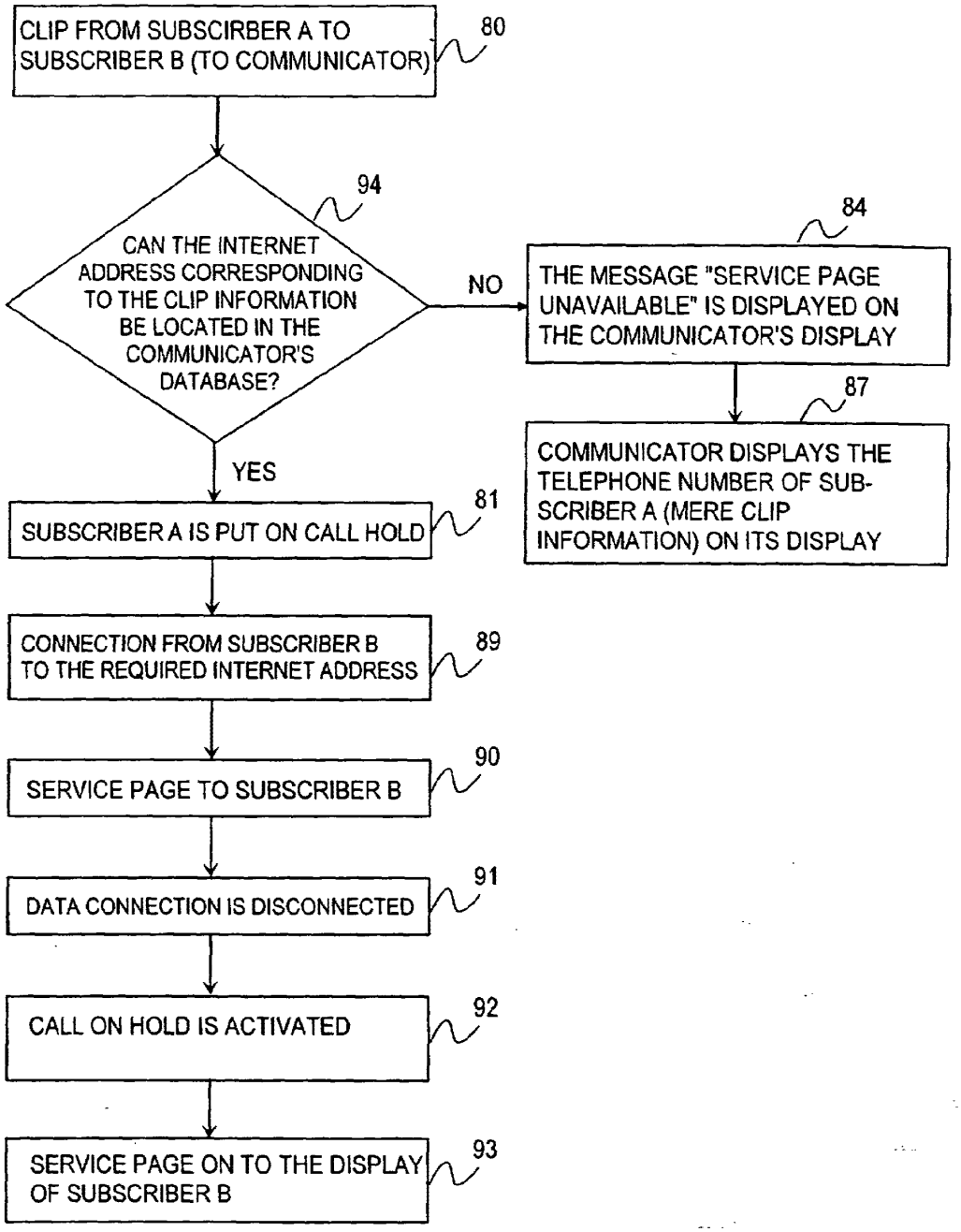


Fig. 8

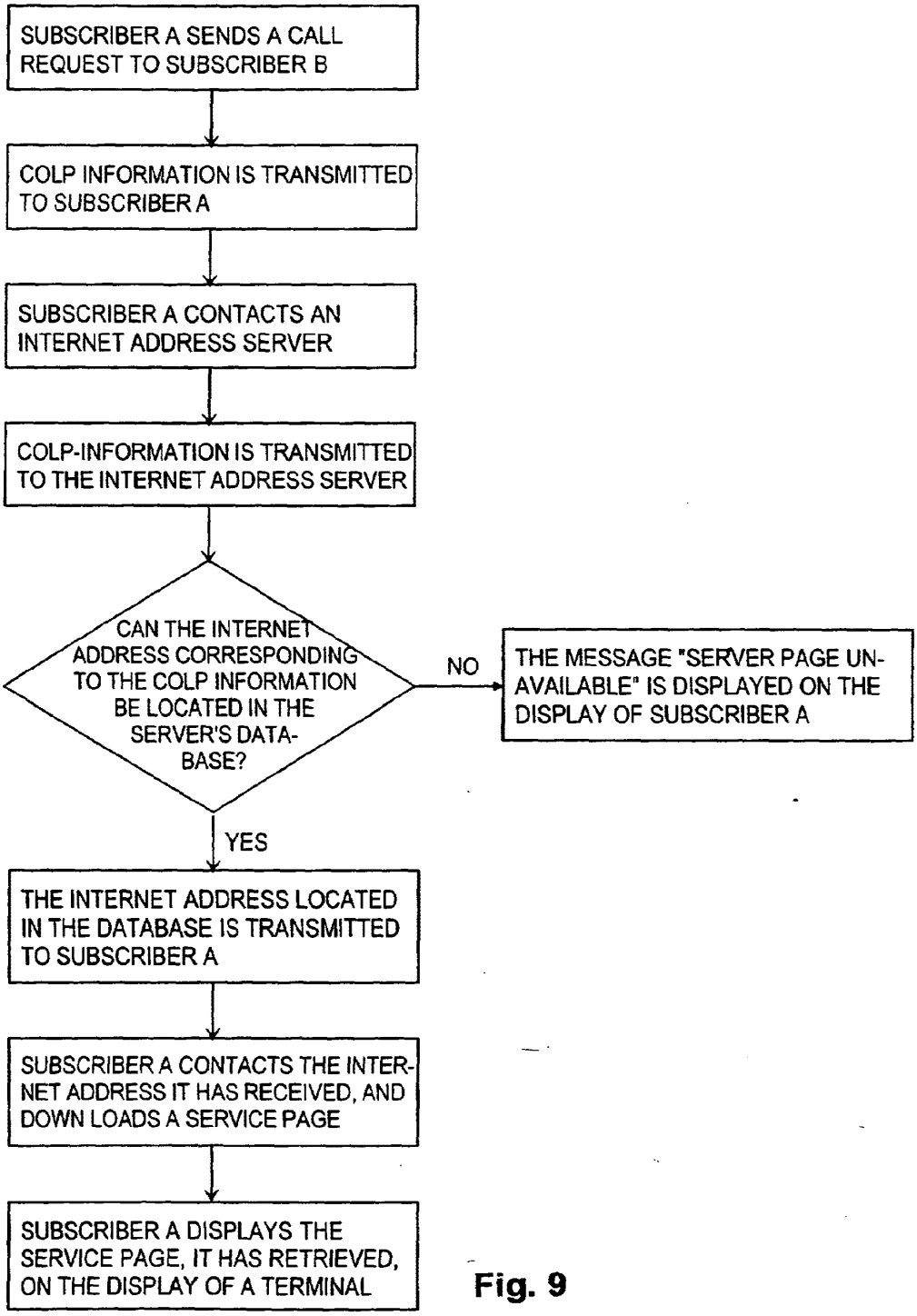


Fig. 9

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 881 848 A2

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
02.12.1998 Bulletin 1998/49

(51) Int. Cl.[6]: **H04Q 7/22**, H04Q 7/32, H04M 3/48

(21) Application number: **98109762.9**

(22) Date of filing: **28.05.1998**

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV MK RO SI

(30) Priority: **29.05.1997 JP 139772/97**

(71) Applicant:
Casio Computer Co., Ltd.
Shibuya-ku, Tokyo 151-8543 (JP)

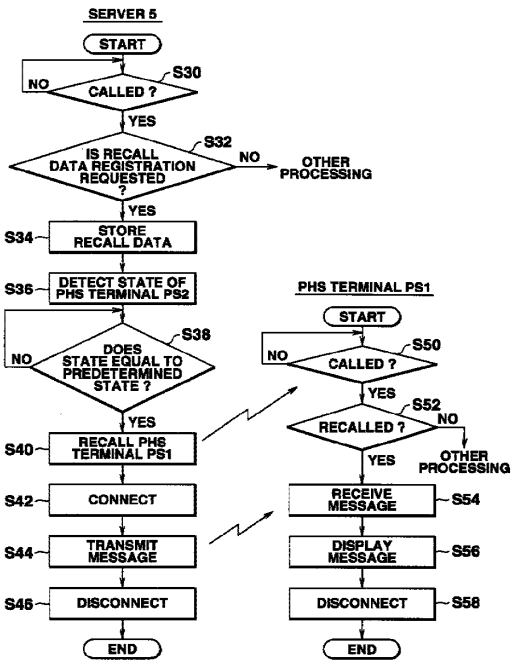
(72) Inventors:
- **Jyogataki, Takashi,**
  Casio Computer Co., Ltd.
  Hamura-shi, Tokyo 205-8555 (JP)
- **Ishida, Shinjiro,**
  Casio Computer Co., Ltd.
  Hamura-shi, Tokyo 205-8555 (JP)

(74) Representative:
Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Maximilianstrasse 58
80538 München (DE)

(54) Communication system

(57) When a recall mode is selected as the operation mode of a PHS terminal (PS1), recall data is generated. The recall data specifies the other party (e.g., a PHS terminal (PS2)), a state wherein the other party enters a specific service area, and a message "the other party has arrived at Y station (in the specific service area)" which is to be received from a server (5) or the PHS terminal (PS2) when the other party (PS2) is set in the designated state. The recall data is set in the subaddress of a call set-up message and registered in the server (5) or the PHS terminal (PS2). When the PHS terminal (PS2) enters the service area of a public base station (2c) (designated state), the server (5) or the PHS terminal (PS2) transmits the message to the PHS terminal (PS1) in the recall mode (designated action). The PHS terminal (PS1) displays the transmitted message on a display device (19). The user of the PHS terminal (PS1) can know that the user of the PHS terminal (PS2) has arrived at Y station and that communication with the other party (PS2) is enabled. The state of the other portable information terminal can be recognized without requiring any operation to the other party.

FIG.5



EP 0 881 848 A2

Printed by Xerox (UK) Business Services
2.16.6/3.4

Description

The present invention relates to a communication system and, more particularly, to a communication system which frequently detects the state of each communication terminal to notify the user of a certain communication terminal of it upon detecting that a predetermined communication terminal is set in a designated state.

This application is based on Japanese Patent Application No. 9-139772, filed May 29, 1997, the content of which is incorporated herein by reference.

In recent years, a known mobile communication system is constituted by portable information terminals (e.g., a cellular telephone, a PHS terminal: Personal Handy Phone System terminal, a pager, and a PDA: Personal Digital Assistants) the users carry to transmit/receive speech data and the like to/from another terminal such as a general home telephone, and by a base station connected to a communication line such as an ISDN line to communicate with the portable information terminals and connect them to the communication line.

In this mobile communication system, a public base station connected to a public switched telephone network and set indoors or outdoors at an unspecified location, a private base station connected to a switching unit (to be referred to as a PBX hereinafter) placed in a public facility (e.g., an office), or a private master unit set in a house and functioning as the master unit of a portable information terminal is used as a base station. The public base station, private base station and private master unit are referred to a master unit hereinafter. The portable information terminal (to be also referred to as a subsidiary unit hereinafter) is connected to the communication line through the public base station, the private base station, or the private master unit to communicate with the other party.

The portable information terminal is driven by a secondary battery or the like and used as a portable unit. In the service area of the master unit, the portable information terminal is connected to the communication line through the master unit connected via a wireless channel so that the portable information terminal can communicate with another terminal. Outside the service area of the master unit, the portable information terminal is connected to the communication line through an outdoor base station connected via a wireless channel to communicate with another terminal. Information to be transmitted/received by the portable information terminal includes speech data, text data, image data, and the like.

In the conventional mobile communication system, when a user wants contact from the other party when he/she has arrived at or left a certain place or he/she is set in a predetermined state, the user depends on the memory of the other party. If the other party forgets it, no contact can be made. In this case, it is troublesome that the user must request the other party to make a call. The above problem is not limited to the mobile communication system, but may be applied to a general communication system.

Accordingly, it is an object of the present invention to provide a communication system which can detect that a predetermined communication terminal is set in a designated state and notify the user of its certain communication terminal.

In order to achieve the above object, according to a first aspect of the present invention, there is provided a communication system which performs communication between terminals connected to a communication network via a wireless channel or a wired channel under the control of a management station for managing the communication network, wherein one of the terminals generates calling information and predetermined state information for notifying a state of the other terminal and transmits the pieces of information to the management station, and the management station stores the calling information of the terminal, which has transmitted the pieces of information, and the predetermined state information for notifying the state of the other terminal, and when the state of the other terminal equals the predetermined state information, calls the terminal on the basis of the calling information.

According to a second aspect of the present invention, there is provided a communication system which performs communication between terminals connected to a communication network via a wireless channel or a wired channel, wherein one of the terminals generates calling information and predetermined state information for notifying a state of the other terminal and transmits the pieces of information to the other terminal, and the other terminal stores the transmitted calling information and the transmitted predetermined state information, and when a self state equals the predetermined state information, calls the terminal on the basis of the stored calling information.

According to a third aspect of the present invention, the state of the other terminal may preferably be notified to the terminal using one of character data and speech data in notification based on the calling information.

According to a fourth aspect of the present invention, the transmitted calling information may preferably contain a caller number of a call set-up message, and the predetermined state information may contain data inserted in a subaddress area of the call set-up message.

According to a fifth aspect of the present invention, the predetermined state may preferably contain a state wherein the other terminal enters or leaves a predetermined area.

According to a sixth aspect of the present invention, the predetermined area preferably may be a service area of a public base station set on the communication network to connect the terminal to the communication network via a wireless channel, or an electromagnetic wave reachable range of a master unit connected to the

communication network and having a function of connecting at least a terminal which has been registered in advance to the communication network via a wireless channel.

According to a seventh aspect of the present invention, the predetermined state may preferably be a predetermined time.

According to an eighth aspect of the present invention, there is provided a communication apparatus connected to a communication network via a wireless channel or a wired channel, comprising storage means for storing other party information sent from the communication network and notification information containing a predetermined state for notifying a state of the communication apparatus itself, and means for, when a current state of the communication apparatus equals the predetermined state stored in the storage means, notifying the state on the basis of the other party information.

According to a ninth aspect of the present invention, the notification means may preferably notify the state of the communication apparatus to the other party using one of character data and speech data on the basis of the other party information.

According to a tenth aspect of the present invention, the other party information sent through the communication network may preferably contain a caller number of a call set-up message, and the predetermined state information for notifying the state of the communication apparatus itself may contain data inserted in a subaddress area of the call set-up message.

According to an eleventh aspect of the present invention, the predetermined state may preferably contain a state wherein the communication apparatus enters or leaves a predetermined area.

According to a twelfth aspect of the present invention, the predetermined area may preferably be a service area of a public base station set on the communication network to connect the communication apparatus to the communication network via a wireless channel, or an electromagnetic wave reachable range of a master unit connected to the communication network and having a function of connecting at least a communication apparatus which has been registered in advance to the communication network via a wireless channel.

According to a thirteenth aspect of the present invention, the predetermined state may preferably be a predetermined time.

According to a fourteenth aspect of the present invention, the notification information may preferably further contain a notification method, and the notification means may notify the state to the other party on the basis of the notification method.

This invention can be more fully understood from the following detailed description when taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a block diagram showing the entire arrangement of a mobile communication system according to a first embodiment of the present invention;

FIG. 2 is a block diagram showing the arrangement of a PHS terminal as a portable terminal of the first embodiment;

FIG. 3 is a view for explaining a call set-up message transferred between a terminal and a base station;

FIG. 4 is a flow chart for explaining the operation of the PHS terminal upon selecting a recall mode of the first embodiment;

FIG. 5 is a flow chart for explaining the operation of a server and the operation of the PHS terminal in the recall mode which is performed when a specified communication terminal is set in a designated state in the first embodiment;

FIGS. 6A, 6B and 6C are schematic views for explaining the operation of the mobile communication system according to the first embodiment;

FIG. 7 is a flow chart for explaining the operation of a PHS terminal upon selecting a recall mode in a mobile communication system according to a second embodiment of the present invention;

FIG. 8 is a flow chart for explaining the operation of a specified communication terminal and the operation of the PHS terminal in the recall mode which is performed when the specified communication terminal is set in a designated state in the second embodiment; and

FIGS. 9A, 9B and 9C are schematic views for explaining the operation of the mobile communication system according to the second embodiment.

A preferred embodiment of a communication system according to the present invention will now be described with reference to the accompanying drawings.

First Embodiment

FIG. 1 is a block diagram showing the entire arrangement of a system of the first embodiment in which the present invention is applied to a PHS.

Referring to FIG. 1, reference numeral 1 denotes a public switched telephone network (PSTN) or an integrated service digital network (ISDN) spread throughout the country. Such a network 1 will be referred to as a communication network hereinafter. Public base stations 2a, 2b, ... connected to the communication network 1 are set outdoors at a predetermined interval. Each public base station has a service area (electromagnetic wave reachable range: service area - in the broken line shown in FIG. 1) with a radius of several hundred meters around itself and serves as a repeater station connected to each of PHS terminals PS1, PS2, ... in the service area via a wireless channel to connect the PHS terminal to the communication network 1. A

master unit 3 is set in a house and connected to the communication network 1. The master unit 3 has a handset, dial keys, and various function keys, like a normal telephone set, and allows communication with an external telephone set. The master unit 3 communicates with the PHS terminal PS2 via a wireless channel to connect an external call to the PHS terminal PS2. In addition, the master unit 3 connects the PHS terminal PS2 to another telephone or PHS terminal on the communication network 1 in response to a connection request from the PHS terminal PS2.

Each of the PHS terminals PS1, PS2, ... is carried by a user and driven by a battery. The PHS terminal PS1 or PS2 has a liquid crystal display unit and dial keys, i.e., the same functions as those of a normal telephone set and communicates with the master unit 3 or the public base station 2a or 2b via a wireless channel so as to be connected to the communication network 1. In other words, in the service area of the master unit 3, each of the PHS terminal PS1, PS2, ... communicates with the master unit 3 via a wireless channel so as to be connected to the communication network 1. Outside the service area of the master unit 3, each of the PHS terminal PS1, PS2, ... communicates with the public base station 2a or 2b set at a close position via a wireless channel so as to be connected to the communication network 1 to communicate with another telephone set or the master unit.

The terminal (it can be not only a PHS terminal but also a master unit or a normal telephone set) of the present invention has a recall mode in which when a specific party (it can be a PHS terminal, a master unit or a normal telephone set) is set in a specific state, the user of the terminal is notified of it. To set this mode, identification information for identifying the other party, state designation information for designating the state of the other party to be notified, and notification operation designation information for designating contents to be notified in the designated state (these pieces of information will be called recall data) are set in the caller or callee subaddress to originate a call. The recall data is registered in a server 5 connected to the communication network 1. The server 5 determines whether the state of the other party equals the state designated by the state designation information contained in the recall data. If the states equal each other, an action corresponding to the notification operation designation information contained in the recall data, e.g., notification of a message representing the state of the other party is performed.

More specifically, the recall data includes a caller number for identifying the terminal where the recall mode is selected and performing recall, the other party ID for identifying the other party, state designation information for designating the state of the other party to be notified in the recall, action designation information for designating contents of the recall in the designated state, and if notification of a message is designated, the message. A recall message has contents representing the entering/leaving state of the other party for the service area of the public base station or master unit, e.g., "Mr. X has arrived at Y station", "Mr. X has arrived at Z company", "Mr. X has left home (office)", "Mr. X has come home", "it is TT: MM", "please call Mr. X", "Is it OK to call Mr. X?".

As a designated state, the other party "enters a specific service area, i.e., area defined by a specific CS-ID", "leaves a specific service area", "enters a specific master unit area", or "leaves a specific master unit area", or "it is the designated time". A designated action is e.g., a message notification method: "transmit a message as character information", "transmit a message as speech information", "transmit a message as character information and generate a melody", or "generate a simple buzzer sound".

The server 5 controls the communication network 1 to manage communication between terminals. Especially, in the present invention, the server 5 receives recall data from the terminal set in the recall mode and determines on the basis of the location information of the other party whether the state of the other party equals a predetermined state designated by the state designation information contained in the recall data. If the states equal each other, the server 5 performs an action corresponding to the notification operation designation information contained in the recall data, e.g., notification of a message representing the state of the other party. The server 5 may be a network management station which stores various data in a database and provides various services to provide the data to the user in response to a request from the PHS terminal.

FIG. 2 is a block diagram showing the arrangement of the public base station 2a or 2b according to the first embodiment.

A transmitter/receiver 10 has a frequency conversion section and a modem. The receiver of the frequency conversion section mixes a signal received at an antenna ANT with a local oscillation signal with a predetermined frequency, which is output from a PLL synthesizer, thereby converting the received signal in the 1.9 GHz band to an IF (Intermediate Frequency) signal near the 1 MHz band. The transmitter of the frequency conversion section mixes a modulated wave based on the $\pi/4$ shift QPSK, which is output from a modem (to be described later), with a local oscillation signal with a predetermined frequency, which is output from the PLL synthesizer, thereby converting the frequency to the 1.9 GHz band and sends it from the antenna ANT through an antenna switch. The receiver of the modem demodulates the IF signal from the frequency conversion section, separates the signal into I and Q data, and sends the data string to a communication controller 11. The transmitter of the modem generates I and Q data from data supplied from the communication controller 11, modulates it on the basis of the $\pi/4$ shift QPSK, and sends the data to the fre-

quency conversion section of the transmitter/receiver 10.

The communication controller 11 performs frame synchronization and slot data format processing. The receiver section of the communication controller 11 extracts data of one slot from the received data supplied from the modem of the transmitter/receiver 10 at a predetermined timing and extracts a unique word (synchronization signal) from this data, thereby generating a frame synchronization signal. The receiver portion descrambles the control data portion and the speech data portion. The control data is sent to a main controller 16, and the speech data is sent to a speech processor 12. The transmitter section of the communication controller 11 adds control data and the like to speech data supplied from the speech processor 12, scrambles the data, and adds a unique word to generate transmission data of one slot. The transmission data is inserted into a predetermined slot in a frame at a predetermined timing and sent to the modem of the transmitter/receiver 10.

The speech processor 12 is constituted by a speech codec and a PCM codec. The speech codec compresses/expands digital data. The receiver section of the speech processor 12 decodes an ADPCM (Adaptive Differential Pulse Code Modulation) speech signal (4 bits × 8 KHz = 32 Kbps) supplied from the communication controller 11 to expand the speech signal which is a PCM (Pulse Code Modulation) speech signal (8 bits × 8 KHz = 64 Kbps), and outputs the signal to the PCM codec. The transmitter section of the speech processor 12 codes a PCM speech signal supplied from the PCM codec into an ADPCM speech signal to compress the PCM speech signal, and sends the signal to the communication controller 11. The above-described PCM codec performs analog/digital conversion. On the receiver section, a PCM speech signal supplied from the speech codec is converted into an analog speech signal by D/A conversion and output from a loudspeaker 13. On the transmitter section, an analog speech signal input from a microphone 14 is converted into a PCM speech signal by A/D conversion and sent to the speech codec.

A key input device 15 has number keys used to input the telephone number of the other party, an on-hook/off-hook switch, a volume switch for adjusting the speech output, a mode switch for selecting the recall mode as an operation mode, and the like. The states of the keys and switches are supplied to the main controller 16.

The main controller 16 controls the entire apparatus in accordance with a predetermined program. A storage device 17 has a storage medium 17a storing a program to be executed by the main controller 16 and various parameters. This storage medium 17a comprises a magnetic or optical storage medium or a semiconductor memory. This storing medium 17a is fixedly arranged or detachably attached in the storage device 17. The program and parameters to be stored in the storage device 17 may be received from another device connected through a communication line and stored. Alternatively, the storage device having the storage medium may be arranged on the side of another device connected through a communication line such that the program and parameters stored in the storage medium can be downloaded through the communication line. A RAM 18 stores data generated under the control of the main controller 16 or is used as a working area.

A display device 19 has a liquid crystal display device for displaying various data such as an operation mode, a telephone number, and a communication time, and LEDs for indicating ON/OFF of a switch or the like. The display device 19 displays various data under the control of the controller 16. The display device 19 is constituted as a touch panel, and data can be input by touching a displayed icon or data with a touch pen (not shown).

FIG. 3 is a view for explaining a call set-up message. The call set-up message is information to be transferred between the caller-side terminal and the callee-side terminal (an external telephone set, a master unit, or a PHS terminal) when the terminal of the communication system originates a call or is received a call. The call set-up message has a protocol ID, a call number, a message type, a facility as another information element, a caller number, a caller subaddress, a callee number, and a callee subaddress. In the present invention, a terminal (it is not limited to a PHS terminal) which wants to know that a specific other party (it is also not limited to a PHS terminal) is set in a specific state selects the recall mode. Recall data constituted by identification information for identifying the other party, state designation information for designating a specific state, and action designation information for designating a notification to be received are generated and set in the caller or callee subaddress, and then, the terminal calls the other party. The present invention is not limited to this. As far as the recall data can be sent, it may be set in, e.g., a facility message or an optional message.

The operation of the mobile communication system according to the first embodiment will be described. This operation is executed on the basis of the program and parameters stored in the storage medium 17a in the form of program codes readable by the CPU in the main controller 16. The operations of the communication itself are the same as those of a conventional terminal, and a detailed description thereof will be omitted.

FIG. 4 is a flow chart for explaining the operation of the PHS terminal upon selecting the recall mode in the first embodiment. FIG. 5 is a flow chart for explaining the operation of the server 5 and the operation of the PHS terminal in the recall mode which is performed when the state of the other party equals a predetermined state in the first embodiment. FIGS. 6A to 6C are schematic views for explaining the operation of the entire mobile communication system according to the

first embodiment. In the following description, the PHS terminal PS1 shown in FIG. 1 is the terminal set in the recall mode, and the PHS terminal PS2 is the other party.

In step S10 in FIG. 4, the PHS terminal PS1 determines whether the recall mode is selected. If YES in step S10, the flow advances to step S12. The recall mode is selected in accordance with an instruction from the key input device 15. In step S14, the other party whose state is to be known is specified. The other party is specified by inputting a terminal ID, e.g., a telephone number or PS-ID, which has been set for each terminal in advance. In this case, the PHS terminal PS2 is specified. Not only one but also a plurality of terminals can be specified.

In step S14, a state is input. In this case, the above-described state wherein the PHS terminal PS2 "enters a specific service area corresponding to a specific CS-ID or area information, (the service area of a public base station 2c shown in FIG. 6B)" is input. It is to be noted that the Y station is located in the service area of the public base station 2c.

In step S16, an action to be executed by the server when the above state is satisfied is input. In this case, an action of "transmitting a predetermined message representing the state of the other party as character information" is input.

In step S18, this predetermined message is input. In this case, a message "Mr. X (the user of the other party PS2) has arrived at Y station" is input. If buzzer or melody sound generation is input as the action at step S16, it is not necessary to input message at step S18.

In step S20, the above information, i.e., recall data is set in the subaddress shown in FIG. 3. In step S22, the server 5 is called to transmit a call set-up message in which the recall data is set, as shown in FIG. 6A. Upon receiving a registration confirmation message, the communication channel is disconnected in step S24, and recall mode setting processing is ended.

In step S30 in FIG. 5, the server 5 determines whether it is called. If YES in step S30, it is determined in step S32 whether the call is a recall data registration request. If NO in step S32, the flow advances to other processing.

If YES in step S32, the flow advances to step S34 to store, as recall data, the caller number, the other party ID (PS2), the message, the state, and the action set in the subaddress of the call set-up message.

In step S36, the location information of the PHS terminal PS2 as the other party is acquired on the basis of the other party ID. Generally, the PHS terminal registers its location through the public base station when the PHS terminal moves to another service area or the power is turned on. Therefore, the server 5 can detect the current location of the PHS terminal.

In step S38, it is determined whether the state of the PHS terminal PS2 as the other party equals the predetermined or designated state. If NO in step S38, i.e., if it is determined on the basis of the location information of the PHS terminal PS2 acquired in step S36 that the PHS terminal PS2 is outside the service area of the public base station 2c, processing in step S38 is repeatedly executed until the states equal each other.

When the states equal each other, i.e., the PHS terminal PS2 enters the service area of the public base station 2c shown in FIG. 6B, the flow advances to step S40 to call the caller number (PHS terminal PS1) stored as recall data. In step S42, the communication channel connected.

In step S44, the message is transmitted to the PHS terminal PS1 in accordance with the action designated by the action designation information stored as recall data, as shown in FIG. 6C. In step S46, the communication channel is disconnected, and processing is ended.

In step S50, the PHS terminal PS1 set in the recall mode determines whether it is called. If YES in step S50, it is determined in step S52 whether the PHS terminal PS1 is recalled. If NO in step S52, the flow advances to other processing (e.g., the off-hook state is detected, and normal communication processing is performed).

If YES in step S52, the flow advances to step S54 to receive the message transmitted from the server 5, "Mr. X has arrived at Y station". In step S56, the received message is displayed on the display device 19. In step S58, processing is ended.

When a plurality of other parties are specified, location information of all other parties are acquired in step S36. In step S38, it is determined whether the state of each other party equals the designated state. If any party is set in the designated state, the PHS terminal PS1 is recalled. After recall, the flow returns to step S36 without disconnecting the line.

When only a buzzer or melody sound is to be generated without sending a message, recall notification is simply made in step S44. In step S56, the buzzer or melody sound is generated in accordance with the recall notification.

As described above, according to the first embodiment, the user of the PHS terminal PS1 in the recall mode can know that (the user of) the PHS terminal PS2 as the designated other communication party enters a predetermined service area, i.e., the user of the PHS terminal PS2 has arrived at Y station without forcing the user of the other party to perform an operation. The PHS terminal PS2 can be called on the basis of this notification, resulting in an increase in convenience.

Other embodiments of the present invention will be described next. The same reference numerals as in the first embodiment denote the same parts in the other embodiments, and a detailed description thereof will be omitted.

Second Embodiment

A mobile communication system according to the

second embodiment has the same arrangement as that shown in FIG. 1, and a detailed description thereof will be omitted. In the second embodiment, recall data sent from the PHS terminal PS1 in the recall mode is registered not in the server 5 but directly in the other party PS2. The other party PS2 itself determines whether the self state equals a predetermined state designated by the state designation information contained in the recall data. If the state equals the designated state, an operation designated by the action designation information contained in the recall data, e.g., an operation of transmitting a message representing the self state is performed for the terminal PS1 in the recall mode. Therefore, the server 5 can be omitted.

FIG. 7 is a flow chart for explaining the operation of the PHS terminal PS1 in the recall mode according to the second embodiment. FIG. 8 is a flow chart for explaining the operation of the other party PS2 and the operation of the PHS terminal PS1 in the recall mode which is performed when the state of the other party equals the designated state in the second embodiment. FIGS. 9A to 9C are schematic views for explaining the operation of the entire mobile communication system according to the second embodiment.

In step S60 in FIG. 7, the PHS terminal PS1 determines whether the recall mode is selected. If YES in step S60, the flow advances to step S62.

In step S62, the other party (PHS terminal PS2) is specified.

In step S64, the state is input. In this case, the above-described state wherein the PHS terminal PS2 "enters a specific service area corresponding to a specific CS-ID or area information, (the service area of a public base station 2c shown in FIG. 9B)" is input.

In step S66, an action to be executed by the other party PS2 when the above state is satisfied is input. In this case, an action of "transmitting a message as character information and simultaneously generating a melody" is input.

In step S68, the message is input. In this case, a message "please call Mr. X (the user of the other party PS2 specified in step S62)" is input.

In step S70, the above information, i.e., recall data is set in the subaddress shown in FIG. 3. In step S72, the other party PS2 is called to transmit a call set-up message in which the recall data is set, as shown in FIG. 9A. Upon receiving a registration confirmation message, the communication channel is disconnected in step S74, and processing is ended.

In step S80 in FIG. 8, the PHS terminal PS2 as the other party determines whether it is called. If YES In step S80, it is determined in step S82 whether the call is a recall data registration request. If NO in step S82, the flow advances to other processing.

If YES in step S82, the flow advances to step S84 to store, as recall data, the caller number, the message, the state, and the action set in the subaddress of the call set-up message.

In step S86, the state of the own terminal is detected from the base station or master unit.

In step S88, it is determined whether the self state equals the designated state. The state designated by the PHS terminal PS1 is "the PHS terminal PS2 enters the service area of a specific CS-ID (public base station 2c)". If NO in step S88, i.e., if it is determined on the basis of the self location information acquired in step S86 that the PHS terminal PS2 itself has not entered the service area of the public base station 2c, step S88 is repeatedly executed until the states equal each other.

When the states equal each other, i.e., the PHS terminal PS2 enters the service area of the public base station 2c, as shown in FIG. 9B, the flow advances to step S90 to call the caller number stored as the recall data. In step S92, the communication channel is connected. In step S94, the message is transmitted to the PHS terminal PS1 in the recall mode in accordance with the action designated by the action designation information stored as the recall data, and at the same time, a melody generation request is transmitted. In step S96, the communication channel is disconnected, and processing is ended.

In step S100, the PHS terminal PS1 in the recall mode determines whether it is called. If YES in step S100, in step S102, it is determined that the call is a recall.

If YES in step S102, the flow advances to step S104 to receive the message transmitted from the PHS terminal PS2, i.e., "please call Mr. X". In step S106, the received message is displayed on the display device 19, and a melody is generated from the loudspeaker 13. In step S108, processing is ended.

As described above, according to the second embodiment as well, the user of the PHS terminal PS1 in the recall mode can know that (the user of) the PHS terminal PS2 as the specified party enters a predetermined service area without forcing the user of the other party to perform an operation. The PHS terminal PS2 can be called on the basis of this notification, resulting in an increase in convenience.

As has been described above, according to the present invention, the terminal connected to the communication network via a wireless channel or a wired channel generates the calling information of the terminal and predetermined state information for notifying the state of the other terminal and transmits these pieces of information to a management station. Upon receiving the pieces of information, the management station calls the terminal on the basis of the calling information when the state of the other terminal equals the state designated by the predetermined state information. The state of the other terminal can be detected without requiring any operation to the other party.

The terminal connected to the communication network via a wireless channel or a wired channel generates the calling information of the terminal and predetermined state information for notifying the state of

the other terminal and transmits these pieces of information to the other terminal. Upon receiving the pieces of information, the other terminal calls the terminal on the basis of the calling information when the state of the other terminal equals the predetermined state designated by the predetermined state information. The state of the other portable information terminal can be detected without requiring any operation to the other party.

In addition, since the state of the other terminal is notified using character or speech data, the state of the other portable information terminal can be visually or auditorily known without requiring any operation to the other party.

The transmitted calling information contains the caller number of a call set-up message. The predetermined state information is data inserted in the subaddress area of the call set-up message. Therefore, with a simple arrangement using an existing system, the state of the other portable information terminal can be detected without requiring any operation to the other party.

The predetermined state means that the other terminal enters or leaves a predetermined area. Therefore, the state wherein the other terminal enters or leaves the predetermined area can be detected without requiring any operation to the other party.

The predetermined area is the service area of a public base station set on the communication network to connect the terminal to the communication network via a wireless channel or the electromagnetic wave reachable range of a master unit connected to the communication network and having a function of connecting the terminal which has been registered in advance to the communication network via a wireless channel. Therefore, the state wherein the other terminal enters or leaves the service area of a predetermined public base station or the electromagnetic wave reachable range of the master unit can be detected without requiring any operation to the other party.

When the predetermined state is a predetermined time, the terminal is called by the management station or the other terminal at that time. Therefore, the predetermined time can be detected without requiring any operation to the other party.

The communication apparatus connected to the communication line stores other party information sent through the communication line and notification information containing a predetermined state for notifying the state of the communication apparatus itself. When the state of the communication apparatus equals the stored predetermined state, this state is notified to the other party. Therefore, the state of the communication apparatus can be notified in response to a request from the other party.

In addition, since the state of the communication apparatus is notified using character or speech data, the state of the communication apparatus can be visually or auditorily notified in response to a request from the other party.

The other party information transmitted through the communication network contains the caller number of a call set-up message. The predetermined state for notifying the state of the communication apparatus itself is data inserted in the subaddress area of the call set-up message. Therefore, the state of the communication apparatus can be easily notified in response to a request from the other party.

The predetermined state means that the communication apparatus enters or leaves a predetermined area. Therefore, the state wherein the communication apparatus enters or leaves the predetermined area can be notified in response to a request from the other party.

The predetermined area is the service area of a public base station set on the communication network to connect the communication apparatus to the communication network via a wireless channel or the electromagnetic wave reachable range of a master unit connected to the communication network and having a function of connecting the communication apparatus which has been registered in advance to the communication network via a wireless channel. Therefore, the state wherein the communication apparatus enters or leaves the service area or the area of the master unit can be notified in response to a request from the other party.

When the predetermined state is a predetermined time, the communication apparatus can notify the predetermined time in response to a request from the other party.

The notification information further contains a notification method. Notification is made on the basis of this notification method. The notification method can be changed in accordance with a request from the other party.

Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the present invention in its broader aspects is not limited to the specific details, representative devices, and illustrated examples shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalents. In the above embodiments, the other party enters a predetermined service area. However, a state wherein the other party leaves a predetermined service area or leaves (goes out from) the service area of the master unit 3 can also be detected.

In the above embodiments, a PHS terminal is set in the recall mode. However, the terminal is not limited to this. The above embodiments can also be realized with a conventional wired telephone having message input and display functions.

Claims

1. A communication system which performs communication between terminals (PS1, PS2) connected to a communication network (1) under the control of a management station (5) for managing said communication network, characterized in that

   each of said terminals (PS1) transmits recall data to the management station (5) when a recall mode is selected, the recall data including information to be notified of a state in which a predetermined other terminal equals to a predetermined state; and
   said management station (5) stores the recall data and informs the terminal (PS1) in which the recall mode is selected of a state in which the predetermined other terminal (PS2) equals to the predetermined state.

2. A communication system which performs communication between terminals (PS1, PS2) connected to a communication network (1), characterized in that

   each of said terminals (PS1) transmits recall data to a predetermined other terminal when a recall mode is selected, the recall data including information to be notified of a state in which the predetermined other terminal equals to a predetermined state; and
   the predetermined other terminal (PS2) stores the recall data and informs the terminal (PS1) in which the recall mode is selected of a state in which the predetermined other terminal (PS2) equals to the predetermined state.

3. A system according to claim 1 or 2, characterized in that the state of the other terminal (PS2) is notified to said terminal (PS1) set in the recall mode using one of character data and speech data.

4. A system according to claim 1 or 2, characterized in that the transmitted calling information contains a caller number of a call set-up message, and the predetermined state information contains data inserted in a subaddress area of the call set-up message.

5. A system according to claim 1 or 2, characterized in that the predetermined state means a state wherein the other terminal enters or leaves a predetermined area.

6. A system according to claim 1 or 2, characterized in that the predetermined state means a state wherein the other terminal enters or leaves a predetermined area as one of a service area of a public base station set on said communication network to connect said terminal to said communication network via a wireless channel and an electromagnetic wave reachable range of a master unit connected to said communication network and having a function of connecting at least a terminal which has been registered in advance to said communication network.

7. A system according to claim 1 or 2, characterized in that the predetermined state is a predetermined time.

8. A communication apparatus connected to a communication network (1), characterized by comprising:

   storage means (S84) for storing recall data including other party information sent from said communication network and state information for notifying a predetermined state of said communication apparatus itself; and
   means (S88, S90, S94) for, when a current state of said communication apparatus equals the predetermined state corresponding to the state information stored in said storage means, notifying the state to the other party designated by the other party information.

9. An apparatus according to claim 8, characterized in that said notification means notifies the state of said communication apparatus to the other party using one of character data and speech data.

10. An apparatus according to claim 8, characterized in that the other party information sent through said communication network contains a caller number of a call set-up message, and the state information for notifying the state of said communication apparatus itself contains data inserted in a subaddress area of the call set-up message.

11. An apparatus according to claim 8, characterized in that the predetermined state means a state wherein said communication apparatus enters or leaves a predetermined area.

12. An apparatus according to claim 11, characterized in that the predetermined area is one of a service area of a public base station set on said communication network to connect said communication apparatus to said communication network via a wireless channel and an electromagnetic wave reachable range of a master unit connected to said communication network and having a function of connecting at least a communication apparatus which has been registered in advance to said communication network via a wireless channel.

13. An apparatus according to claim 8, characterized in that the predetermined state is a predetermined time.

14. An apparatus according to claim 8, characterized in that the notification information further contains a notification method, and said notification means notifies the state to the other party on the basis of the notification method.

15. A method for controlling a communication system comprising terminals connected to a communication network and a management station for managing said communication network, characterized by comprising the following steps of:

transmitting (S22, S72) recall data to the management station or a predetermined other party from a terminal in which a recall mode is selected, the recall data including information to be notified of a state in which the predetermined other terminal equals to a predetermined state;
storing (S34, S84) the recall data by the management station or the predetermined other party; and
informing (S44, S94) the terminal in which the recall mode is selected of a state in which the predetermined other terminal equals to the predetermined state.

16. A method according to claim 15, characterized in that said terminal in which the recall mode is selected transmits the recall data which includes identification information for identifying the other terminal, state designation information for designating the state of the other terminal to be notified, and action designation information for designating contents of notification.

17. A method according to claim 16, characterized in that said action designation information includes a message display for notifying the state of the other terminal.

18. A method according to claim 16, characterized in that said action designation information includes a speech information for notifying the state of the other terminal.

19. A method according to claim 16, characterized in that said action designation information includes an alarm tone generation.

20. A method according to claim 15, characterized in that said terminal in which the recall mode is selected transmits the recall data with being inserted in a subaddress area of a call set-up message which contains a protocol identifier, a call number, a message type, a facility, a caller number, a caller subaddress, a callee number and a callee subaddress.

FIG.1

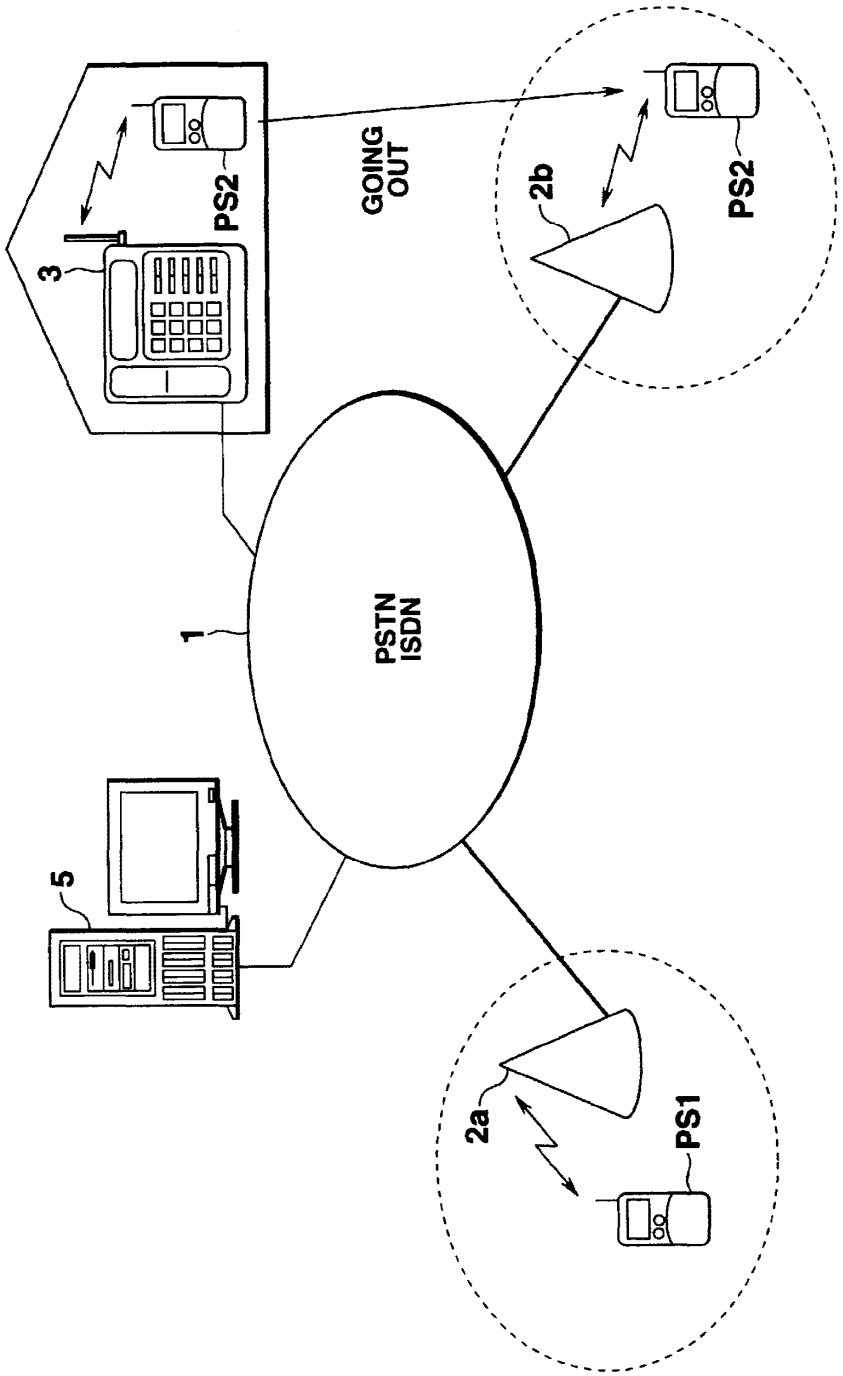


FIG.2

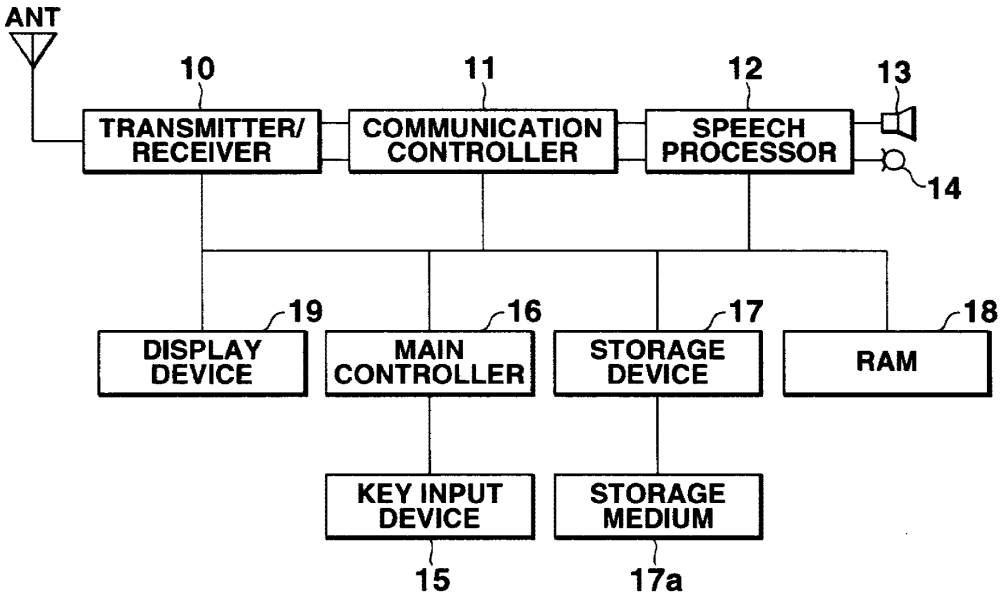


FIG.3

FIG.4

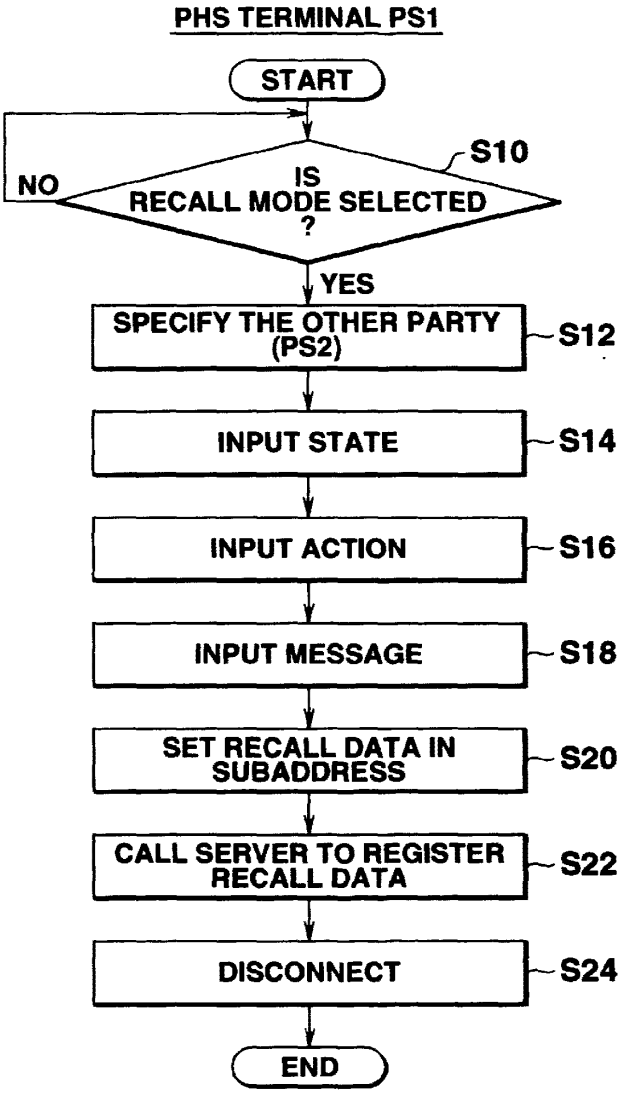


FIG.5

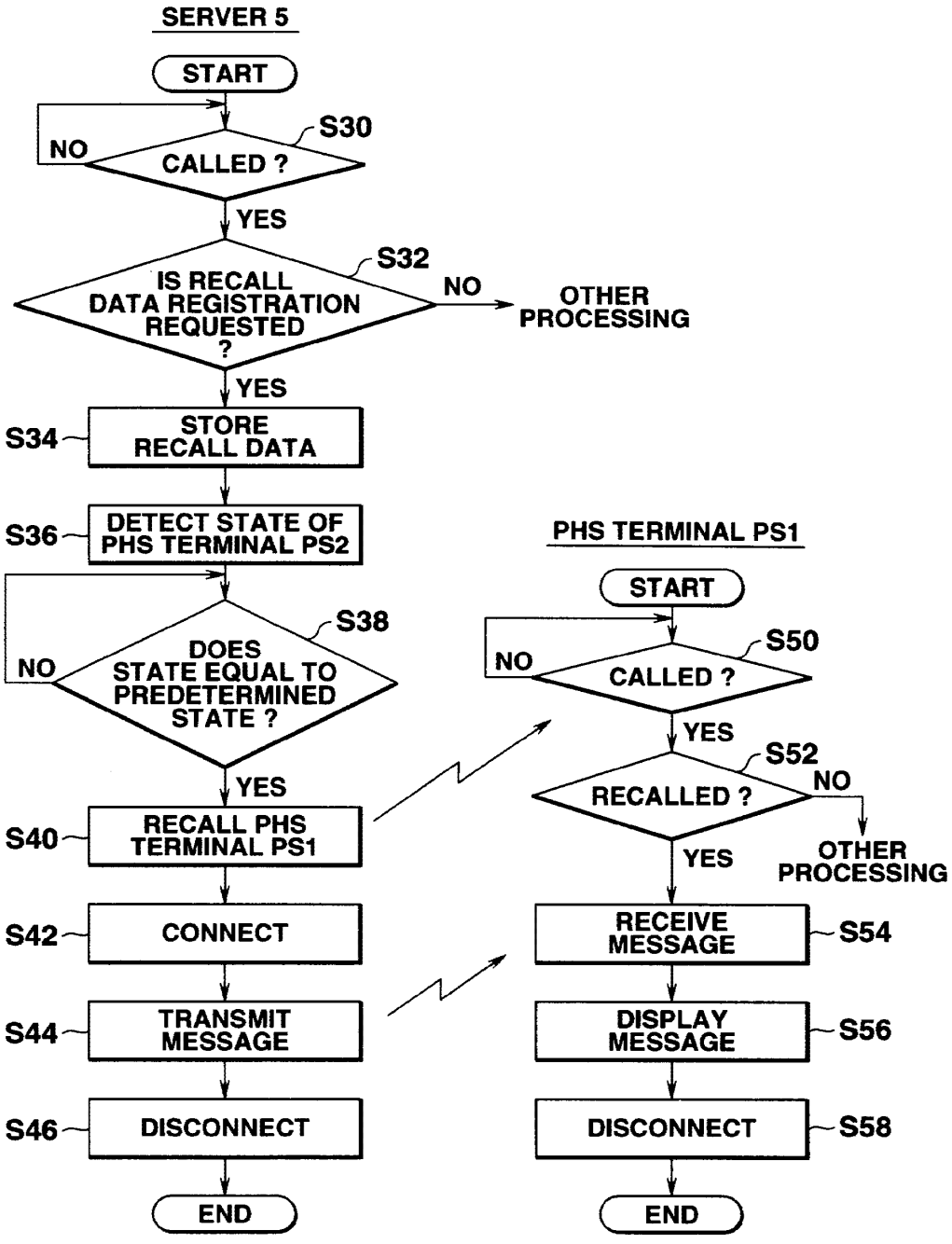


FIG.6A

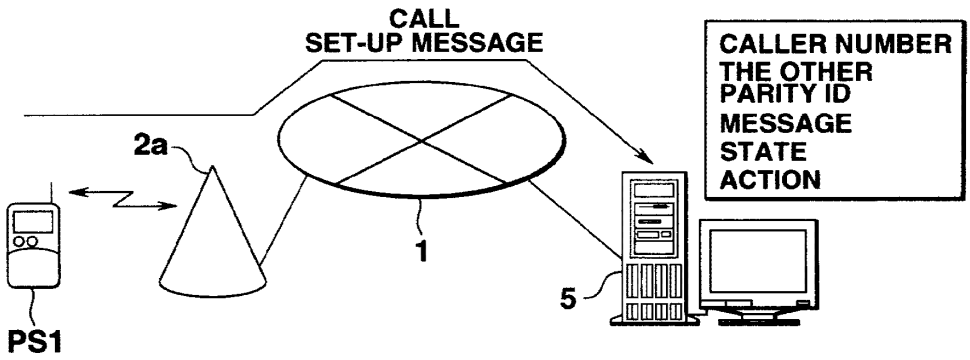


FIG.6B

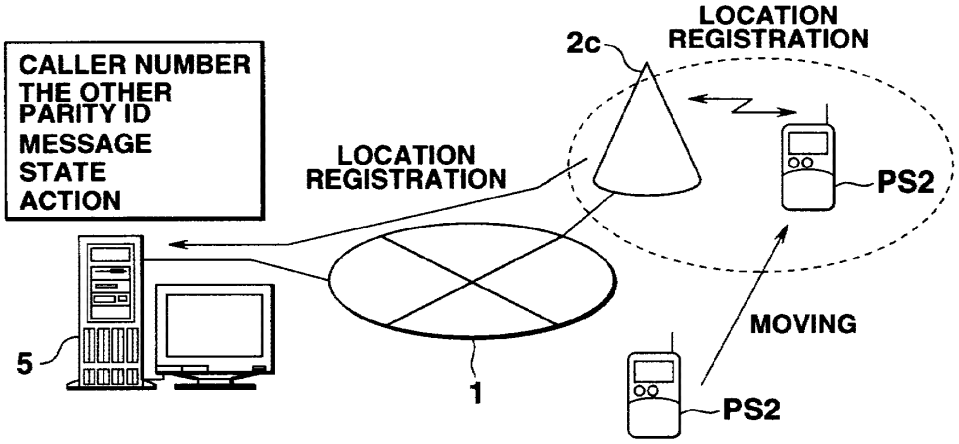


FIG.6C

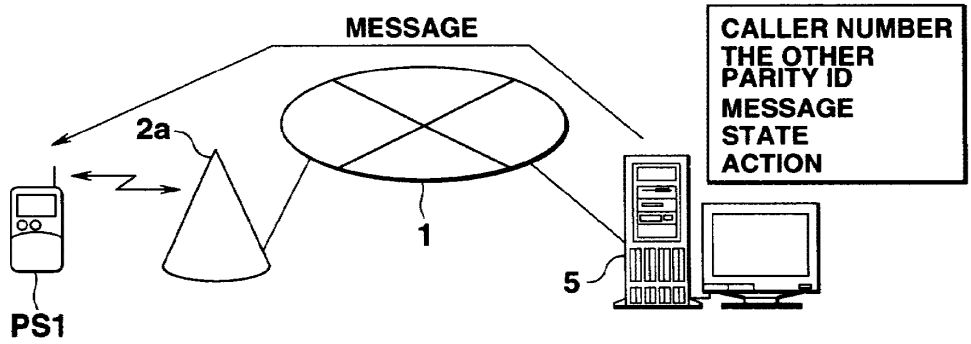


FIG.7

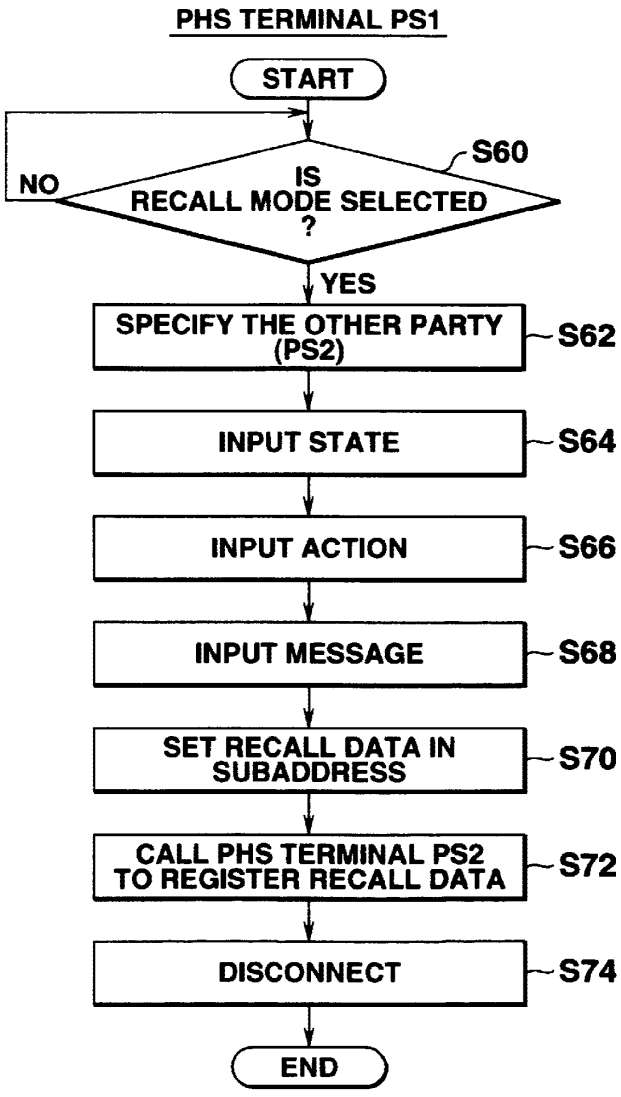


FIG.8

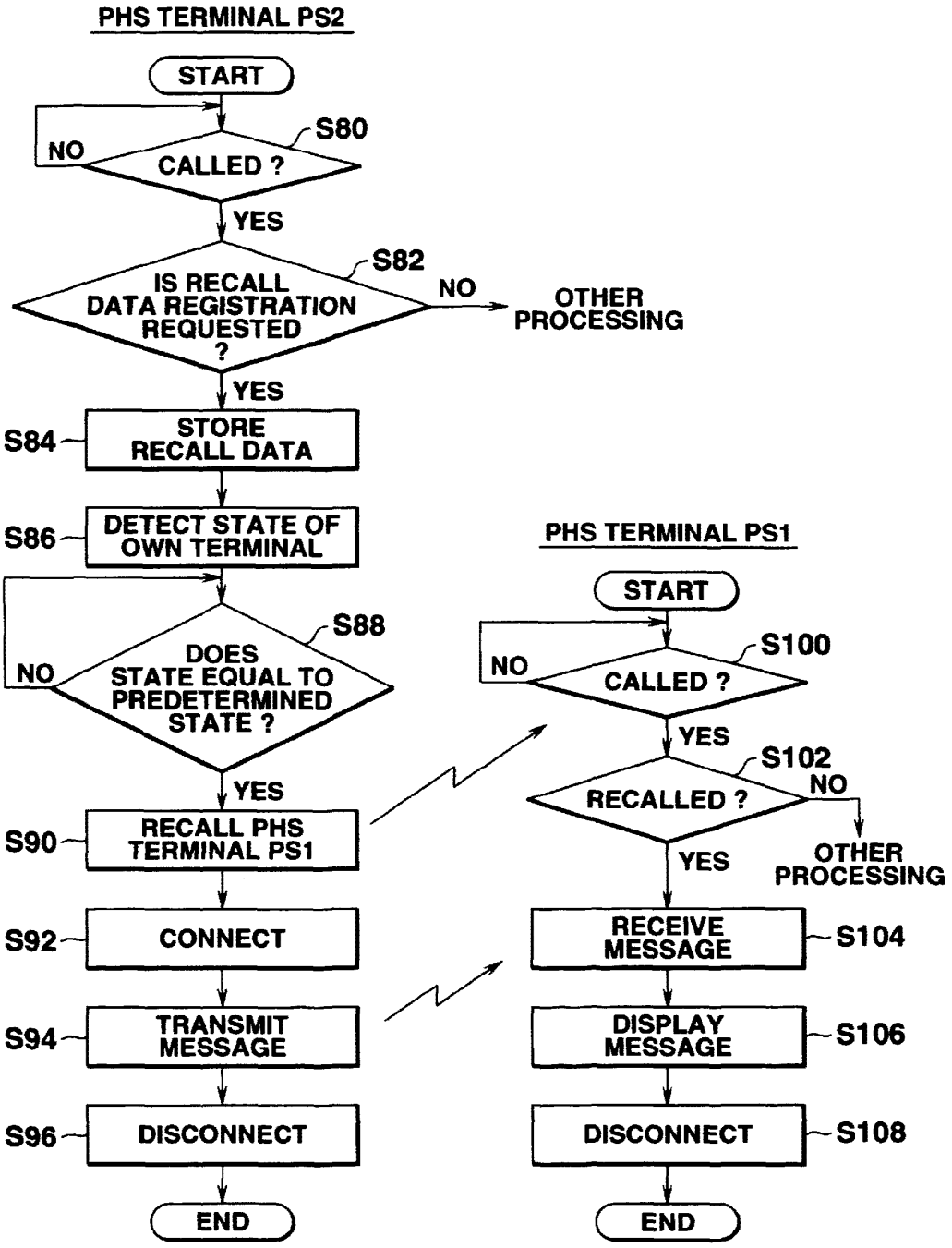


FIG.9A

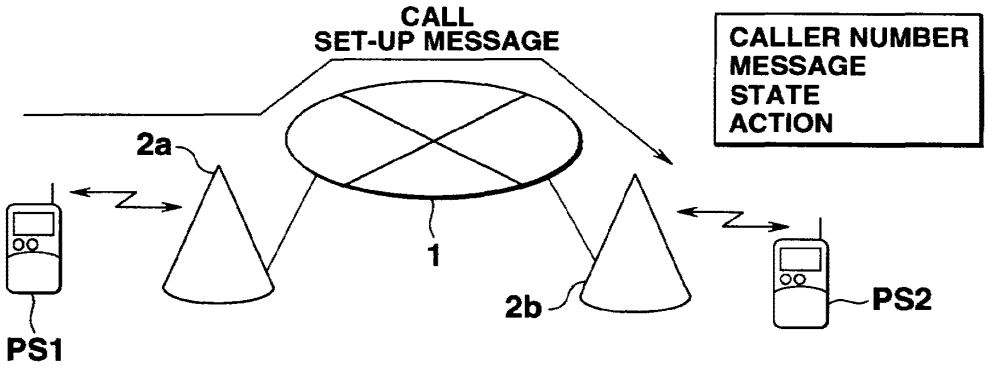


FIG.9B

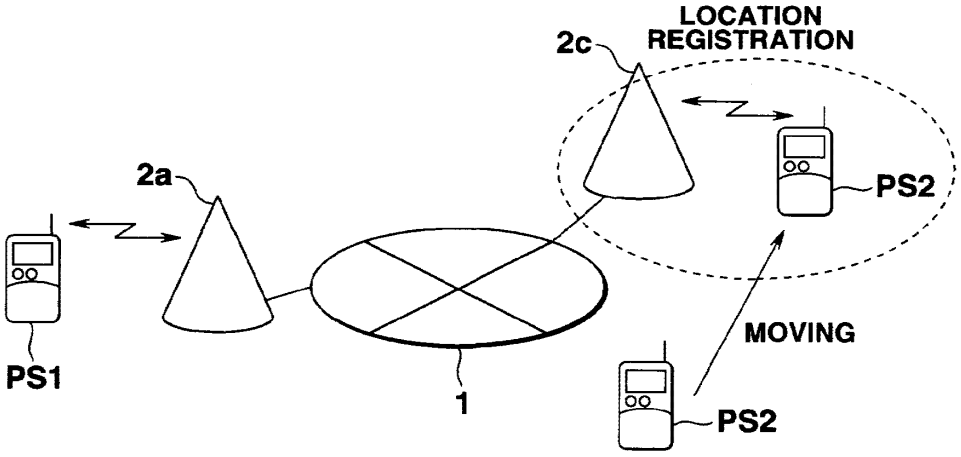
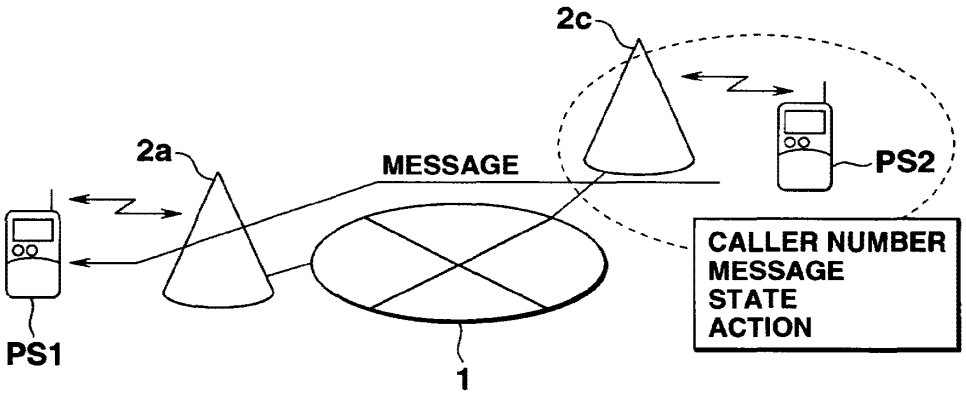


FIG.9C



(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 898 431 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
24.02.1999 Bulletin 1999/08

(51) Int. Cl.[6]: **H04Q 3/00**

(21) Application number: **97440068.1**

(22) Date of filing: **18.08.1997**

(84) Designated Contracting States:
AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE
Designated Extension States:
AL LT LV RO SI

(71) Applicant: **ALCATEL**
75008 Paris (FR)

(72) Inventor: **Wellmann, Hans**
70499 Stuttgart (DE)

(74) Representative:
Schätzle, Albin, Dipl.-Phys. et al
Alcatel Alsthom
Intellectual Property Department,
Postfach 30 09 29
70449 Stuttgart (DE)

(54) Telecommunication services without intelligent network

(57) Known methods and systems for providing telecommunication services to a user, like number portability, are based on Intelligent Networks, of which the installation is expensive and time-consuming. These networks can be avoided in case a mobile switch is coupled via a processor device to a first database corresponding with a first network like GSM and to a second database corresponding with a second network like DECT and/or INTERNET, whereby an unused area code could be used to direct a call to said mobile switch, and interrogation of said databases takes place via said processor device. This results in the possibility of immediate providing number portability and routing into any network against low costs and without using Intelligent Networks.

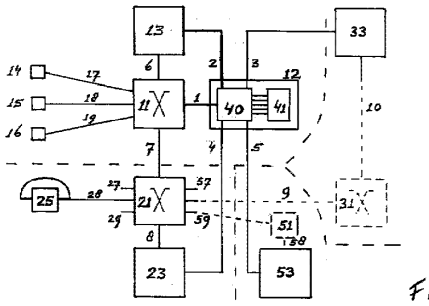


Fig. 1

EP 0 898 431 A1

Printed by Xerox (UK) Business Services
2.16.7/3.6

Description

[0001] The invention relates to a method for providing telecommunication services to a user, like for example number portability.

[0002] Such a method is of common general knowledge and, in general, based on a so-called Intelligent Network (IN) comprising Service Control Points (SCP) and Service Switching Points (SSP).

[0003] The use of an Intelligent Network for said method is disadvantageous, inter alia, because of such a network requiring large investments, with the installation of said network being time-consuming and with said network being limited to public switched telephony without INTERNET being supported.

[0004] It is an object of the invention, inter alia, to provide a method as described in the preamble which can be installed immediately without large costs being involved, said method preferably showing more flexibility with respect to mediation between different (possibly all) types of networks.

[0005] Thereto, the method according to the invention is characterised in that the method comprises the steps of

- detecting at least a part of a telecommunication signal,
- transmitting at least a part of said telecommunication signal via a mobile switch to a processor device which is coupled to a plurality of databases, at least one database corresponding with a first network mainly, and at least one database corresponding with a second network mainly,
- transmitting at least a part of said telecommunication signal from said processor device to at least one database,
- transmitting destination information from at least one database to said processor device,
- amending said telecommunication signal with said destination information into an amended telecommunication signal in said processor device, and
- transmitting said amended telecommunication signal from said processor device via said mobile switch to either said first network or said second network in dependence of said destination information.

[0006] The step of detecting at least a part of a telecommunication signal for example corresponds to a detection of an unused area (or a dedicated) code of a telephone number, which detection could take place in (an exchange of) either a mobile network or a fixed network. In response to said detection at least a part of said telephone number (for example the remaining part) is transmitted via said mobile switch to said processor device which is coupled to a plurality of databases. At least one database corresponds with a first network mainly, like for example a so-called Home Location Register (HLR) corresponding with a GSM network, and at least one database corresponds with a second network mainly, like for example a Digital European Cordless Telephone (DECT) database corresponding with a DECT network. At least a part of said telephone number (for example said remaining part) is then transmitted from said processor device to at least one database, in response to which said destination information is transmitted from at least one database to said processor device, which amends said telephone number with said destination information into an amended telephone number, and transmits said amended telephone number signal via said mobile switch to either said first network or said second network in dependence of said destination information.

[0007] As a result of this, number portability can be introduced without using Intelligent Networks. For example in a large European country comprising over 3000 exchanges for fixed telecommunication and about 40 exchanges for a nationwide mobile telecommunication network, the method according to the invention is very efficient.

[0008] The method according to the invention thus solves the problem, inter alia, of avoiding an expensive and time-consuming installation, without imposing restrictions for certain interfaces.

[0009] The invention is based on the insight, inter alia, that a telecommunication service like number portability can only be realised via an exchange, which exchange either deals with mobile telecommunication or deals with fixed telecommunication.

[0010] Further according to said method all data is left in the original databases, and said data is only relayed and converted when necessary, on demand. Compared to an Intelligent Network, which only operates well in case a SCP comprises a database including for example all number translations, said method according to the invention is further advantageous.

[0011] A first embodiment of the method according to the invention is characterised in that the two steps of transmitting at least a part of said telecommunication signal from said processor device to at least one of said databases and of transmitting destination information from at least one of said databases to said processor device comprise the steps of

- detecting at least a part of said telecommunication signal,
- in response to said detecting transmitting at least a part of said telecommunication signal from said processor device to one database, and
- transmitting destination information from said one database to said processor device.

[0012] According to this first embodiment, inside said processor device one of said databases is selected as the one that should be interrogated. In this case communication between said processor device and said

databases is most efficient, with said processor device however being more complicated.

[0013] A second embodiment of the method according to the invention is, characterised in that the steps of transmitting at least a part of said telecommunication signal from said processor device to at least one of said databases and of transmitting destination information from at least one of said databases to said processor device comprise the steps of

- transmitting at least a part of said telecommunication signal from said processor device to each one of said databases, and
- transmitting destination information from one of said databases to said processor device.

[0014] According to this second embodiment, each one of said databases is selected as the one that should be interrogated. In this case communication between said processor device and said databases is less efficient, with said processor device however being less complicated.

[0015] The invention further relates to a telecommunication system for providing telecommunication services to a user and comprising at least a mobile switch and databases.

[0016] The telecommunication according to the invention is characterised in that the telecommunication system comprises a processor device being provided with

- a first in/output coupled to said mobile switch for receiving at least a part of a telecommunication signal from said mobile switch and for transmitting an amended telecommunication signal via said mobile switch to either a first network or a second network in dependence of a destination information,
- a second in/output coupled to a first database corresponding to said first network mainly,
- a third in/output coupled to a second database corresponding to said second network mainly, at least one of said databases receiving at least a part of said telecommunication signal from said processor device and transmitting said destination information to said processor device, and
- amending means for amending said telecommunication signal with said destination information into said amended telecommunication signal.

[0017] A first embodiment of the telecommunication system according to the invention is characterised in that the processor device comprises

- detecting means for detecting at least a part of said telecommunication signal, said processor device transmitting at least a part of said telecommunication signal to one database and receiving destination information from said one database.

[0018] A second embodiment of the telecommunication system according to the invention is characterised in that the processor device transmits at least a part of said telecommunication signal to each one of said databases and receives destination information from one of said databases.

[0019] A third embodiment of the telecommunication system according to the invention is characterised in that at least one of said databases is an INTERNET database.

[0020] The invention yet further relates to a processor device for use in a telecommunication system comprising at least a mobile switch and databases for providing telecommunication services to a user.

[0021] The processor device according to the invention is characterised in that the processor device is provided with

- a first in/output to be coupled to said mobile switch for receiving at least a part of a telecommunication signal from said mobile switch and for transmitting an amended telecommunication signal via said mobile switch to either a first network or a second network in dependence of a destination information,
- a second in/output to be coupled to a first database corresponding with said first network mainly,
- a third in/output to be coupled to a second database corresponding with said second network mainly, at least one of said databases receiving at least a part of said telecommunication signal from said processor device and transmitting said destination information to said processor device, and
- amending means for amending said telecommunication signal with said destination information into said amended telecommunication signal.

[0022] A first embodiment of the processor device according to the invention is characterised in that the processor device comprises

- detecting means for detecting at least a part of said telecommunication signal, said processor device transmitting at least a part of said telecommunication signal to one database and receiving destination information from said one database.

[0023] A second embodiment of the processor device according to the invention is characterised in that the processor device transmits at least a part of said telecommunication signal to each one of said databases and receives destination information from one of said databases.

[0024] The invention will be explained in greater detail at the hand of an embodiment disclosed in the drawing, whereby

figure 1 discloses a telecommunication system

according to the invention comprising a processor device according to the invention.

[0025] The telecommunication system according to the invention disclosed in figure 1 is divided into four parts: a first mobile network like for example the GSM network comprising a mobile switch 11, a processor device 12 according to the invention and a first database 13 for example being a Home Location Register or HLR, a second mobile network like for example a DECT network comprising a switch 31 and a second database 33 for example being a DECT database, a fixed network like for example being a Public Switched Telephone Network (PSTN) comprising an exchange 21 and a third database 23, and an INTERNET network comprising an INTERNET access node 51 and a fourth database 53 for example being an INTERNET database.

[0026] Exchange 21 is coupled to a telephone 25 via a connection 28 and is coupled to other telephones and/or other exchanges not shown in figure 1 via connections 27 and 29. Exchange 21 is coupled to third database 23 via a connection 8 and to switch 31 via a connection 9 and to mobile switch 11 via a connection 7 and to access node 51 via a connection 59 and to further access nodes and/or switches not shown in figure 1 via a connection 57. Switch 31 is coupled to second database 33 via a connection 10, and access node 51 is coupled to fourth database 53 via a connection 58.

[0027] Mobile switch 11 is coupled to a first Base Station Controller (BSC) 14 via a connection 17, to a second Base Station Controller (BSC) 15 via a connection 18, and to a third Base Station Controller (BSC) 16 via a connection 19. Mobile switch 11 is coupled to database 13 via a connection 6, and to a first in/output of processor device 12 via a connection 1. A second in/output of processor device 12 is coupled to first database 13 via a connection 2, a third in/output of processor device 12 is coupled to second database 33 via a connection 3, a fourth in/output of processor device 12 is coupled to third database 23 via a connection 4, and a fifth in/output of processor device 12 is coupled to fourth database 53 via a connection 5, and a sixth in/output not shown in figure 1 of processor 12 is coupled to a further database not shown in figure 1. Processor device 12 comprises coupling means 40 for mutually coupling/decoupling said in/outputs and control means 41 for controlling said coupling means 40 and for detecting and/or amending signals entering processor device 12.

[0028] The telecommunication system as shown in figure 1 functions as follows. A subscriber using telephone 25 and trying to reach a certain user dials a certain telephone number defining said certain user and for example having an unused area code as a prefix. A corresponding telecommunication signal is then transmitted via connection 28 to exchange 21, which detects said unused area code and in response thereto transmits for example the entire telecommunication signal via connection 7 to mobile switch 11, which detects said unused area code and in response thereto transmits for example the remaining part of the telecommunication signal via connection 1 and via the first in/output to processor device 12.

[0029] According to a first embodiment, inside processor device 12, control means 41 control coupling means 40 in such a way that said part of said telecommunication signal is transmitted via coupling means 40 to control means 41, which then detect said part of said telecommunication signal, for example by using a so-called routing table and/or by comparing it with previously stored signals. In response to said detecting, one of said databases 13,33,23,53 is selected as the one which should comprise certain destination information with respect to said certain user, and said part or an other part of said telecommunication signal is transmitted via an in/output to the selected database, for example via the second in/output to database 13, because of said user being a GSM user. In response thereto, database 13 generates said destination information and transmits it via the second in/output to processor device 12. Inside processor device 12, control means 41 control coupling means 40 in such a way that said destination information is transmitted via coupling means 40 to control means 41, which comprise amending means for amending said telecommunication signal with said destination information into an amended telecommunication signal. Said amending means could be realised by using software (possibly in combination with converters) or by using hardware only (like shift registers etc.) or by using a combination of software and hardware. The amended telecommunication signal is then transmitted via coupling means 40 and the first in/output and connection 1 to mobile switch 11, which in response thereto will contact said GSM user via at least one of said connections 17-19 and at least one of said Base Station Controllers 14-16.

[0030] According to a second embodiment, inside processor device 12, control means 41 control coupling means 40 in such a way, for example, that said part or an other part of said telecommunication signal is transmitted via coupling means 40 and via the second in/output and via connection 2 to database 13 and is transmitted via coupling means 40 and via the third in/output and via connection 3 to database 33 (and is possibly transmitted via coupling means 40 and via the fifth in/output and via connection 5 to database 53). Then usually one of said databases 13,33(,53) will send back said certain destination information with respect to said certain user, for example database 33, because of said user being a DECT user. In response thereto, said destination information arrives via the third in/output at processor device 12. Inside processor device 12, control means 41 control coupling means 40 in such a way that said destination information is transmitted via coupling means 40 to control means 41, which comprise amending means for amending said telecommunication

signal with said destination information into an amended telecommunication signal. The amended telecommunication signal is then transmitted via coupling means 40 and the first in/output and connection 1 to mobile switch 11, which in response thereto transmits said amended telecommunication signal via connection 7 and via exchange 21 and via connection 9 to switch 31 for contacting said DECT user.

[0031] According to a third (fourth) embodiment database 23 (53) will generate and transmit said destination information via connection 4 (5) and via the fourth (fifth) in/output to processor device 12, after which said amended telecommunication is then transmitted via coupling means 40 and the first in/output and connection 1 to mobile switch 11, which in response thereto transmits said amended telecommunication signal via connection 7 and to exchange 21 for contacting said user (via access node 51).

[0032] In view of the second and third (fourth) embodiment it could seem to be very inefficient to go from the fixed network (exchange 21) to the mobile network (mobile switch 11) for interrogation of databases and then to go back, in particular in case at least one of said databases to be interrogated does not belong to said mobile network, but this inefficiency pales into insignificance beside the advantage of having to install only one processor device per mobile switch, the number of mobile switches in general being much smaller than the number of fixed exchanges, and the costs of said number of processor devices being much lower than the costs of an Intelligent Network. Of course, in the future, when Intelligent Networks have been installed, it should not be excluded that said processor devices and one or more of (some of) the Service Control Points (SCP) are combined.

[0033] Said processor devices could also be combined with one or more (mobile) switches, and/or one or more exchanges, and/or one or more databases. Such an integration would offer the advantage, inter alia, of saving connections and of a higher efficiency. However, the core of the invention remains the providing of services via a mobile switch, independently of said services belonging to a fixed network or other mobile networks or a network like INTERNET. Therefore, the term 'destination information' should get the broadest possible meaning and could for example be regarded to mean 'service information'. Said core also remains the same in case two or more different databases are integrated: such an integration in fact only increases the advantages of said invention.

[0034] With respect to said databases suddenly comprising two in/outputs instead of one in/output, it is observed that this is of common general knowledge to a person skilled in the art, who for example will install a multiplexing/demultiplexing function inside each database to get an extra in/output. In case a database is not to be amended or cannot be amended, said multiplexing/demultiplexing function could be installed outside said database. With respect to said processor devices and/or said databases, each term 'in/output' could for example be either a real in/output to be coupled to a bidirectional connection and for example using a so-called fork circuit, or a separate input and output, each one to be coupled to a unidirectional connection, etc.

[0035] Between said mobile switch and said processor device, as well as between said processor device and said databases, a conversion (from left to right) and a back-conversion (from right to left) should not be excluded. Conversion means for converting and back-converting could be installed in said mobile switch and/or in said processor device and/or in said databases. Therefore, for example each step of transmitting a signal and/or for example each step of transmitting information could comprise such a conversion. Such conversion means, inter alia, would further allow said processor device to be coupled to said databases via said switches/exchanges for interrogating a databases indirectly via a switch/exchange instead of interrogating it directly.

Claims

1. Method for providing telecommunication services to a user, characterised in that the method comprises the steps of

   - detecting at least a part of a telecommunication signal,
   - transmitting at least a part of said telecommunication signal via a mobile switch to a processor device which is coupled to a plurality of databases, at least a first database corresponding with a first network mainly, and at least a second database corresponding with a second network mainly,
   - transmitting at least a part of said telecommunication signal from said processor device to at least one of said databases,
   - transmitting destination information from at least one of said databases to said processor device,
   - amending said telecommunication signal with said destination information into an amended telecommunication signal in said processor device, and
   - transmitting said amended telecommunication signal from said processor device via said mobile switch to either said first network or said second network in dependence of said destination information.

2. Method according to claim 1, characterised in that the two steps of transmitting at least a part of said telecommunication signal from said processor device to at least one of said databases and of transmitting destination information from at least

one of said databases to said processor device comprise the steps of

- detecting at least a part of said telecommunication signal,
- in response to said detecting transmitting at least a part of said telecommunication signal from said processor device to one database, and
- transmitting destination information from said one database to said processor device.

3. Method according to claim 1, characterised in that the steps of transmitting at least a part of said telecommunication signal from said processor device to at least one of said databases and of transmitting destination information from at least one of said databases to said processor device comprise the steps of

- transmitting at least a part of said telecommunication signal from said processor device to each one of said databases, and
- transmitting destination information from one of said databases to said processor device.

4. Telecommunication system for providing telecommunication services to a user and comprising at least a mobile switch and databases, characterised in that the telecommunication system comprises a processor device being provided with

- a first in/output coupled to said mobile switch for receiving at least a part of a telecommunication signal from said mobile switch and for transmitting an amended telecommunication signal via said mobile switch to either a first network or a second network in dependence of a destination information,
- a second in/output coupled to a first database corresponding to said first network mainly,
- a third in/output coupled to a second database corresponding to said second network mainly, at least one of said databases receiving at least a part of said telecommunication signal from said processor device and transmitting said destination information to said processor device, and
- amending means for amending said telecommunication signal with said destination information into said amended telecommunication signal.

5. Telecommunication system according to claim 4, characterised in that the processor device comprises

- detecting means for detecting at least a part of said telecommunication signal, said processor device transmitting at least a part of said telecommunication signal to one database and receiving destination information from said one database.

6. Telecommunication system according to claim 4, characterised in that the processor device transmits at least a part of said telecommunication signal to each one of said databases and receives destination information from one of said databases.

7. Telecommunication system according to claim 4, 5 or 6, characterised in that at least one of said databases is an INTERNET database.

8. Processor device for use in a telecommunication system comprising at least a mobile switch and databases for providing telecommunication services to a user, characterised in that the processor device is provided with

- a first in/output to be coupled to said mobile switch for receiving at least a part of a telecommunication signal from said mobile switch and for transmitting an amended telecommunication signal via said mobile switch to either a first network or a second network in dependence of a destination information,
- a second in/output to be coupled to a first database corresponding with said first network mainly,
- a third in/output to be coupled to a second database corresponding with said second network mainly, at least one of said databases receiving at least a part of said telecommunication signal from said processor device and transmitting said destination information to said processor device, and
- amending means for amending said telecommunication signal with said destination information into said amended telecommunication signal.

9. Processor device according to claim 8, characterised in that the processor device comprises

- detecting means for detecting at least a part of said telecommunication signal, said processor device transmitting at least a part of said telecommunication signal to one database and receiving destination information from said one database.

10. Processor device according to claim 8, characterised in that the processor device transmits at least a part of said telecommunication signal to each one of said databases and receives destination informa-

tion from one of said databases.

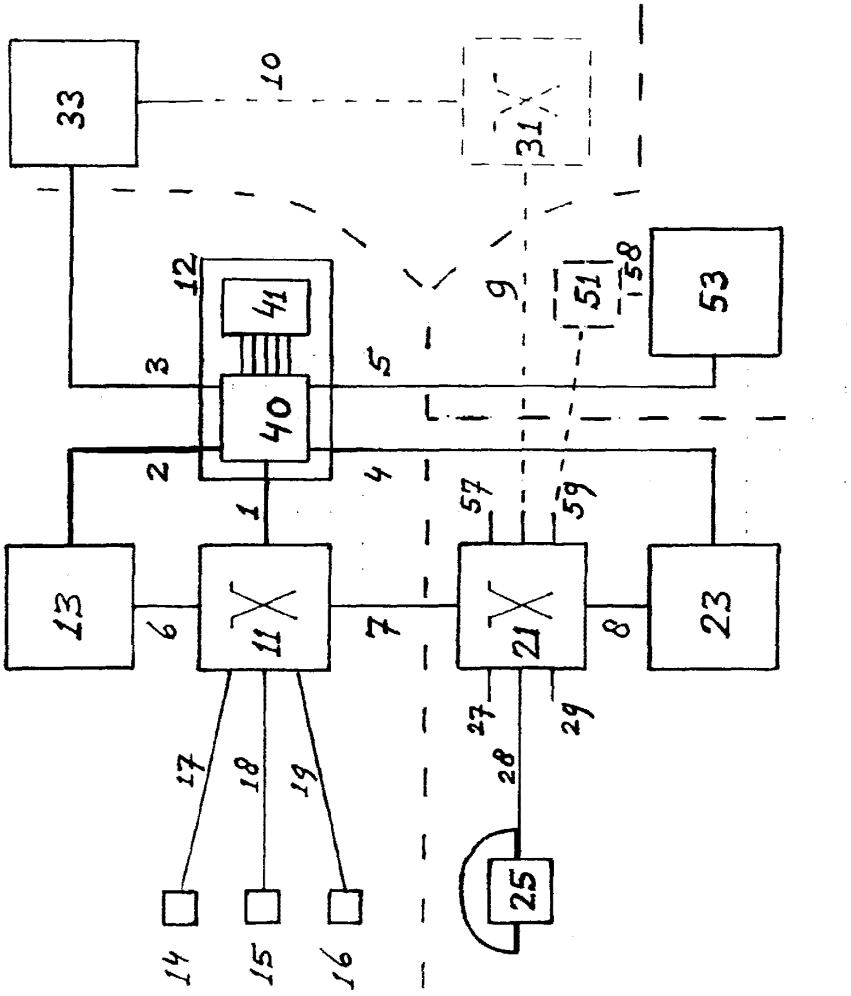


Fig. 1

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 44 0068

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 738 093 A (TELIA AB) * column 2, line 35 - column 3, line 16 * * claims 1-17 *	1,2,4,5,8,9	H04Q3/00
X	BALLARD M ET AL: "CELLULAR MOBILE RADIO AS AN INTELLIGENT NETWORK APPLICATION" ELECTRICAL COMMUNICATION, vol. 63, no. 4, 1 January 1989, pages 389-399, XP000115658 * page 391, column 1, line 17 - page 392, column 1, line 18 * * figures 2,3 * * page 396, column 1, line 8 - page 397, column 1, line 25 *	1,2,4,5,8,9	
X	BLAKESLEE K S: "THE ROLE OF GSM IN THE DEVELOPMENT OF INTELLIGENT NETWORKS IN EUROPE" INTELLIGENT NETWORKS: THE PATH TO GLOBAL NETWORKING, PROCEEDINGS OF THE INTERNATIONAL COUNCIL FOR COMPUTER COMMUNICATION INTELLIGENT NETWORKS CONFERENCE, TAMPA, MAY 4 - 6, 1992, 4 May 1992, BAYLISS P W (ED), pages 409-417, XP000684036	1,2	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
A	* page 414, line 6 - line 17 * * page 415, line 15 - line 17 * * page 416, line 5 - line 16 *	3-6,8-10	H04Q
A	GB 2 272 603 A (PLESSEY TELECOMM) * page 2, line 33 - page 3, line 24 * * claim 1 * * figure 1 *	1,2,4,5,8,9	
A	WO 96 31973 A (BELL COMMUNICATIONS RES) * page 6, line 26 - page 8, line 9 *		

-/--

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 March 1998	Chassatte, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 44 0068

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	EP 0 714 214 A (TECNOMEN OY) * the whole document * -----		

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	26 March 1998	Chassatte, R

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
P : intermediate document

T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 918 423 B1

(12) **EUROPÄISCHE PATENTSCHRIFT**

(45) Veröffentlichungstag und Bekanntmachung des Hinweises auf die Patenterteilung:
10.03.2004 Patentblatt 2004/11

(51) Int Cl.[7]: **H04L 29/06**

(21) Anmeldenummer: **98118755.2**

(22) Anmeldetag: **05.10.1998**

(54) **Mobiles Telefon für Internet-Anwendungen**

Mobile phone for Internet applications

Téléphone mobile pour applications Internet

(84) Benannte Vertragsstaaten:
AT DE FR GB IT NL SE

(30) Priorität: **15.10.1997 DE 19745539**

(43) Veröffentlichungstag der Anmeldung:
26.05.1999 Patentblatt 1999/21

(73) Patentinhaber: **Nokia Corporation**
02150 Espoo (FI)

(72) Erfinder: **Theimer, Wolfgang**
44795 Bochum (DE)

(74) Vertreter:
TER MEER STEINMEISTER & PARTNER GbR
Patentanwälte,
Mauerkircherstrasse 45
81679 München (DE)

(56) Entgegenhaltungen:
WO-A-97/26750

- **KENNEDY P: "MobileWeb/sup TM/ changing the face of mobile networking through universal wireless connectivity" IEEE TECHNICAL APPLICATIONS CONFERENCE. NORTHCON/96. CONFERENCE RECORD (CAT. NO.96CH35928), IEEE TECHNICAL APPLICATIONS CONFERENCE. NORTHCON/96. CONFERENCE RECORD, SEATTLE, WA, USA, 4-6 NOV. 1996, Seiten 89-94, XP002128907 1996, New York, NY, USA, IEEE, USA ISBN: 0-7803-3277-6**
- **"Nokia 9000 Technical Specifications" , [Online] 21. Juni 1997 (1997-06-21), Seiten 1-2, XP002128908 Retrieved from the Internet: <URL:http://www.midnet.ie/cellworld/specifi.html> [retrieved on 2000-01-27]**

Printed by Jouve, 75001 PARIS (FR)

EP 0 918 423 B1

Beschreibung

[0001] Die Erfindung betrifft ein mobiles Telefon gemäß dem Oberbegriff des Patentanspruchs 1, das insbesondere in einem Kommunikationssystem zur Überwachung und/oder Führung eines Fahrzeugs oder zur medizinischen Überwachung eines Patienten verwendet werden kann.

[0002] Kommunikationssysteme zum Beispiel zur Überwachung und/oder Führungs eines Fahrzeugs sind allgemein bekannt. So gibt es etwa bereits Fahrzeuge (Internet-Autos), die an das Internet angekoppelt sind, was einem Fahrer des Fahrzeugs eine Reihe technisch interessanter Möglichkeiten eröffnet. Nachteil derartiger Fahrzeuge ist allerdings, daß im Innern des Fahrzeugs ein als eigenständiger Web-Server programmierter internetfähiger Fahrzeugcomputer vorhanden sein muß, der über ein schnurloses mobiles Telefon mit dem Internet verbunden ist. Derartige internetfähige Fahrzeugcomputer brauchen jedoch zum einen sehr viel Platz und sind zum anderen relativ teuer.

[0003] Ein gattungsgemäßes mobiles Telefon, das nur einen Web-Browser enthält, ist aus "Nokia 9000 Technical Specifications", [Online] 21. Juni 1997 (1997-06-21), Seiten 1 - 2, XP002128908 Retrieved from the Internet: <URL: http: / / www.midnet.ie/cellworld/specif i.html> bekannt.

[0004] Work stations for client-server-Anwendungen sind bereits bekannt durch: Petri Pöyhönen "GSM PLMN makes a mobile office viable" Nokia Cellular Systems Speakers' Papers. 6th World Telecommunications Forum, Part 2. Technical Symposium. Integration, Interoperation and Interconnection: The Way To Global Services, Geneva, Switzerland 10-15 Oct. 1991 page 375-378. Vol 2. XP-0010332560. Eine derartige aus PC und Mobiltelefon aufgebaute Workstation dient als Datenbasis-Endgerät zur Eingabe von Anfragen sowie zum Empfang von Antworten von einem Datenbasis-Server, den sich die Workstation mit anderen Workstations teilt. Die Workstation hat hier also Browser-Funktion.

[0005] Der Artikel von B.N. Schilit et al., "TeleWeb: Lossely connected access to the World Wide Web", Computer Networks and ISDN Systems 28 (1996) Seiten 1431-1444, Elsvier Science B.V., befasst sich mit einem System, das jemandem ermöglicht jederzeit und überall im WEB zu browsen, egal ob er mit einem Netzwerk verbunden ist oder nicht.

[0006] Insbesondere befassen sich B.N. Schilit et al. mit dem verbesserten Internetzugang für ein Laptop, also für einen beweglichen Computer, und beschreiben in einem Scenario, wie mit Hilfe des TeleWeb ein Laptop überall dort mit dem World Wide Web verbindbar ist, wo ein wie auch immer gearteter Telefonanschluss vorhanden ist, also beispielsweise am Flughafen, im Flugzeug, im Hotel, usw.

[0007] Um die Möglichkeiten des Internetzugangs mittels eines Browsers im tragbaren Computer zu verbessern ist im tragbaren Computer ein sogenannter TeleWeb Daemon vorgesehen, der als "caching proxy" dient. Dieser caching proxy empfängt Anfragen von dem Browser im tragbaren Computer oder Laptop oder leitet diese entweder an das Netzwerk für einen Zugriff zum World Wide Web weiter oder, in dem Fall, dass die gewünschte Internetseite bereits im TeleWeb cach gespeichert ist, wird diese vom caching proxy selbst dem Browser zur Verfügung gestellt.

[0008] Aufgabe der Erfindung ist es, ein mobiles Telefon der eingangs genannten Art so weiterzubilden, daß mit ihm eine einfachere Kommunikation im Internet möglich ist.

[0009] Die Lösung der gestellten Aufgabe ist dem kennzeichnenden Teil des Patentanspruchs 1 zu entnehmen. Vorteilhafte Ausgestaltungen sind in den Unteransprüchen dargestellt.

[0010] Das mobile Telefon enthält mindestens einen WEB-Server. Ein WEB-Server ist dabei ein Software-Paket, das bestimmte Informationen über eine Schnittstelle zum Internet zur Verfügung stellt, die auf Anforderung von anderen, mit dem Internet verbundenen Einrichtungen abgefragt werden kann. Dadurch daß der WEB-Server im mobilen Telefon enthalten ist, wird auf einfache Weise ein lokal unabhängiger WEB-Server gebildet, der sich zu jeder Zeit beim Benutzer des mobilen Telefons befindet, falls dieser das Telefon mit sich führt.

[0011] Alternativ kann der WEB-Server die Information auch über eine Schnittstelle an ein lokales Netzwerk (LAN) oder ein anderes Netzwerk liefern. Desweiteren ist es denkbar, daß mehrere WEB-Server in einem mobilen Telefon enthalten sind, wobei zum Beispiel ein WEB-Server mit dem Internet verbunden ist, während ein anderer WEB-Server etwa mit einem lokalen Netzwerk verbunden sein kann. Dabei ist es auch denkbar, daß die einzelnen im mobilen Telefon enthaltenen WEB-Server untereinander gekoppelt sind.

[0012] Der Erfindung nach ist der mindestens eine WEB-Server in der Mikroprogrammsteuereinheit (MCU) des mobilen Telefons enthalten. Durch die Implementierung des WEB-Servers in der in einem mobilen Telefon bereits vorhandenen Mikroprogrammsteuereinheit braucht das mobile Telefon nicht mit zusätzlichen Komponenten erweitert zu werden.

[0013] Nach einer bevorzugten Weiterbildung der Erfindung ist der mindestens eine WEB-Server mit mindestens einem weiteren Server koppelbar. Dadurch kann auf jedem Server inhaltlich zusammengehörige Information enthalten sein, was einen schnellen Zugriff auf die entsprechende Information, zum Beispiel zur Aktualisierung, wesentlich vereinfacht. Dabei braucht der weitere Server lediglich bei Bedarf mit dem WEB-Server gekoppelt zu sein, wobei alternativ auch eine ständige Verbindung denkbar ist.

[0014] Nach einer weiteren Ausgestaltung der Erfindung ist der weitere Server im mobilen Telefon enthalten, wodurch er ebenfalls lokal unabhängig wird. Es kann sich bei dem weiteren Server aber auch um einen

außerhalb des mobilen Telefons angeordneten handeln.

[0015] Ferner ist es möglich, daß auch mehrere Server im mobilen Telefon enthalten sind oder mehrere externe Server über eine Luftschnittstelle mit dem mobilen Telefon verbunden sind. Falls mehrere Server vorhanden sind, können diese zum Beispiel untereinander ständig oder bei Bedarf miteinander gekoppelt sein. Mit Hilfe eines externen Servers kann zum Beispiel spezielle Information von einem Service-Provider über eine Luftschnittstelle an den im mobilen Telefon enthaltenen WEB-Server übertragen werden. Dies ist dann von Vorteil, wenn die Information so umfangreich ist, daß ein Speichern dieser Information auf dem lokal unabhängigen WEB-Server aus Platzgründen nicht möglich ist.

[0016] Der Unterschied zwischen dem im mobilen Telefon enthaltenen WEB-Server und den im mobilen Telefon enthaltenen Servern liegt darin, daß lediglich der WEB-Server zum Beispiel über eine Luftschnittstelle mit einem Netzwerk (Internet, LAN) koppelbar ist.

[0017] Nach einer anderen Ausgestaltung der Erfindung ist der im mobilen Telefon enthaltene WEB-Server mit mindestens einem weiteren Client koppelbar. Ein Client ist ein Software-Paket, das von einem Server, also einem zweiten Software-Paket, Information erfragt. Dabei ist der mindestens eine weitere Client im mobilen Telefon enthalten.

[0018] Denkbar ist auch, daß der im mobilen Telefon enthaltene WEB-Server mit einem externen Client koppelbar ist, der zum Beispiel als autorisierter Browser ausgebildet ist und über die Luftschnittstelle Information vom WEB-Server abrufen kann.

[0019] Nach einer bevorzugten Ausführungsform der Erfindung ist der im mobilen Telefon enthaltene WEB-Server selbst als Client betreibbar. Dadurch kann der WEB-Server zum Beispiel von einem externen Server (Service-Provider) Information abrufen, wobei für den Zugriff auf den Service-Provider zum Beispiel der als WEB-Browser ausgebildete und im mobilen Telefon enthaltene Client verwendet werden kann. Ferner wird der WEB-Server als Client betrieben, wenn er Information von einem oder mehreren Servern, die im mobilen Telefon enthalten oder aber extern ausgebildet sein können, abruft.

[0020] Gemäß einer vorteilhaften Weiterbildung des erfindungsgemäßen mobilen Telefons wird dieses in einem Kommunikationssystem zur Überwachung und/oder Führung eines Fahrzeugs verwendet. Somit kann aufrelativ einfache Weise eine Kontrolle und Steuerung des Fahrzeugs durch den Fahrer oder eine externe Leitstelle erfolgen.

[0021] Nach einer anderen bevorzugten Ausführungsform des erfindungsgemäßen mobilen Telefons wird dieses in einem Kommunikationssystem zur medizinischen Überwachung eines Patienten eingesetzt. Dadurch ist es möglich, medizinische Daten zur Kontrolle des Gesundheitszustands von einer zentralen Leitstelle oder vom Hausarzt aus zu erfragen und eventuell notwendige Aktionen einzuleiten. Alternativ kann der Benutzer des mobilen Telefons mittels des im Telefon befindlichen WEB-Browsers die für seinen Gesundheitszustand relevante Information abrufen.

[0022] Die Erfindung wird im folgenden unter Bezugnahme auf die beigefügten Zeichnungen näher beschrieben. Es zeigen:

Figur 1 ein Blockdiagramm eines Kommunikationssystems zur Überwachung eines Patienten, in dem das erfindungsgemäße mobile Telefon verwendet wird;

Figur 2 ein Blockdiagramm der Implementierung des Kommunikationssystems nach Figur 1;

Figur 3 ein Blockdiagramm eines Kommunikationssystems zur Überwachung und/oder Führung eines Fahrzeugs, in dem das erfindungsgemäße mobile Telefon verwendet wird; und

Figur 4 ein Blockdiagramm der Implementierung des Kommunikationssystem nach Figur 3.

[0023] Figur 1 zeigt ein Blockdiagramm eines Kommunikationssystems, bei dem das erfindungsgemäße mobile Telefon (nicht gezeigt) verwendet wird, um einen Patienten medizinisch zu überwachen, wobei der in Figur 1 gezeigte Block 1 im mobilen Telefon enthalten ist.

[0024] Das mobile Telefon enthält folglich einen WEB-Server 2, der über eine Luftschnittstelle 3 mit einem als Server dienenden Service-Provider 4 koppelbar ist. Desweiteren ist der WEB-Server 2 über die Luftschnittstelle 3 mit einem als Client ausgebildeten autorisierten Browser 5 koppelbar. Der externe Service-Provider 4 und der externe autorisierte Browser 5 sind demnach über das Funknetz mit dem mobilen Telefon gekoppelt, wobei die Datenkommunikation über den im mobilen Telefon enthaltenen WEB-Server 2 erfolgt, der entweder Anfragen eines mobilen Browsers 6 nach außen weitergibt oder Anfragen von außen entgegennimmt und auswertet. Zur Auswertung wird eine lokale Datenbank 7 hinzugezogen, die in diesem Fall als Server fungiert. Umgekehrt kann die Datenbank 7 auch Client sein, wobei zur Aktualisierung ihres Datenbestands angeschlossene Geräte (zum Beispiel ein Glukosemeßsensor) über den WEB-Browser 2 abgerufen werden. WEB-Browser 6 und lokale Datenbank 7 sind ebenfalls im mobilen Telefon vorhanden.

[0025] Die von dem Glukosemeßsensor gemessenen Daten werden an einen im mobilen Telefon enthaltenen Glukosemessungs-Server 8 übertragen und dort gespeichert. Somit kann zum Beispiel ein medizinischer Service-Computer (autorisierter Browser 5) periodisch über den WEB-Server 2 die medizinischen Meßwerte (hier Glukosekonzentration) abfragen und bei Notfällen Instruktionen schicken. Bei akuten Notfällen (zum Beispiel Unterzuckerung) kann aber auch über den mobilen WEB-Browser 6 automatisch oder manuell Hilfe angefordert werden. Zur gezielten Notfallführung kann ein Service-Rechner über den autorisierten Browser 5, der

seine Zugangsberechtigung durch ein Passwort oder eine digitale Signatur nachweist, und den WEB-Server 2 von einem im mobilen Telefon enthaltenen GPS-Server 9 die Position des in Not geratenen Patienten erfragen.

[0026] Das mobile Telefon enthält ferner einen Herzschrittmacher-Server 10, der Information über den Arbeitsbereich des Herzschrittmachers enthält.

[0027] Desweiteren enthält das mobile Telefon einen Notfalldetektor-Server 11, der zum Beispiel über einen Beschleunigungssensor Information darüber erhält, ob der Patient gestürzt ist. Diese Information kann über den WEB-Server 2 jederzeit abgerufen werden, wobei in einem Notfall der WEB-Server 2 über den WEB-Browser 6 automatisch über die Luftschnittstelle 3 Hilfe anfordern kann.

[0028] Zur Auswertung der im GPS-Server 9, Glukosemessungs-Server 8, Herzschrittmacher-Server 10 und Notfalldetektor-Server 11 enthaltenen Information wird diese über den WEB-Server 2 an die Datenbank 7 übertragen, die mit einem weiteren Speichermedium 12 gekoppelt ist. Die Datenbank 7 ist folglich als Client oder Server betreibbar.

[0029] Figur 2 zeigt ein Blockdiagramm der Implementierung des medizinischen Kommunikationssystems nach Figur 1.

[0030] WEB-Server und -Browser sind Standardapplikationen, die für die konkreten Anwendungen lediglich etwas zugeschnitten werden müssen. Alle anderen Server können als C / C++-Programme realisiert werden, die Zugriff auf die Hardware besitzen (zum Beispiel Glukosemeßeinrichtung oder der GPS-Empfänger). Sie werden an den WEB-Server über ein CGI (common gateway interface) angeschlossen. Bei größeren Datenmengen ist es aufgrund der besseren Effizienz ratsam, die POST-Zugriffsmethode zu verwenden. Der Gateway-Server kommuniziert dabei mit dem WEB-Browser über Standard-Input und -Output.

[0031] Weil diese Teile des Systems nicht nach außen sichtbar sind, können sie leicht durch andere Technologien (zum Beispiel JAVA oder VRML) ausgetauscht werden. Als Ersatz für die im mobilen Einsatz nur beschränkt brauchbare Festplatte ist die Datenspeicherung in RAM oder FLASH vorgesehen.

[0032] Im Blockdiagramm nach Figur 2 ist ein mobiles Telefon 13 enthalten, in dem eine Sendeempfangseinheit 14 sowie eine Mikroprogrammsteuereinheit 15 (MCU) mit einem DSP vorhanden sind.

[0033] Der in Figur 1 gezeigte Block 1 ist bei dem Kommunikationssystem zur medizinischen Überwachung eines Patienten vollständig in der Mikroprogrammsteuereinheit 15 des erfindungsgemäßen mobilen Telefons 13 enthalten.

[0034] Über eine erste Antenne 16 ist das mobile Telefon 13 über die Sendeempfangseinheit 14 und eine Luftschnittstelle 17 mit einer eine Antenne 18 enthaltenden Basisstation 19 gekoppelt. Die Basisstation 19 kann zum Beispiel in einem GSM-System enthalten und über eine Mobilvermittlungsstelle (MSC) 20 mit einem Service-Provider 21 gekoppelt sein.

[0035] Das mobile Telefon 13 ist ferner über eine Schnittstelle 22 mit einer Medizinelektronik 23 gekoppelt. Diese Medizinelektronik 23 enthält einen Glukosemeßsensor zur Bestimmung der Glukosekonzentration einer Person mit Diabetes oder einer anderen Stoffwechselerkrankung, die den Zuckerhaushalt beeinflußt. Die Glukosekonzentration kann dabei automatisch periodisch gemessen werden, wobei die Resultate über die Schnittstelle 22 an das mobile Telefon 13 übertragen werden. Der Transfer erfolgt bevorzugt drahtlos (zum Beispiel über eine HF-Übertragung mit geringer Leistung und Reichweite), um keine permanente mechanische Verbindung zwischen Meßgerät und Mobiltelefon haben zu müssen. Das Meßgerät sollte Werte bei Unterbrechung der Datenübertragung zusammen mit ihrer Entstehungszeit puffern. Alternativ können anstelle der periodischen automatischen Messung durch eine entsprechende Sensorelektronik die Blutzuckerwerte auch regelmäßig durch die Person mit Diabetes über eine Tastatur 24 in das Mobilterminal eingegeben werden.

[0036] Die Medizinelektronik 23 enthält ferner einen Herzschrittmacher mit einem Funkempfangs- und Sendemodul. Sobald problematische Arbeitsbereiche des Herzschrittmachers detektiert werden (zum Beispiel dauerhafte Überlastung wegen zu hoher körperlicher Aktivität, technische Probleme des Geräts) wird eine Nachricht über die Schnittstelle 22 an das in der Nähe befindliche Mobiltelefon 13 gesendet und über den WEB-Server 2 aus Figur 1 in der lokalen Datenbank 7 gespeichert. Wie bereits oben beschrieben, kann bei der Detektion eines problematischen Arbeitsbereichs des Herzschrittmachers der in der MCU 15 des Mobiltelefons 13 enthaltene WEB-Browser 6 automatisch gestartet werden, wobei zum Beispiel über einen Lautsprecher 25 eine akustische oder über ein Display 26 eine optische Warnnachricht ausgegeben werden kann. Alternativ kann auch über die Schnittstelle 17, die Basisstation 19 und die MSC 20 eine Warnnachricht an den Service-Provider 21 gesendet werden.

[0037] Die Medizinelektronik enthält weiter eine automatische Hilfeanforderung, die zum Beispiel über einen Beschleunigungssensor auszulösen ist, der Stürze oder Unfälle detektiert. Eine weitere technisch einfache Lösung besteht darin, daß der Patient sich per WEB-Browser periodisch bei einer Service-Stelle meldet. Bleibt die Nachricht aus, wird eine Sprachverbindung zum Patienten zur Rückfrage aufgebaut. Antwortet der Patient nicht, löst das Service-Center aufgrund des möglichen Notfalls eine Hilfsaktion aus. Der externe autorisierte Browser 5 aus Figur 1 kann über den WEB-Server des Telefons nachfragen und evtl. von einem GPS-Empfänger 27 die genaue Position der Person erfragen. Der GPS-Empfänger 27 kann dabei ebenfalls im Mobiltelefon 13 integriert sein, wobei er über eine zweite Antenne 28 die GPS-Satellitensignale empfängt.

[0038] Das mobile Telefon 13 enthält zusätzlich ein Mikrophon 29 sowie eine Kamera 30. Mit Hilfe des Mi-

krophons kann ein zum Beispiel gestürzter Patient Hilfe anfordern, falls er nicht mehr in der Lage ist, die Tastatur 24 zu bedienen. Das Mikrophon 29 kann sich zum Beispiel automatisch aktivieren, wenn der o. g. Beschleunigungssensor eine Hilfeanforderung auslöst.

[0039] Mit Hilfe der Kamera 30 kann eine Ferndiagnose eines Patienten durchgeführt werden, wobei bei einer Notbehandlung per Mobilfunk ein behandelnder Arzt sich auch visuell einen Eindruck von dem Patienten verschaffen kann.

[0040] Figur 3 zeigt ein Blockdiagramm eines Kommunikationssystems zur Überwachung und/oder Führung eines Fahrzeugs, in dem das erfindungsgemäße mobile Telefon verwendet wird, wobei für gleiche Bestandteile die gleichen Bezugsziffern wie in Figur 1 und 2 verwendet werden.

[0041] Für Fahrzeuganwendungen läßt sich mit geringen Änderungen das gleiche System aus Figur 1 und 2 verwenden. Die Datenverbindung zu medizinischen Geräten muß dabei lediglich durch Interfaces zur Fahrzeugelektronik und anderen Einbaugeräten ersetzt werden.

[0042] Figur 3 zeigt einen in einem mobilen Telefon (zum Beispiel in der MCU des mobilen Telefons) enthaltenen Block 1 mit einem WEB-Server 2, der mit einem als Client ausgebildeten WEB-Browser 6 gekoppelt ist.

[0043] Das in Figur 3 gezeigte Kommunikationssystem kann zum Beispiel zur Fahrzeugnavigation verwendet werden. Dazu fordert ein Benutzer über den WEB-Browser 6 von einem Service-Provider 4 eine Routenplanung an, indem er das Ziel und die Randbedingungen eingibt. Die Anforderung wird dann in eine Warteschlange eines Datenbank-Servers 7 eingeordnet. Der Datenbank-Client 7 verarbeitet nun die Anforderungen dadurch, daß er von einem GPS-Server 9 die aktuelle Position und von einem Airbag-Server 31 sowie von einem Diagnoseserver 32 den aktuellen Sicherheitszustand erfragt. Diese Information wird dann zum Service-Provider 4 geschickt. Als Antwort erhält der Fahrer eine lokale Straßenkarte zum Ziel, auf der der optimale Weg markiert ist. Der WEB-Browser 6 fragt nun periodisch den Datenbank-Server 7 ab, um für die aktuelle Position visuelle Informationen auf einem Bildschirm (in Figur 3 nicht gezeigt) auszugeben bzw. den Fahrer durch situationsgerechte akustische Meldungen zu leiten. Der Datenbasis-Client 7 bleibt im Hintergrund aktiv und verfolgt die GPS-Position des Fahrzeugs. Erreicht die Fahrzeugposition die Grenzen der lokalen Karte, sendet der Client automatisch eine Anfrage an den Service-Provider 4, um die lokale Karte zu aktualisieren. Zwischen zwei solchen Anfragen ist keine externe Datenverbindung nötig, da alles Wissen für die lokale Routenplanung sich im Fahrzeug befindet.

[0044] Der Datenbank-Client 7 überwacht den Sicherheitszustand des Fahrzeugs dadurch, daß er periodisch Anfragen an den GPS 9-,den Airbag 31- und den Diagnose-Server 32 sendet, um kritische Situation zu detektieren. Falls ein Unfall oder andere gravierende Störungen auftreten, sendet der Datenbank-Client 7 automatisch einen Notruf an den Service-Provider. Dieser antwortet mit einer Beschreibung der zugehörigen von ihm einzuleitenden Aktion und öffnet einen Sprachkanal zum Fahrer. Damit kann ggf. der Gesundheitszustand der Fahrzeuginsassen nachgefragt werden oder eine Hilfsaktion effektiv geplant werden.

[0045] Figur 3 zeigt ferner einen als Client ausgebildeten autorisierten Browser 5, über den eine zentrale, beim Spediteur ausgebildete Transport-Datenbank (nicht gezeigt) auf die gesamte Fahrzeugflotte Zugriff besitzt. Ist eine Flottenmanagement-Applikation im Fahrzeug aktiv, sendet der lokale Datenbank-Client 7 periodisch GPS-Position, Ziel, Zustand und Fracht des Fahrzeugs zum zentralen Transport-Datenbank-Server, der diese Information speichert.

[0046] Das in Figur 3 gezeigte Kommunikationssystem kann ferner zum Diebstahlschutz und zur Fahrzeugverfolgung verwendet werden, wobei der Diebstahlschutz vom Fahrzeugbesitzer durch Senden eines Autorisierungsschlüssels an den Service-Provider 4 initiiert werden sollte. Falls jemand unerlaubt in das Fahrzeug eindringt, wird der lokale Datenbank-Client 7 automatisch gestartet, fragt periodisch vom GPS-Server 9 die aktuelle Position ab und sendet eine Alarmnachricht mit der Position zum Service-Provider 4. Dieser kann nun das Fahrzeug durch Eingriff in die Motorelektronik stillegen. Alternativ kann die Position an die Polizeifahndung übermittelt werden.

[0047] Die Frage nach dem technischen Zustand eines Fahrzeugs bzw. dessen Instandhaltung kann durch Abfrage des Autodiagnose-Servers 32, der Zugriff auf die relevanten technischen Systeme im Auto hat, beantwortet werden. Die Auswertung der Diagnosedaten könnte nach Abfrage der Information mittels des WEB-Browsers 6 in einem lokal angeschlossenen Service-Computer erfolgen. Andernfalls kann diese Information von dem autorisierten externen WEB-Browser 5 abgefragt werden und in einer Service-Stelle (zum Beispiel Kfz-Werkstatt) ausgewertet werden. Mit dem letzteren Vorgehen kann ein entfernter Experte die Auswertung der Fahrzeugfehler durchführen.

[0048] Wie in Figur 3 gezeigt, enthält der Block 1 ferner einen Server 33 für andere Systeme. Dieser Server kann zum Beispiel zur Kontrolle von Fahrzeuggeräten, wie etwa der Heizung, verwendet werden. Die Kontrolle erfolgt dabei über den lokalen WEB-Browser 6 oder aber über den externen autorisierten Browser 5. Auf diese Weise ist es möglich, schon zu Hause oder am Arbeitsplatz die Fahrzeugheizung zu aktivieren.

[0049] Der WEB-Server 2 ist ferner mit einem Auto-HIFI-Server gekoppelt, auf dem zum Beispiel komprimierte Audio-Information abgespeichert ist. In Mobilfunkgeräten der dritten Generation (UMTS, Nachfolger von GSM) kann eine erheblich höhere Datenmenge übertragen werden. Damit wird es möglich sein, personenzugeschnittene Internet-Radio- und Videodienste anzubieten, sofern die Gebühren dafür attraktiv sind

und eine einfache automatische Abbuchung existiert. Ein Benutzer tuned sich auf einen Internet-Kanal mittels Push-Technologie (d. h. er erhält ohne Nachfrage die aktuelle Information des Kanals, zum Beispiel ein Radioprogramm). Alternativ kann ein Benutzer seinen privaten WEB-Server kontaktieren, um sein gewünschtes Programm zu transferieren (zum Beispiel eine komprimierte Audio-CD). Die empfangenen Daten können komprimierte Audio-Information, MIDI-Musik oder komprimierte Video-Information sein. Diese Information kann vom Benutzer über den WEB-Browser 6 und den WEB-Server 2 abgerufen werden, wodurch das mobile Internet-Terminal ein Radio und einen tragbaren Fernseher ersetzt.

[0050] Figur 3 zeigt weiter einen im Block 1 enthaltenen Auto-Telefon-Server 35, der mit dem WEB-Server 2 gekoppelt ist, und auf den über den WEB-Browser 6 oder aber über den autorisierten Browser 5 zugegriffen werden kann.

[0051] Figur 4 zeigt ein Blockdiagramm der Implementierung des Kommunikationssystems nach Figur 3, wobei für gleiche Komponenten die gleichen Bezugsziffern wie in Figur 2 verwendet werden.

[0052] Figur 2 und Figur 4 unterscheiden sich lediglich dadurch, daß das mobile Telefon 13 in Figur 4 statt mit einer Medizinelektronik mit einer Fahrzeugelektronik 36 sowie einem Airbag-Sensor 37 gekoppelt ist (fest oder über Luftschnittstelle).

[0053] Der Airbag-Sensor 37 liefert kontinuierlich Signale an den Airbag-Sensor-Server 31 aus Figur 3, wobei bei einem Unfall der Datenbank-Client 7 aus Figur 3, der kontinuierlich den Airbag-Sensor-Server 31 abfragt, automatisch einen Notruf an den Service-Provider 21 über die Luftschnittstelle 17 sendet.

[0054] Die Fahrzeugelektronik 36 sendet ebenfalls kontinuierlich Daten an den Autodiagnose-Server 32 aus Figur 3. Wie bereits oben beschrieben, kann auf diesen Autodiagnose-Server 32 bei Bedarf zugegriffen werden, wobei auch über den autorisierten Browser 5 in die Fahrzeugelektronik eingegriffen werden kann.

Patentansprüche

1. Mobiles Telefon mit einem WEB-Browser, **dadurch gekennzeichnet, dass** mindestens ein WEB-Server, der Anfragen von außen entgegennimmt und auswertet, in der Mikroprogrammsteuereinheit (MCU) des mobilen Telefons enthalten ist.

2. Mobiles Telefon nach Anspruch 1, **dadurch gekennzeichnet, daß** der mindestens eine WEB-Server mit mindestens einem weiteren Server koppelbar ist.

3. Mobiles Telefon nach Anspruch 2, **dadurch gekennzeichnet, daß** der weitere Server im mobilen Telefon enthalten ist.

4. Mobiles Telefon nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, daß** der WEB-Server mit mindestens einem weiteren Client (7) koppelbar ist der im mobilen Telefon enthalten ist.

5. Mobiles Telefon nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, daß** der WEB-Server selbst als Client betreibbar ist.

6. Verwendung des mobilen Telefons nach einem der Ansprüche 1 bis 5 in einem Kommunikationssystem zur Überwachung und / oder Führung eines Fahrzeugs.

7. Verwendung des mobilen Telefons nach einem der Ansprüche 1 bis 5 in einem Kommunikationssystem zur medizinischen Überwachung eines Patienten.

Claims

1. Mobile telephone having a WEB browser **characterized in that** at least one WEB server, which receives and evaluates enquiries from the outside, is contained in the microprogram control unit (MCU) of the mobile telephone.

2. Mobile telephone according to Claim 1, **characterized in that** the at least one WEB server can be coupled to at least one further server.

3. Mobile telephone according to Claim 2, **characterized in that** the further server is contained in the mobile telephone.

4. Mobile telephone according to one of Claims 1 to 3, **characterized in that** the WEB server can be coupled to at least one further client which is contained in the mobile telephone.

5. Mobile telephone according to one of Claims 1 to 4, **characterized in that** the WEB server can itself be operated as a client.

6. Use of the mobile telephone according to one of Claims 1 to 5, in a communications system for monitoring and/or guiding a vehicle.

7. Use of the mobile telephone according to one of Claims 1 to 5, in a communications system for medically monitoring a patient.

Revendications

1. Téléphone mobile, muni d'un navigateur WEB, **caractérisé en ce qu'**au moins un serveur WEB, qui reçoit et évalue depuis l'extérieur des requêtes, est

contenu dans l'unité de commande à microprogramme (MCU) du téléphone mobile.

2. Téléphone mobile selon la revendication 1, **caractérisé en ce que** le au moins serveur WEB est susceptible d'être accouplé à au moins un autre serveur.

3. Téléphone mobile selon la revendication 2, **caractérisé en ce que** l'autre serveur est contenu dans le téléphone mobile.

4. Téléphone mobile selon l'une des revendications 1 à 3, **caractérisé en ce que** le serveur WEB est susceptible d'être susceptible d'être couplé à au moins un autre client (7), contenu dans le téléphone mobile.

5. Téléphone mobile selon l'une des revendications 1 à 4, **caractérisé en ce que** le serveur WEB lui-même peut fonctionner en tant que client.

6. Utilisation du téléphone mobile selon l'une des revendications 1 à 5, dans un système de communication pour la surveillance et/ou le guidage d'un véhicule.

7. Utilisation des téléphones mobiles selon l'une des revendications 1 à 5, dans un système de communication, servant à la surveillance médicale d'un patient.

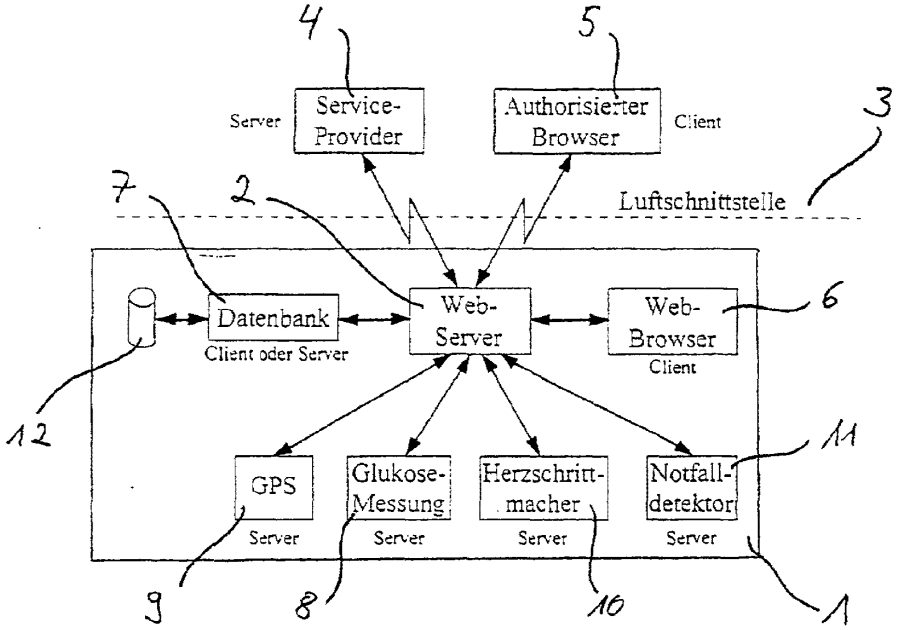


Fig. 1

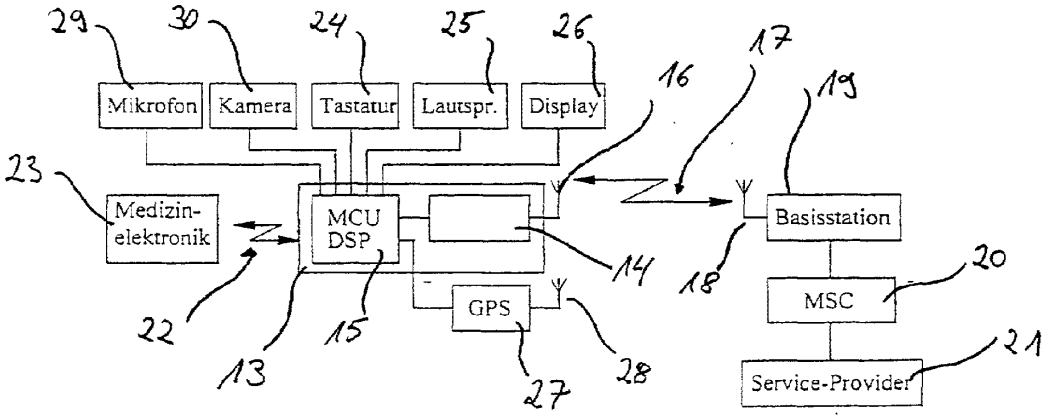


Fig. 2

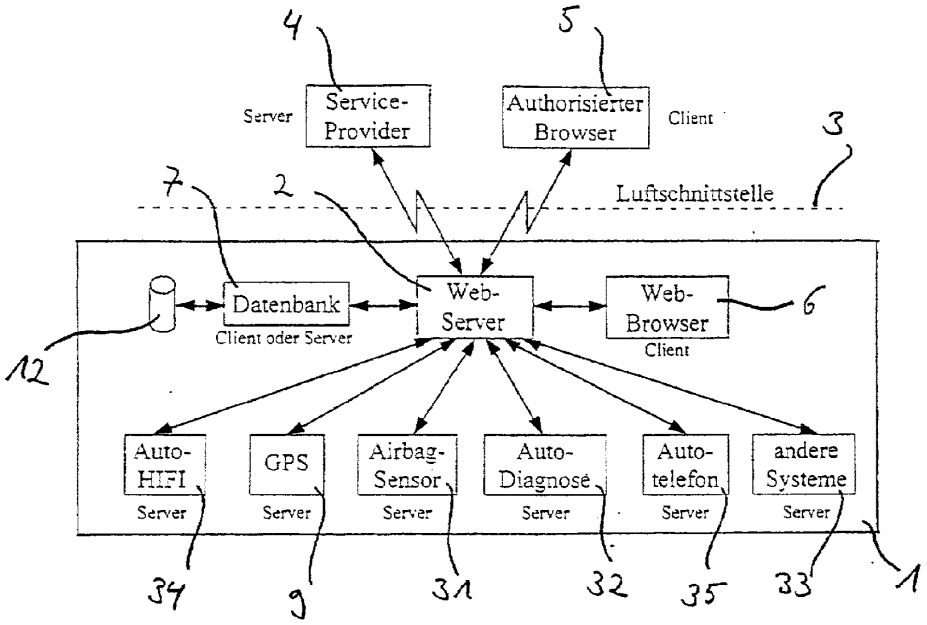


Fig. 3

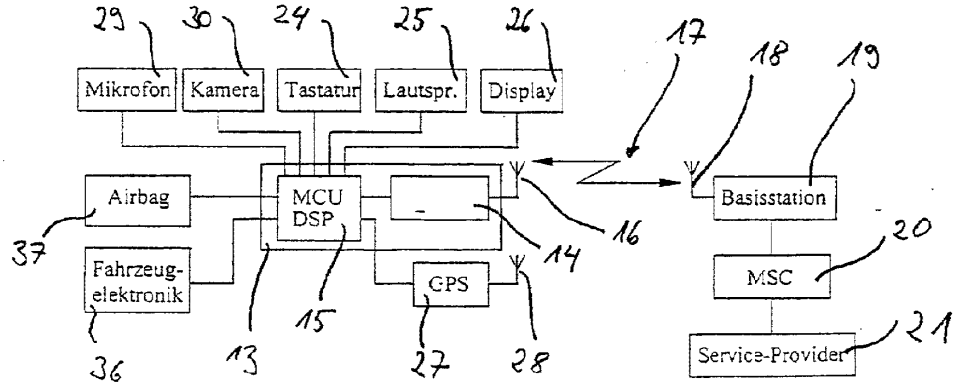


Fig. 4

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
8 November 2001 (08.11.2001)

PCT

(10) International Publication Number
WO 01/84859 A2

(51) International Patent Classification[7]: H04Q 3/00

(21) International Application Number: PCT/US01/14065

(22) International Filing Date: 30 April 2001 (30.04.2001)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/565,565 4 May 2000 (04.05.2000) US

(71) Applicant: **TELEMAZE, INC.** [US/US]; The Chatham Group, 101 North First Street, Los Altos, CA 94022 (US).

(72) Inventors: **WOOD, Samuel, F.**; 12648 La Cresta Court, Los Altos Hills, CA 94022 (US). **ASPREY, Margaret, Susan**; 422 Traverso Court, Los Altos, CA 94022 (US). **KLEIN, Jerry, A.**; 677 Milverton Road, Los Altos, CA 94022 (US).

(74) Agents: **OGONOWSKY, Brian, D.** et al.; Skjerven Morrill MacPherson LLP, 25 Metro Drive, Suite 700, San Jose, CA 95110 (US).

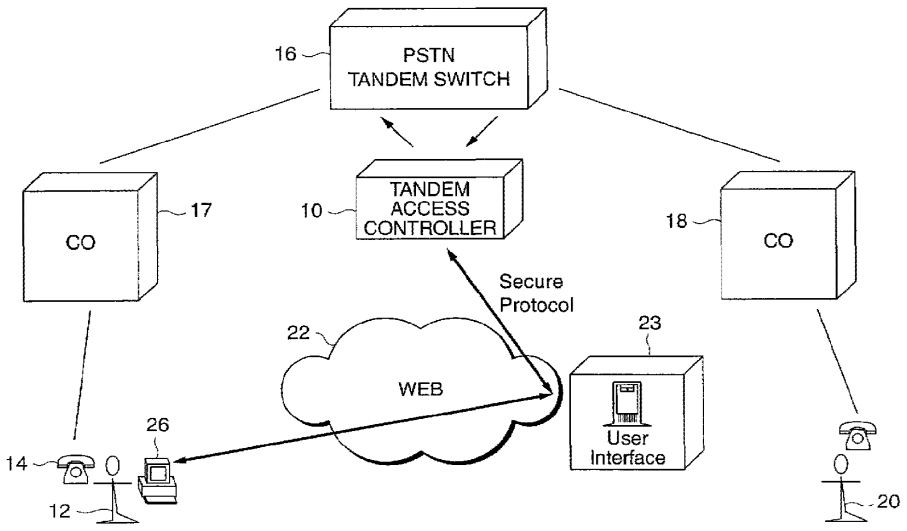
(81) Designated State *(national)*: JP.

(84) Designated States *(regional)*: European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR).

Published:
— *without international search report and to be republished upon receipt of that report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: TELEPHONE CALL CONTROL SYSTEM FOR THE PUBLIC SWITCHED TELEPHONE NETWORK



(57) Abstract: In one embodiment, the system includes a processor (referred to herein as a tandem access controller) connected to the PSTN which would allow anyone to directly provision, that is to say set-up and make immediate changes to, the configuration of his or her phone line. In another embodiment, a tandem access controller (TAC) subsystem is connected internally to the PSTN in a local service area. The TAC provides features, selected by the subscriber, to all edge switches connected to the PSTN tandem switch. In one embodiment, the TAC is controlled by the subscriber using the web.

WO 01/84859 A2

TELEPHONE CALL CONTROL SYSTEM FOR THE PUBLIC SWITCHED TELEPHONE NETWORK

FIELD OF THE INVENTION

This invention relates to telephone services and, in particular, to a system for allowing a subscriber to select features of the subscriber's telephone service.

BACKGROUND

People have used various means for limiting interruptions due to the telephone. In the past, people used switchboards and secretaries to screen incoming, or inbound, calls. Voice mail systems took over some of this role both in the home and in the central office. Today, there are web-based companies managing 3rd-party call control, via the toll-switch network, which allow users to enter call control information through a web portal. There are also edge devices in each of the public telephone company's central offices which provide local control, but offer an extremely limited number of features and do not provide true 3rd-party call control.

The web-based toll systems provide good user interaction but they are not economical and cannot take advantage of local number portability because they do not provide local control and connectivity.

The Public Switched Telephone Network (PSTN) consists of a plurality of edge switches connected to telephones on one side and to a network of tandem switches on the other. The tandem switch network allows connectivity between all of the edge switches, and a signalling system is used by the PSTN to allow calling and to transmit both calling and called party identity.

Until now, optional features were provided by the local service telephone company (telco) through the edge switch at the central office (CO). It was not possible to provide optional features through any other means. Control of these features was done through the first party (calling party) or the second party (called party), or worse yet, manually by calling the business office.

In the past, numerous devices have been built that allow the connection of two lines together at an edge switch. These devices can be used to add features to a

telephone network by receiving a call on one line and then dialing out on another line. The problem with these devices is that, because they are connected through an edge switch, transmission losses and impairments occur, degrading the overall connection. In addition, signalling limitations prevent full control, by the subscriber or the system, over the call.

The invention described herein connects at the tandem, thereby eliminating these problems.

In the edge devices residing in the PSTN central offices, the 1st party (the calling party) has numerous features available (dialing options). The 2nd party (called party) also has options available such as call forwarding, but these features typically require access from the first or second party's device and are extremely awkward to program. The user interaction is not only awkward, it is limited and requires interaction with the telephone company to provision them. In other words, past systems for provisioning, meaning addition, modification, or control of telephone features, required a subscriber to make the feature selection through the telephone business office. Central office workers would then implement the provisioning under request of the business office.

Call Forwarding is one popular provision. There is signification transmission degradation for Call Forwarding to take place. The calling party pays for a call to the edge device, and the edge subscriber, the called party, pays for the call to the forwarding number. For enhanced inbound call control to occur, a direct 3rd-party call control means is needed.

A variety of services have arisen to address the problems mentioned above. Many of these systems allow the called party to make changes to his/her call forwarding attributes which do not allow direct 3rd-party call control. These services provide good user interaction, some via the internet, but they rely upon the toll network through the use of "800" numbers. This requires the subscriber to pay by the minute and does not allow the subscriber to take advantage of number portability in order to obtain 3rd-party call control. There are other toll network mechanisms for remote call forwarding. For example, MCI offers a service where the customer can remotely change the forwarding target number for "800" numbers. Contacting the ultimate end-user before terminating

the first incoming call is similar to the manner in which "800" credit calls and collect calls are processed, but these are not done at the local subscriber level.

In addition to these toll services, there are edge devices that perform some of the same services. Edge devices such as phones and PBXs that include voice mail, interactive voice response, call forwarding, speed calling, etc., have been used to provide additional call control. These devices allow the phone user direct control over incoming and outgoing calls. The disadvantage of edge devices is that they add cost, degrade voice and transmission quality, can be difficult to program, are not easily programmed remotely, can require the user to pay for two lines, provide lower quality of service, and cannot provide the same level of functionality as a system that controls the PSTN directly. There are Voice Over Internet Protocol (VoiP) products emerging that provide better user interfaces and control but they do not take advantage and voice quality of the PSTN.

SUMMARY

The present invention adds direct control of third party call control features, but does not suffer from any of the disadvantages listed above, and allows the subscriber to manage his/her telephone system in a dynamic and exceptionally useful manner that is not currently available through the existing PSTN. The invention allows enhanced direct third-party call control features, such as selective call routing and remote dialing, to be added to the PSTN (Public Switched Telephone Network) using local call control and providing dynamic provisioning of the system by the subscriber. Direct 3rd-party control means that the ability to provision the 3rd-party features is directly available to a subscriber, eliminating the need to go through the telephone company (telco) business office.

In one embodiment, the system includes a processor (referred to herein as a tandem access controller) connected to the PSTN which would allow anyone to directly provision, that is to say set-up and make immediate changes to, the configuration of his or her phone line. In another embodiment, a tandem access controller (TAC) subsystem is connected internally to the PSTN in a local service area. The TAC provides features, selected by the subscriber, to all edge switches connected to the PSTN tandem switch.

Connecting directly to the PSTN tandem switch (or embedding the system into the tandem switch) eliminates the signal degradation problems previously described.

In one embodiment, the system allows provisioning of features via the internet under direct control of the subscriber. Recently, several products have been introduced that provide a means of controlling features via the public internet. However, all these devices fall short in that they require the subscriber to obtain an "800" number or some other number that requires the subscriber to pay a toll charge each time a call is made. The present invention connects locally, so no toll charges are incurred.

The web-enhanced services in one embodiment of the invention coexist with and overlay the local phone service at the local level, thereby providing good economics and user interaction, single number access to multiple subscriber devices, connectivity without transmission impairments and true, direct 3rd-party call control.

The present invention relies upon use of local telephone facilities thereby eliminating all the extra charges associated with making toll calls. It also allows the user to take advantage of number portability and keep his/her existing public phone number.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 illustrates the tandem access controller (TAC) of the present invention connected to the existing PSTN tandem switch, the TAC providing features for the subscriber's telephone as requested by the subscriber via the web.

Fig. 2 illustrates a system similar to Fig. 1 but showing multiple tandem switches and TAC's and also showing how the subscriber may, in additional to using the standard telephone, make phone calls using Voice Over IP via a conventional digital telephone.

Fig. 3 is a flowchart of one method that a person may use to set up a subscriber account and to designate features the subscriber would like for his/her telephone.

Fig. 4 is a flowchart of a method that can be performed by the TAC in response to the subscriber (or other service) controlling the TAC, using the web (or other packet-

based system), to change the subscriber's telephone provisioning or perform another function, such as make a VoIP call.

Fig. 5 is a flowchart of a method that can be performed by the TAC in response to an inbound call to the subscriber.

Fig. 6 is a flowchart of a method performed by the subscriber and the TAC when the subscriber desires to make an outbound call via the web or using a conventional telephone.

Fig. 7 illustrates a system, using the TAC, that allows wireless cell phones to obtain the same provisioning options as the conventional telephones.

Fig. 8 illustrates a system, using the TAC, that allows fax and modem calls to benefit from the provisioning offered by the TAC.

DETAILED DESCRIPTION OF THE EMBODIMENTS

Fig. 1 shows a tandem access controller (TAC) 10 that allows an authorized subscriber 12 to establish 3rd-party control criteria for calls to the subscriber's telephone 14 (having a "public" phone number that callers dial). In one embodiment, the TAC 10 is a programmed processor. The TAC 10 may use any combination of hardware, firmware, or software and, in one embodiment, is a conventional computer programmed to carry out the functions described herein.

The TAC 10 is connected to or inside the conventional PSTN tandem switch 16 such that calls may flow through the TAC 10 in the same manner as the existing PSTN tandem switch, except that additional 3rd-party features are applied to the call. As is well known, PSTN tandem switches are exchanges that direct telephone calls (or other traffic) to central offices 17, 18 or to other tandem switches. Details of the operation of the existing phone network may be found in the publication entitled "New Net SS7 Tutorial," by ADC Telecommunications, copyright 1999, incorporated herein by reference. Additional details may be found in the numerous books describing the PSTN.

The PSTN tandem switch 16 directs a first call (from the calling party 20 to the subscriber's phone 14 using the subscriber's public phone number) to the TAC 10, which in turn places a second call, subject to 3rd-party control information, to the

subscriber's "private" phone number without yet terminating the first call. When the subscriber 12 terminates (or answers) the second call, the TAC 10 terminates the first call and connects it to the second call, thereby connecting the calling party 20 to the subscriber 12. Hence, the calling party essentially calls the TAC 10, using the subscriber's public phone number, and the TAC 10, after processing the call using the selected features, calls the subscriber, as appropriate, using the subscriber's private phone number and connects the two calls. The process is transparent to the parties.

The TAC 10 is connected inside the PSTN in the sense that it is not an edge device such as a PBX or central office (CO) switch because it does not connect directly to subscribers. Rather, it redirects calls to subscribers. The TAC 10 provides intelligent interconnection between a calling party and a subscriber.

The reader should keep in mind that although only one tandem switch 16 is shown in Fig. 1, the invention will apply equally well to a network of tandem switches, as shown in Fig. 2. Fig. 2 also illustrates how the subscriber can make calls using voice over IP via a conventional digital telephone 21.

Fig. 1 illustrates the preferred method for an authorized subscriber to modify the 3rd-party control criteria by means of the world wide web 22 (and web server 23) using an internet browser. By "authorized" we mean a subscriber who is registered and has "logged-in" with appropriate security and password controls. The subscriber 12 interacts with the web 22 via the Internet to quickly and easily specify the enhanced 3rd-party call control features. Web 22 then relays this information, in appropriate form, to the TAC 10. Preferably, the link to the TAC 10 uses a secure protocol. Examples of features that can be selected by the subscriber include: conditional call blocking, call forwarding, call altering, time of day conditions, day of week conditions, follow-me, caller recognition/password, caller ID, call screening/retrieval from voice mail, speed dialing, interactive voice response, and speech recognition. Any other feature could be added. These features can be implemented in the TAC 10 using known software techniques since such features are known. Message outgoing call control includes: click-to-dial calling and group calling/messaging.

The invention may also include ivr/vm/voverip.

Fig. 1 uses a public internet portal connected via a data link to the TAC 10 or other interface system. As a registered subscriber, a user logs onto the portal (Fig. 3) and is granted access, allowing the user to make additions or changes to features such as speed calling, call forwarding, selection of such descriptors as time of day, busy status, callerID status, etc. A user-friendly web page leads the subscriber through the various procedures and available features. The selections made by the subscriber are translated into provisioning data and transmitted to the TAC 10. The TAC 10 in turn keeps track of incoming and outgoing calls based on this information.

The subscriber can also program a set of the call control features via a telephone link in the event a data link connection is unavailable.

Fig. 4 is a flowchart of actions that may be taken by the TAC 10 in response to the subscriber (or other service) controlling the TAC, using the web or other packet-based system, to change the subscriber's telephone provisioning or perform another function, such as make a VoIP call.

Fig. 5 is a flowchart of actions taken by the TAC 10 in response to an inbound call (using the subscriber's public phone number) to the subscriber. Examples of some of the actions taken by the TAC 10 are:

Receives SS7 data indicating an incoming call

Stores phone numbers downloaded from provisioning system

Charts identity of calling party

Checks time of day

Stores lists of numbers in groups used for processing incoming calls

Places outgoing calls in response to incoming calls according to information downloaded on the data link.

Incoming call data is received by the TAC 10 from the tandem switch 16. The TAC 10 processor checks calling and called numbers, class of service, time of day, number lists, etc. In some cases additional data is gathered from the calling party via a DSP (Digital Signal Processing) system and stored in the system memory. The DSP

system is used to play call progress tones and voice announcements as required. Voice announcements can be played through the DSP system. In response to the call data, an outgoing call to the subscriber 12 may be placed back through the tandem switch 16 by TAC 10. The TAC 10 links the two calls and monitors the connection.

Information about the call may be collected by the TAC 10 and sent to the subscriber or a 3rd party for display. Such information may be the length of the call or information used to bill the subscriber for the use of the system. The provisioning system can also collect control information from a 3rd party and relay it back to the TAC 10, which will then affect the call accordingly.

Fig. 6 is a flowchart of actions taken by the subscriber 12 and the TAC 10 when the subscriber desires to make an outbound call via the web or using a conventional telephone. When using the web to place a call, the subscriber may simply click a name on the computer screen 26 using a mouse.

Fig. 7 illustrates a system, using the TAC 10, that allows wireless cell phones 28 to obtain the same provisioning options as the conventional telephones 14. A local cell 30 and a cell switch 32 are also shown in Fig. 7.

Fig. 8 illustrates a system, using the TAC 10, that allows fax and modem calls to benefit from the provisioning offered by the TAC 10. The TAC 10 may interface the ISP 36 through the web 22.

One embodiment of the invention allows a subscriber to view the current state of his/her telephone via the Internet. Internet is a term of art by which we mean an interconnection of packet switched networks. Prior to this invention there was no way for a user to examine the status of a telephone line. Recently, several products have been introduced that provide a means of examining the voice message boxes.

An internet portal is connected via a data link to the TAC 10. When a user logs onto the internet portal and is granted access to an individual subscription, the user can examine the status of calls/features. This information is transmitted from the TAC 10 to the web portal and translated into user viewables. The TAC 10 keeps track of incoming and outgoing calls based on this information.

The TAC 10 may be implemented using conventional processor hardware. The connection to the tandem switch 16 may be as simple as a telephone circuit, since the TAC 10 receives an incoming call from a caller and processes the call. Devising the software/firmware use to control the TAC 10 is well within the capability of those skilled in the art since the various control features that can be made available are generally already known.

Certain advantages that can be obtained using the invention include the following:

Web-Based Telecom Navigator

Manage Incoming Call Control

- Conditional Call Blocking/Forwarding/Alerting
- Time-of-Day, Day-of-Week, Follow-Me, Caller Recognition/Password, Caller ID, etc.
- Call Screening/Retrieval from Voice Mail
- Interactive Voice Response and Speech Recognition

Manage Outgoing Call Control

- Click-to-Dial Calling
- Group Calling and Messaging

Web-Based Billing

Web-Driven Personal Communications Management

Cost-Effective Single Phone Number Access

On-Line "Personal Digital Assistant"

On-Line "Telcom Navigator"

Inspired User Interaction

Secure and Reliable Technology

Cost-Effective Single Phone Number Access

CLEC Status

- Free Local Calls, Incoming Calls (not 800 Toll Service)
- Retain Current Number (Local Number Portability)
- Low-Cost Calling Throughout LATA
- Flat-Rate Foreign Exchange
- Single Installation Covers Entire LATA
- VoIP Toll-Bypass

Compatible With Existing Devices, Standards

- Standard DTMF and VoIP Phones
- Wireless Phones
- Standard Wired/Wireless and PIM Browsers

Web-Based Personal Digital Assistant

Centralized and Consistent Personal Data

- Build Once, Use Anywhere
- Private/Public Phone Directories and Calendars
- "Post-It" Style Annotation of Numbers

Web Dialing

- Click-to-Dial from Web Pages, Directories, Calendars
- Multiple Phone List Management

Unified Messaging

- Voice Mail Access, Prompts, Alert Via Web

User Interaction

Expected Behavior

- Compatible with Familiar Products (e.g. Palm Pilot)
- Commonality Between All Wired and Wireless

Mode-Based Definition and Selection

- Vacation, Dinner Time, Go Away, Family Call Waiting
- Templates

Learning Modes

- Persona-Based User Interaction Design
- Speech recognition
- Windows drag and drop

Automatic Data Capture

- Build Phone List Based on Collected Usage Information
- Drag and Drop Into Lists

Secure and Reliable Technology

Separate Web-Site and Link Gateway

- No Direct External Access to Gateway
- Additional Security Layer
- No Denial-of-Service to Voice Links

VoIP Link Degradation Detection

- Automatic Cutover to PSTN

E-Commerce Security

- Billing Encryption

While particular embodiments of the present invention have been shown and described, it will be obvious to those skilled in the art that changes and modifications

may be made without departing from this invention in its broader aspects and, therefore, the appended claims are to encompass within the true spirit and spirit and scope of this invention.

CLAIMS

We Claim:

1. A controller connected to a public switched telephone network (PSTN) tandem switch comprising:

a processor, connected to said tandem switch, for receiving a first call through said tandem switch from a calling party intended for a subscriber after said calling party has entered a first telephone number, said first telephone number being said subscriber's public telephone number, said processor applying features, selected by said subscriber, to said first call and placing a second call to said subscriber using a second telephone number different from said first telephone number, said second call being a non-toll call to said subscriber, said processor completing a communications path between said calling party and said subscriber after said subscriber has received said second call; and

an Internet connection to said processor to allow said subscriber to select features to be applied to a call intended for said subscriber.

2. The controller of Claim 1 wherein answering said second call causes said processor to connect a calling party's communication device to other than said subscriber's telephone, as designated by said subscriber pursuant to said features selected by said subscriber.

3. The controller of Claim 1 wherein said first call is placed by said calling party through a PSTN central office to said processor, and said second call is placed by said processor through a central office.

4. The controller of Claim 1 wherein said features are selected from the group consisting of conditional call blocking and call forwarding.

5. The controller of Claim 1 wherein said features include selective call forwarding.

6. The controller of Claim 1 wherein said features include selective call forwarding, wherein said processor makes said second call to a particular communications device based on a time of said first call.

7. The controller of Claim 1 wherein said features include selective call forwarding, wherein said processor makes said second call to a particular communications device based on the particular calling party making said first call.

8. The controller of Claim 1 wherein:

said processor also receives a local third call, via said tandem switch, placed by said subscriber for a third party, said processor placing a fourth call to said third party, via said tandem switch; and

said processor connects said subscriber to said third party after said third party receives said fourth call.

9. A method performed by a processor connected to a public switched telephone network (PSTN) tandem switch comprising:

receiving a first call through said tandem switch from a calling party intended for a subscriber after said calling party has entered a first telephone number, said first telephone number being said subscriber's public telephone number, said processor applying features, selected by said subscriber, to said first call and placing a second call to said subscriber using a second telephone number different from said first telephone number, said second call being a non-toll call to said subscriber, said processor completing a communications path between said calling party and said subscriber after said subscriber has received said second call; and

activating features selected by said subscriber via the Internet to be applied to a call intended for said subscriber.

10. The method of Claim 9 further comprising connecting a calling party's communication device to other than said subscriber's telephone, as designated by said subscriber pursuant to said features selected by said subscriber, after said subscriber has answered said second call.

11. The method of Claim 9 wherein said first call is placed by said calling party through a PSTN central office to said processor, and said second call is placed by said processor through a central office.

12. The method of Claim 9 wherein said features are selected from the group consisting of conditional call blocking and call forwarding.

13. The method of Claim 9 wherein said features include selective call forwarding.

14. The method of Claim 9 wherein said features include selective call forwarding, wherein said processor makes said second call to a particular communications device based on a time of said first call.

15. The method of Claim 9 wherein said features include selective call forwarding, wherein said processor makes said second call to a particular communications device based on the particular calling party making said first call.

16. The method of Claim 1 further comprising:

receiving a local third call by said processor, via said tandem switch, placed by said subscriber for a third party, said processor placing a fourth call to said third party, via said tandem switch; and

connecting said subscriber to said third party after said third party receives said fourth call.

17. A telephone system comprising:

a public switched telephone network (PSTN) having a tandem switch; and

a tandem access controller (TAC) connected to said tandem switch, said TAC being accessible via the Internet by at least one subscriber for selecting features to be applied to telephone calls intended for said subscriber routed through said PSTN,

said TAC being in a local service area with respect to said subscriber,

said TAC for receiving a first call by a calling party, entering a first telephone number, intended for said subscriber,

said TAC for applying said features to said first call, placing a second call to said subscriber using a second telephone number different from said first telephone number, and completing a communications path between said calling party and said subscriber after said subscriber has answered said second call.

18. The system of Claim 17 wherein answering said second call causes said TAC to connect a calling party's communication device to other than said subscriber's telephone, as designated by said subscriber pursuant to said features selected by said subscriber.

19. The system of Claim 17 wherein said first call is placed by said calling party through a PSTN central office to said TAC, and said second call is placed by said TAC through a central office.

20. The system of Claim 17 wherein:

said TAC also receives a local third call, via said tandem switch, placed by said subscriber for a third party, said TAC placing a fourth call to said third party, via said tandem switch; and

said TAC connects said subscriber to said third party after said third party receives said fourth call.

21. A method performed by a user of a public switched telephone network (PSTN), said user having a communications device, said method comprising:

accessing a remote tandem access controller (TAC) via the Internet by said user, said TAC being connected to a PSTN tandem switch for a local service area with respect to said user, said TAC for processing incoming calls from a calling party, via said tandem switch, intended to be received by said user's communications device;

selecting features via the Internet to be applied by said TAC to said incoming calls,

wherein said TAC receives a first call from a calling party intended for said user's communication device and processes said first call in accordance with said features, said method performed by said user further comprising:

receiving a second call from said TAC, via said tandem switch, after said first call has been processed by said TAC in accordance with said features selected; and

answering said second call to cause said TAC to complete a communications link between said calling party and said user.

22. The method of Claim 21 wherein said TAC receiving a first call from said calling party comprises said calling party calling a first telephone number, and said receiving a second call from said TAC comprises said TAC placing said second call to a communications device designated by said user using a second telephone number.

23. The method of Claim 21 wherein said user's communications device is a telephone, and wherein answering said second call causes said TAC to connect a calling party's communication device to said user's telephone.

24. The method of Claim 21 wherein said user's communications device is a telephone, and wherein answering said second call causes said TAC to connect a calling party's communication device to other than said user's telephone, as designated by said user during said step of selecting features.

25. The method of Claim 21 wherein said user's communications device is a computer, and wherein answering said second call causes said TAC to connect a calling party's communication device to said user's computer.

26. The method of Claim 21 wherein said first call is placed by said calling party through a PSTN central office to said TAC, and said second call is a non-toll call placed by said TAC through a central office to said user's communications device.

27. The method of Claim 21 wherein said TAC receiving a first call from a calling party comprises receiving said first call via said tandem switch in said PSTN.

28. The method of Claim 21 further comprising accessing said TAC by said user via the Internet to obtain information regarding calls received and placed by said user.

29. The method of Claim 21 wherein said communications device is a telephone.

30. The method of Claim 21 wherein said communications device is a computer.

31. The method of Claim 21 further comprising:

accessing said TAC to place a call by said user to a third party, said TAC placing said call to said third party; and

communicating with said third party after said TAC connects said user's communications device to a communications device of said third party.

32. The method of Claim 31 wherein said accessing said TAC comprises using the Internet to communicate a telephone number to said TAC for placing a call to said third party.

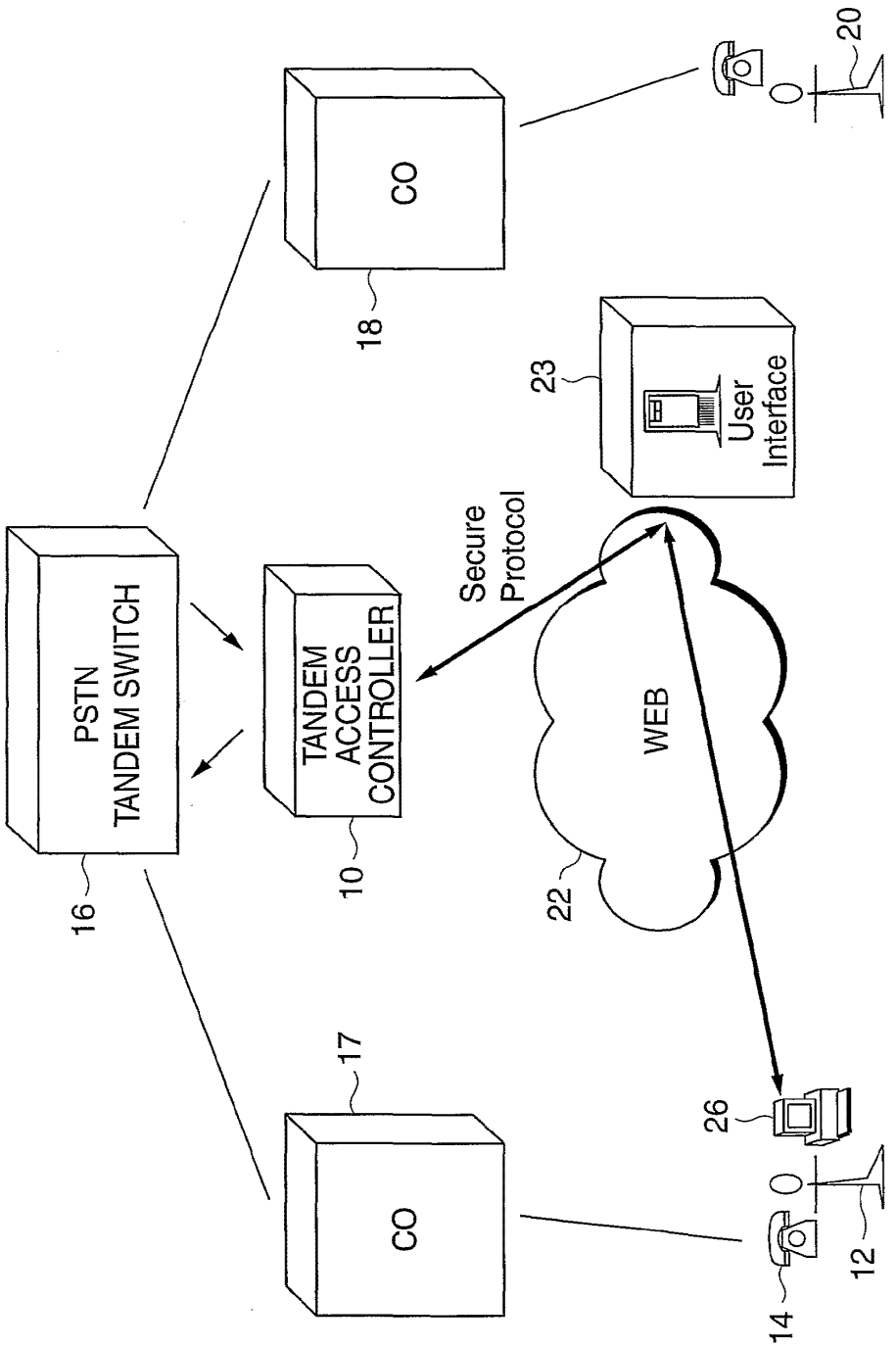

CO
18
20
23
User Interface
Secure Protocol
PSTN TANDEM SWITCH
TANDEM ACCESS CONTROLLER
WEB
16
10
22
17
CO
26
12
14

FIG. 1

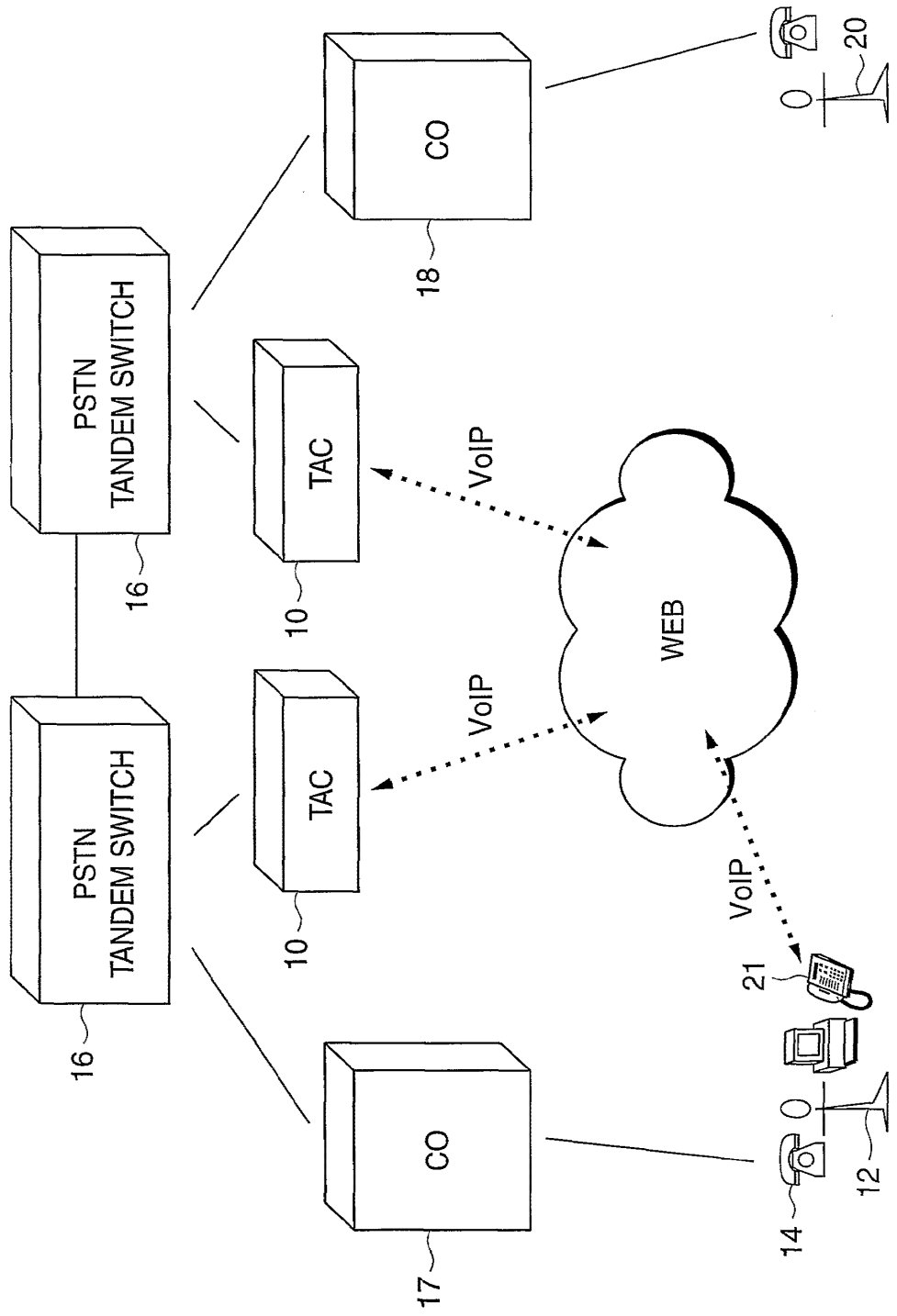
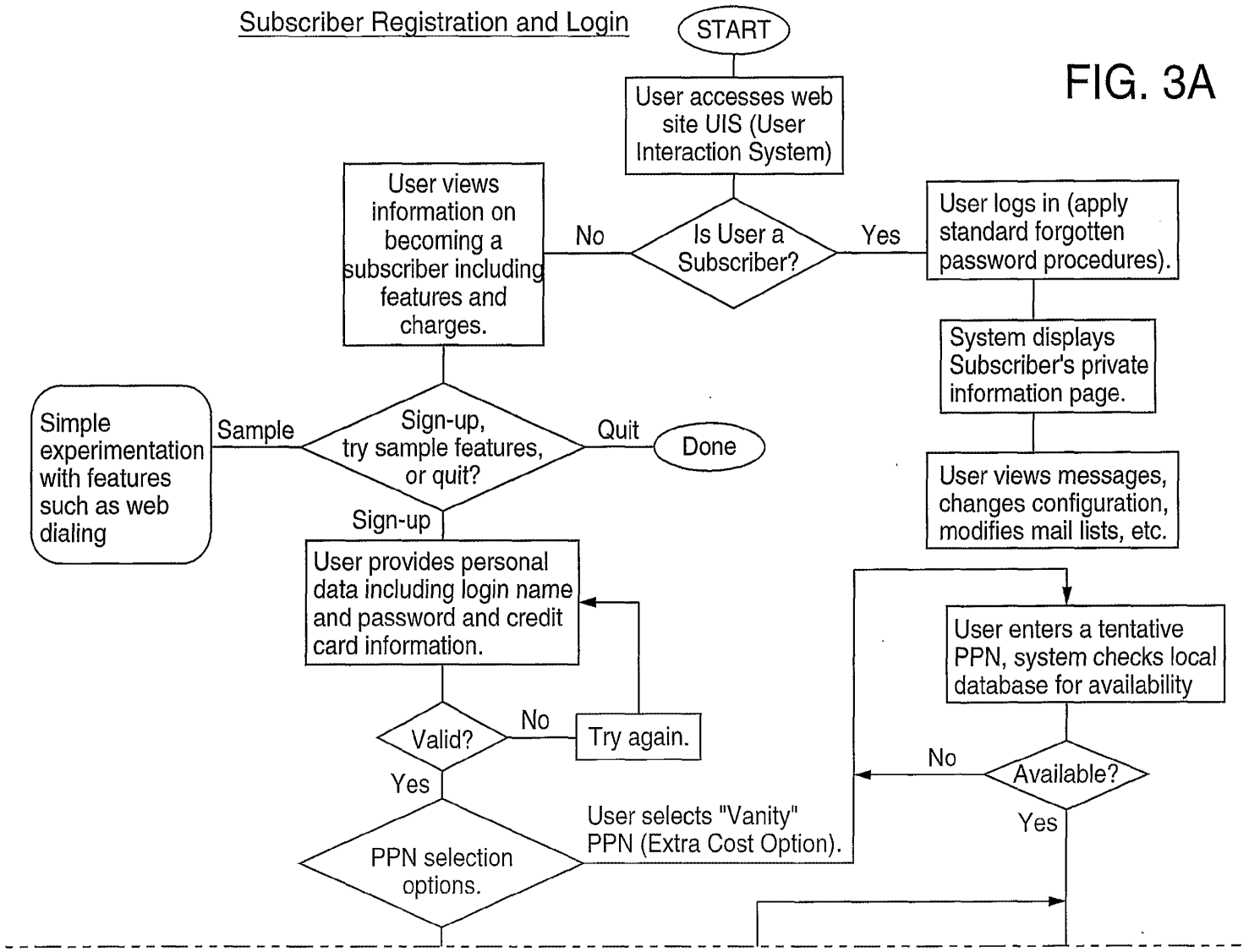

PSTN TANDEM SWITCH
16
PSTN TANDEM SWITCH
16
CO
18
CO
17
TAC
10
TAC
10
VoIP
VoIP
VoIP
WEB
20
21
12
14

FIG. 2

FIG. 3A



Acronyms

PPN - Public Phone Number allocated by oneCloud (known to public, on business cards, etc., rings oneCloud).
LPN - Local Phone Number from local telco (rings user's phone but is only known to oneCloud and local telco).
UIS - User Interaction System - web site user interfaces with in order to control phone features.
TAC - Tandem Acces Controller - System that directly accesses the PSTN.

FIG. 3B

FIG. 3

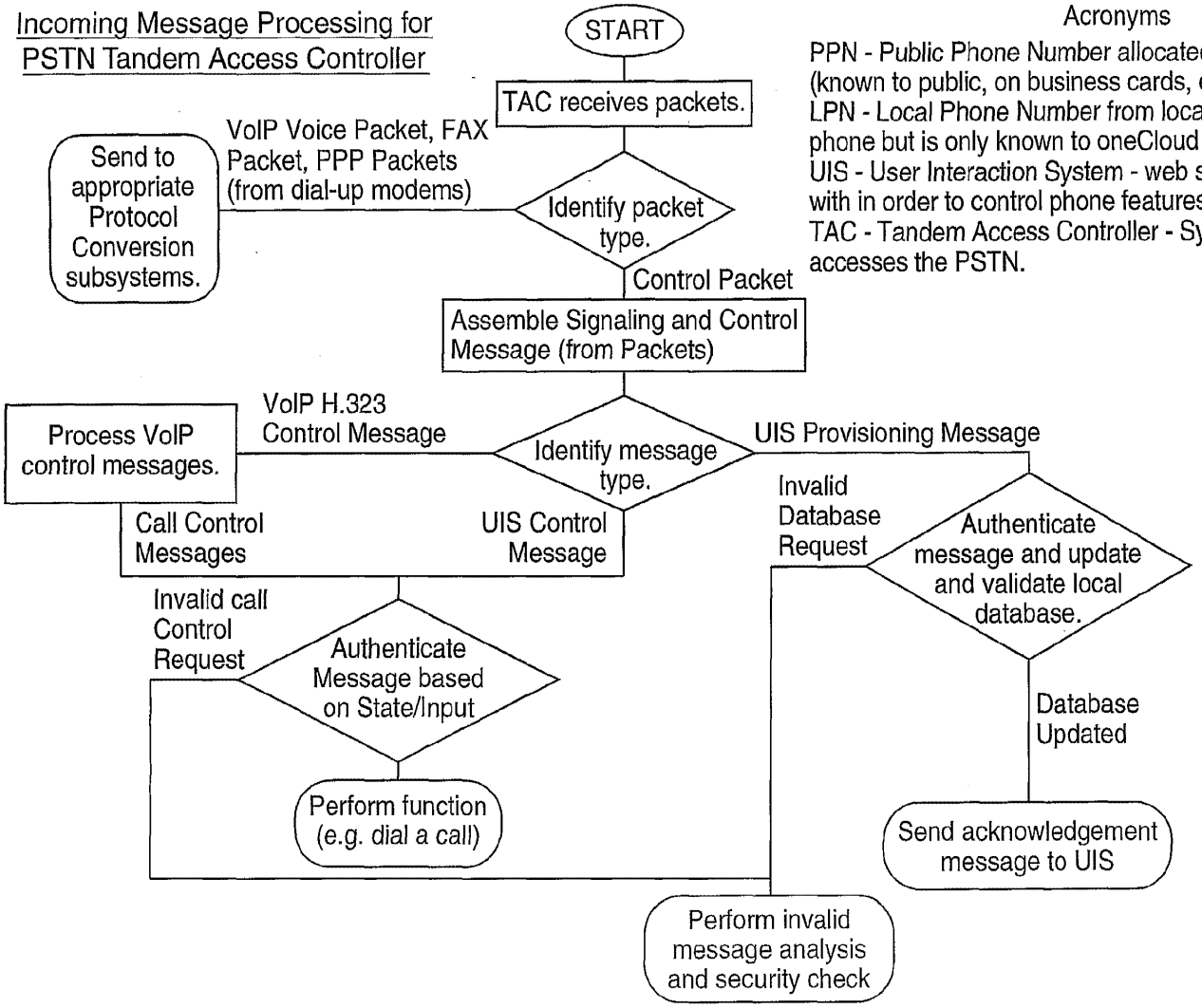


FIG. 4

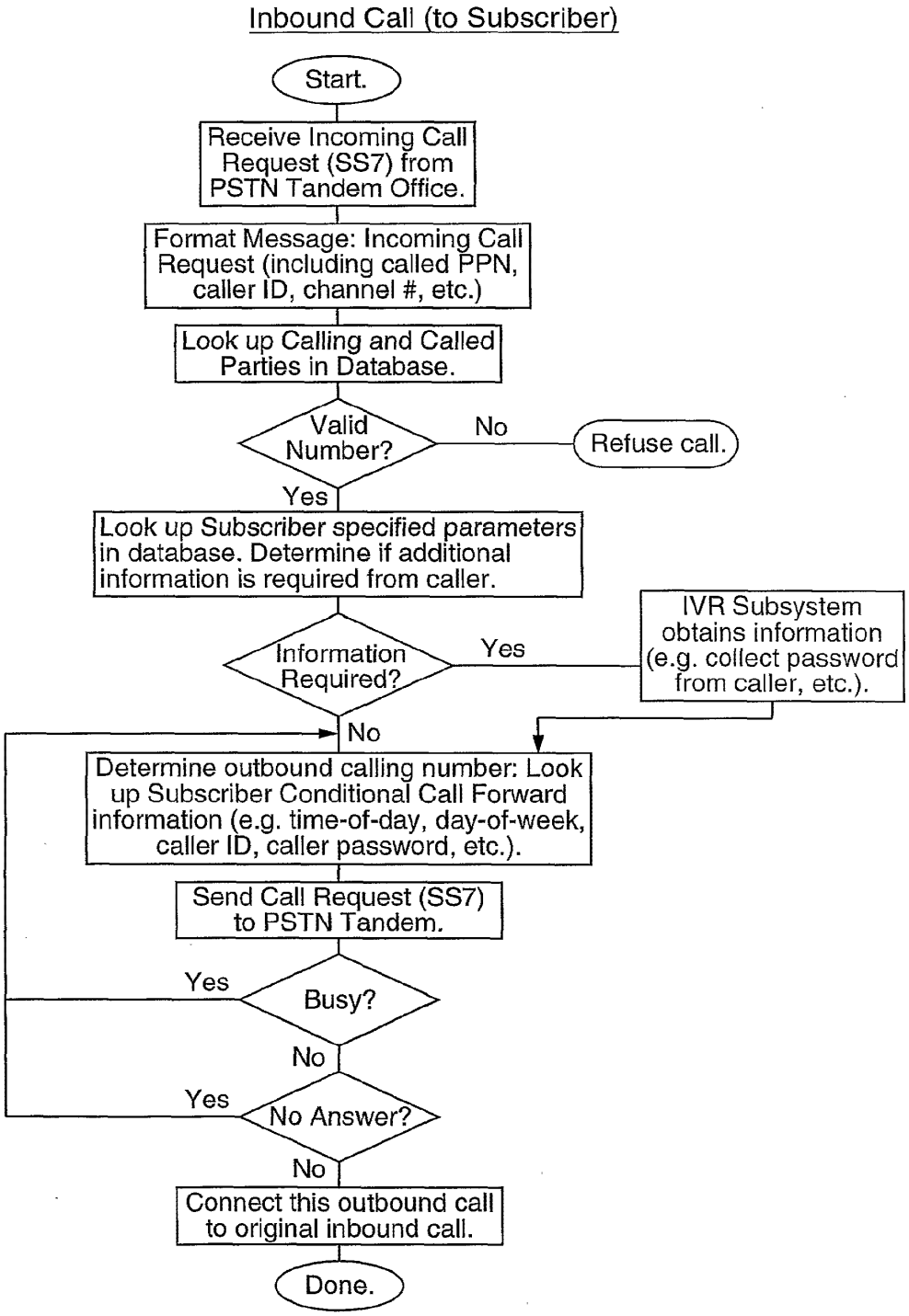

Inbound Call (to Subscriber)
Start.
Receive Incoming Call Request (SS7) from PSTN Tandem Office.
Format Message: Incoming Call Request (including called PPN, caller ID, channel #, etc.)
Look up Calling and Called Parties in Database.
Valid Number?
No
Refuse call.
Yes
Look up Subscriber specified parameters in database. Determine if additional information is required from caller.
Information Required?
Yes
IVR Subsystem obtains information (e.g. collect password from caller, etc.).
No
Determine outbound calling number: Look up Subscriber Conditional Call Forward information (e.g. time-of-day, day-of-week, caller ID, caller password, etc.).
Send Call Request (SS7) to PSTN Tandem.
Yes
Busy?
No
Yes
No Answer?
No
Connect this outbound call to original inbound call.
Done.

FIG. 5

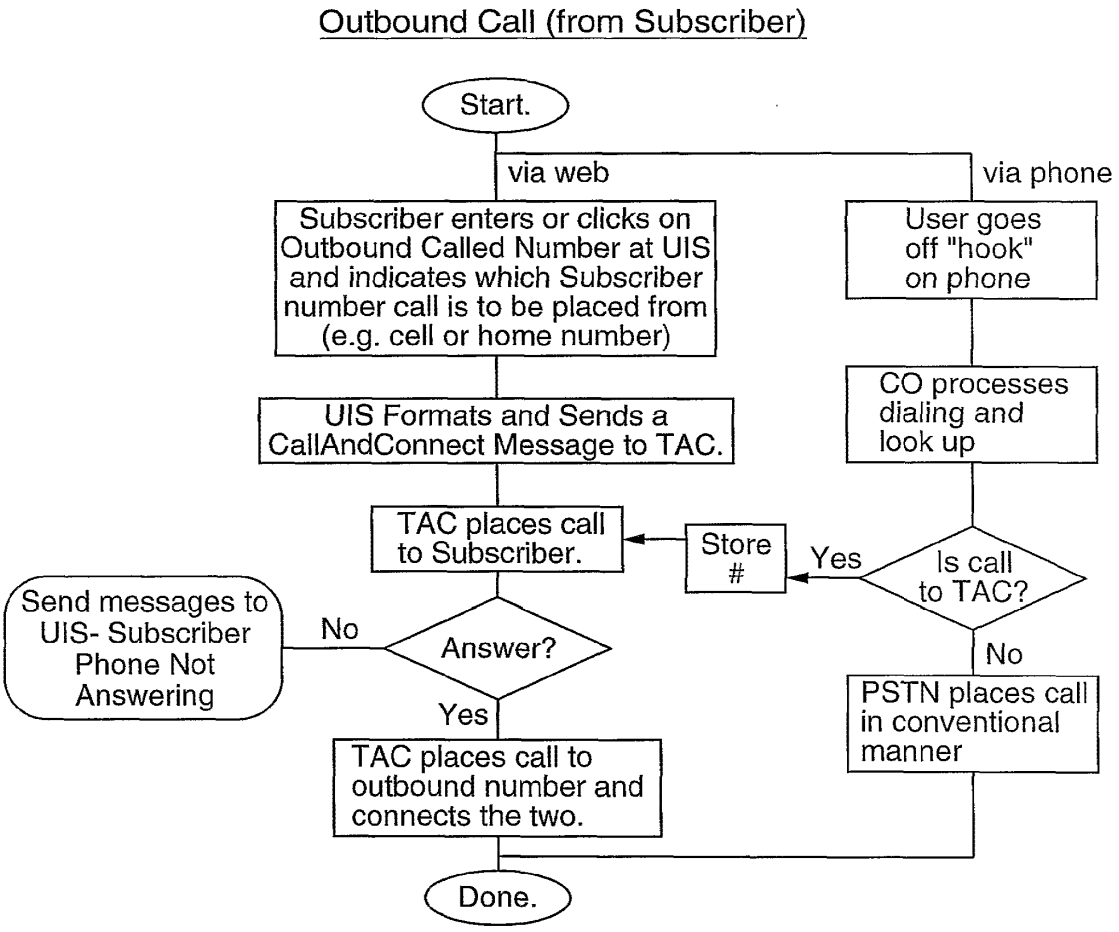

Outbound Call (from Subscriber)
Start.
via web
via phone
Subscriber enters or clicks on Outbound Called Number at UIS and indicates which Subscriber number call is to be placed from (e.g. cell or home number)
User goes off "hook" on phone
UIS Formats and Sends a CallAndConnect Message to TAC.
CO processes dialing and look up
TAC places call to Subscriber.
Store #
Yes
Is call to TAC?
Send messages to UIS- Subscriber Phone Not Answering
No
Answer?
No
PSTN places call in conventional manner
Yes
TAC places call to outbound number and connects the two.
Done.

FIG. 6

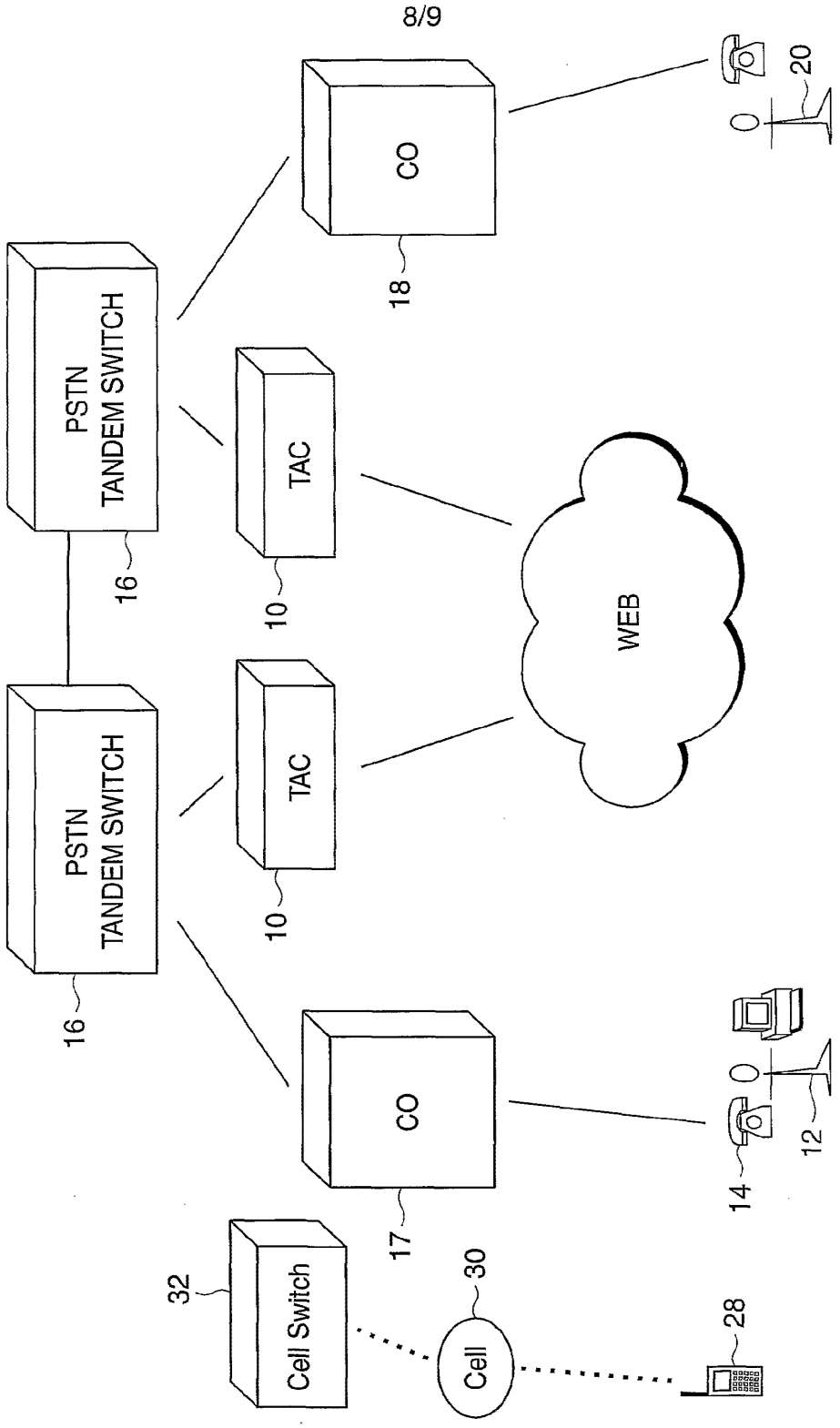

PSTN TANDEM SWITCH
PSTN TANDEM SWITCH
TAC
TAC
WEB
CO
CO
Cell Switch
Cell
16
16
10
10
18
17
20
12
14
30
32
28

FIG. 7

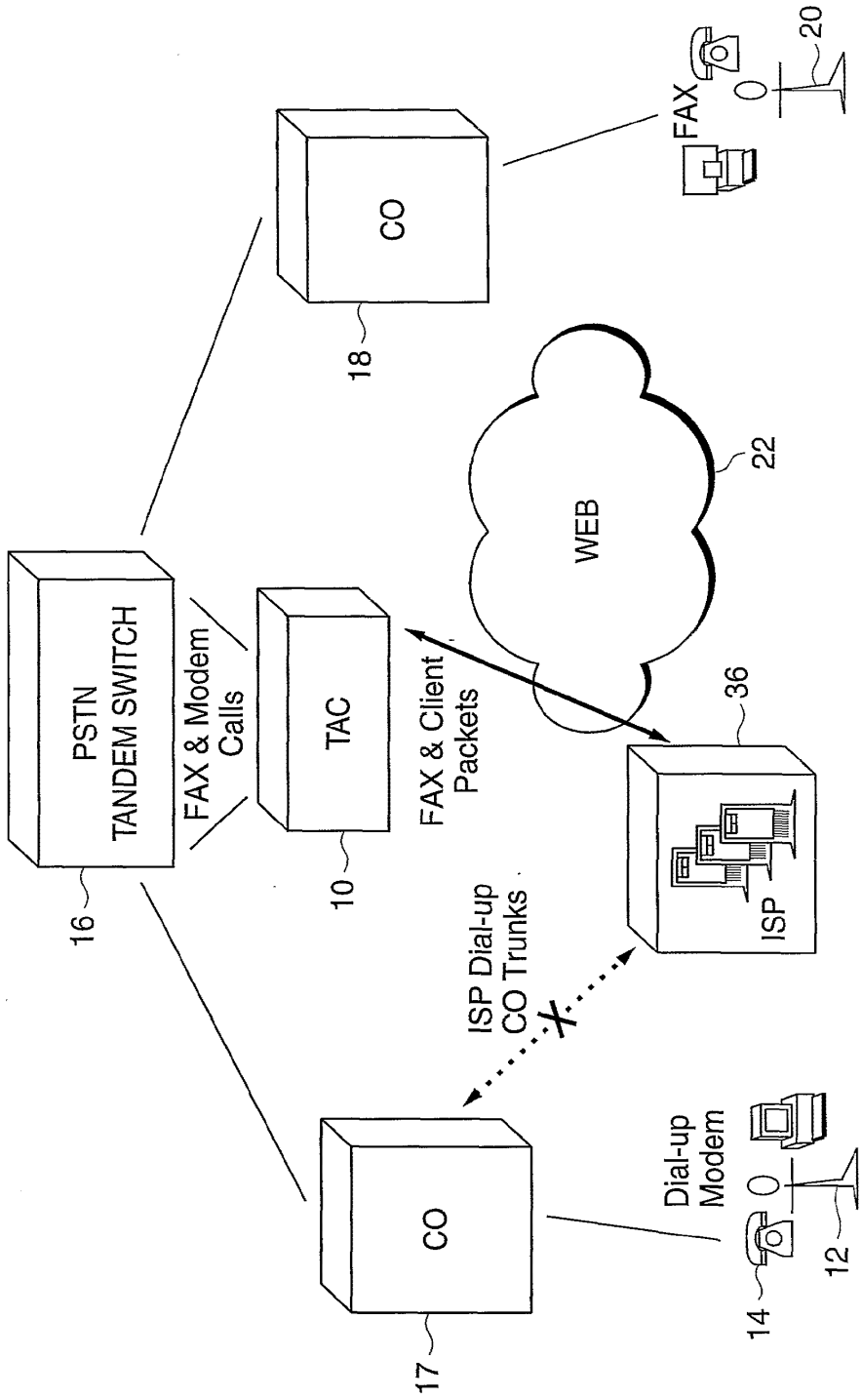


FIG. 8

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
18 January 2001 (18.01.2001)

PCT

(10) International Publication Number
WO 01/05078 A2

(51) International Patent Classification[7]: H04J 3/16

(21) International Application Number: PCT/US00/18831

(22) International Filing Date: 10 July 2000 (10.07.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
09/351,251 12 July 1999 (12.07.1999) US

(71) Applicant and
(72) Inventor: **WEINGARTEN, Walter, Jay** [US/US]; 2nd Floor, 2801-B Avenue P, Brooklyn, NY 11229 (US).

(74) Agents: **COCH, Nicholas, L.** et al.; Kramer, Levin, Naftalis & Frankel LLP, 919 Third Avenue, New York, NY 10022 (US).

(81) Designated States *(national)*: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW.

(84) Designated States *(regional)*: ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:
— *Without international search report and to be republished upon receipt of that report.*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/05078 A2

(54) Title: TRANSPARENT SYSTEMS FOR COMMUNICATION OVER COMPUTER NETWORKS

(57) Abstract: Telephonic, radio, and television systems for communication over computer networks conduct audio, video and other forms of communication over computer networks upon entry of appropriate input on devices included within the telephonic, radio, and television systems.

TRANSPARENT SYSTEMS FOR COMMUNICATION OVER COMPUTER NETWORKS

CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a continuation-in-part of application number 09/318,884, filed on May 26, 1999, which is a continuation-in-part of application number 08/687,180, filed on July 25, 1996.

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

This invention relates to systems for communicating over computer networks and, more particularly, to systems allowing for communication of data over computer networks for the benefit of a user with improved ease of access to the data for the user.

DESCRIPTION OF THE RELATED ART

Computer networks interconnecting a large number of computers owned by different users are proliferating at an ever accelerating rate. One extremely popular and well known network is the Internet which links many hundreds of thousands of computers owned by almost as many businesses, educational institutions, governmental agencies, and individuals.

There has been much interest of late in using the Internet and other computer networks to conduct long-distance telephone conversations. The advantage of using the computer networks in this fashion involves avoiding using the conventional long-distance telephone network, and incurring telephone company charges.

Such efforts commonly have involved the use of a software package installed on a personal computer (PC) equipped with a sound card, microphone, and speakers enabling the PC to produce audible sounds, such as audible sounds encoded on CD-ROM (compact disk - read-only memory) disks which are placed in CD-ROM disk drives in certain personal computers. The software package allows a first user of a PC to employ the sound card, microphone, and speakers as the equivalent of a telephone, with the sound card, microphone, and speakers either receiving the first user's voice for transmission to a second user with whom the first user is conversing or transmitting the second user's voice to the first user. Some versions of such software allow only half duplex use, or in other words, either conversant may either talk or listen, but not both simultaneously, but more recent versions allow full duplex use equivalent to conventional telephone communications where conversants may talk and listen simultaneously. Such software includes "Internet Phone" produced by VocalTec Inc., of Northvale, New Jersey, "WebTalk" produced by Quarterdeck Corp. of Santa Monica, California, and "WebPhone" produced by NetSpeak Corporation of Boca Raton, Florida.

The audio signal in appropriate digital form travelling over the Internet from a PC will normally enter the Internet just like any other digital data through a local Internet Service Provider (ISP). The appropriate digital form will be in groups of digital information known as

packets, each packet containing both the data representing the audio signal and control information telling the Internet what to do with the packet. Since these ISPs exist worldwide as "gateways" to the Internet, persons with PCs connected to the Internet can conduct telephone conversations at no added cost over the access charges paid to their ISP. Because of poor voice quality, delays, and lost connections experienced during Internet conversations, special servers have been or will be installed at many ISPs to handle the increase in Internet traffic due to Internet voice communications.

One callback and Internet access provider, International Discount Telecommunications Corp. (IDT) of Hackensack, New Jersey, has demonstrated a prototype that purportedly allows a PC anywhere in the world having enough memory, a microphone, speakers, a sound card, and an IDT account to be connected to a telephone in the United States.

Despite the rapid advances and improvements in Internet telephony, several disadvantages remain. The participants in any such conversation all require PCs to conduct a conversation, all of the PCs must be connected to the Internet for the conversation to begin, and all of the PCs must have the same Internet telephony software as no software package currently being marketed is compatible with any other package. The IDT prototype requires one PC with peripherals online for a conversation to occur.

In addition, the sound cards and speakers as well as insufficient PC memory cause communication problems. For example, frequent volume adjustment to the speakers is necessary on both ends of the communications link to obtain audible communication and control of background noises.

The potential of the Internet and other computer networks to communicate other forms of information beside telephone conversations in a transparent and easily accessible manner has only been barely attempted. One of these largely unexplored areas is the use of computer networks to communicate live radio broadcasts and other forms of recorded audio communication. There appear to be Internet radio services, as well as traditional radio stations, that allow users of computers to access audio channels and conventional radio programming over the Internet, *see New York Times*, May 17, 1999, p. C11. However, it would be particularly advantageous if live radio broadcasts or other audio communication would be accessible to a user with a device possessing the general appearance and simplicity of use associated with a conventional radio.

Similarly, the use of computer networks to communicate live television broadcasts and other forms of recorded video communication would be highly desirable. It would be particularly convenient if such television broadcasts or other video communication

would be accessible to a user with a device possessing the general simplicity and ease of use associated with a conventional television.

The present invention makes substantial progress in presenting practical "information appliances" to communicate information to a user which is desired in real time with improved ease of access to the information for the user.

SUMMARY OF THE INVENTION

The present invention comprises devices which connect directly to the Internet or other computer network without the need for a PC being present between the devices and the computer network.

In a first embodiment of the invention, the telephonic device comprises a custom designed telephone hardwired with a microcontroller. The custom designed telephone is equipped with a separate alphabetic keypad as well as a numeric one. The microcontroller is programmed so as to respond to the dialing of the alphabetic host address, which is analogous to an electronic mail (e-mail) address, or its equivalent, a number known as the Internet Protocol (IP) address, of the telephone of the party called by sending out an appropriate signal to the telephone of the party called over the Internet, thus causing the telephone of the party called to ring. The party called then can pick up the telephone and the telephone conversation can commence. The telephone of the party called

is of the same custom design as the telephone of the calling party. Both custom designed telephones are constantly connected to the Internet through the ISP of each party and are, thus, ordinarily unavailable for traditional use.

A second embodiment of the invention differs from the first embodiment in that the microcontroller is not integral with the telephone, but is contained in an electronic box plugged into the phone, but separate from it. This embodiment allows the use of a telephone which only differs from a conventional telephone by the presence of a separate alphabetic keypad. This telephone can be unplugged from the system and used as a conventional telephone, as contrasted to the custom designed telephone included in the first embodiment of the invention.

A third embodiment of the invention involves the use of conventional telephones, Central Exchange (centrex), Private Branch Exchange (pbx), or a PC-based switching system (pcex), and the Internet. In this embodiment, one conversant is able to use a telephone to call a centrex, pbx, or pcex connected to the Internet. The call goes go through the Internet to a second centrex, pbx, or pcex which completes the call through the regular telephone lines.

A fourth embodiment of the invention is similar to the first embodiment of the invention in that a custom designed telephone hardwired with a microcontroller is disclosed. However, the microcontroller is programmed so that the telephone need not always be

connected to the Internet to make and receive telephone calls over the Internet and can, thus, be used as an ordinary telephone when calls are not being made over the Internet. The microcontroller is programmed so that when a call over the Internet is initiated by dialing the telephone number of a called telephone, the alphabetic host address or IP address of the calling telephone, and the alphabetic host address or IP address of the called telephone, the calling telephone first calls over the conventional telephone lines, transmitting the alphabetic host address or IP address of the calling telephone to the called telephone and then hangs up. The called telephone, having a microcontroller programmed in a manner compatible with that of the calling telephone, then dials the alphabetic host address or IP address of the calling telephone, while the calling telephone dials the alphabetic host address or IP address of the called telephone, resulting in both of the telephones being connected to the Internet only when a voice conversation between the owners of the telephones occurs.

A fifth embodiment of the invention differs from the fourth embodiment of the invention in that a device or devices capable of sending and/or receiving data other than an audio signal over the Internet is incorporated into the telephone.

A sixth embodiment of the invention allows a user to listen to live or prerecorded radio broadcasts by use of the Internet. In this way, radio stations traditionally broadcasting by the wireless mode, which indeed defines conventional radio, can increase their available bandwidth

for broadcasting greatly, and a new mode of communication which can be named "Internet network radio" will be born. The radio station and the user's "Internet radio" are both connected to the Internet by conventional telephone lines.

A seventh embodiment of the invention differs from the sixth embodiment in that the radio station broadcasts in wireless mode to its ISP instead of being connected to it by conventional telephone lines.

An eighth embodiment of the invention differs from the sixth embodiment in that the user's "Internet radio" is connected in a wireless manner to its ISP rather than through conventional telephone lines.

A ninth embodiment of the invention differs from the sixth embodiment of the invention in that both the radio station and the "Internet radio" communicate with their respective ISPs in a wireless manner rather than through conventional telephone lines.

A tenth embodiment of the invention allows a user to listen to live or prerecorded audio information transmitted over the Internet on virtually any subject that can be imagined.

An eleventh embodiment of the invention allows a user to listen to live or prerecorded television broadcasts by use of the Internet. In this way, television stations, traditionally broadcasting by wireless transmission, can increase their available bandwidth for broadcasting greatly, and a new mode of communication by television transmitted by

television stations over computer networks to television receivers will be born. The television station and the user's Internet television are both connected to the Internet by conventional telephone lines.

A twelfth embodiment of the invention differs from the eleventh embodiment of the invention in that the television station broadcasts in wireless mode to its ISP instead of being connected to it by conventional telephone lines.

A thirteenth embodiment of the invention differs from the eleventh embodiment of the invention in that the user's Internet television is connected in a wireless manner to its ISP rather than through conventional telephone lines.

A fourteenth embodiment of the invention differs from the eleventh embodiment of the invention in that both the television station and the "Internet television" communicate with their respective ISPs in a wireless manner rather than through conventional telephone lines.

A fifteenth embodiment of the invention allows the user to see live or prerecorded video information transmitted over the Internet on virtually any subject that can be imagined.

A sixteenth embodiment of the invention differs from the eleventh embodiment of the invention in that the user's television is a conventional television which is converted to an Internet television by a set top box.

It is an object of this invention to conduct voice conversations over computer networks without the use of computers.

It is a further object of this invention to initiate voice conversations over computer networks despite the absence of any initial working connection between the devices used for the voice conversations and the computer networks.

It is a still further object of this invention to standardize voice communication over computer networks so that incompatible equipment does not prevent such communication.

It is yet a further object of this invention to provide devices capable of enabling voice communications and other forms of data communication simultaneously over computer networks.

It is yet another object of this invention to permit the dissemination of audio information from at least one source, such information being broadcast in real time or being previously recorded, to at least one listener over computer networks.

It is still another object of this invention to allow the dissemination of such audio information to listeners without the use of computers by such listeners.

It is still another object of this invention to permit the dissemination of video information from at least one source, such information being broadcast in real time or being previously recorded, to at least one listener over computer networks.

It is still another object of this invention to allow the dissemination of such video information to viewers without the use of computers by such viewers.

These and other objects and advantages of the present invention will become more apparent to those of ordinary skill in the art upon consideration of the attached drawings and the following description of the preferred embodiments which are meant by way of illustration and example only, but are not to be construed as in any way limiting the invention disclosed and claimed herein.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a schematic diagram of the first embodiment of the invention.

Fig. 2 is a schematic diagram of the second embodiment of the invention.

Fig. 3 is a schematic diagram of the third embodiment of the invention.

Fig. 4 is a schematic diagram of the fourth embodiment of the invention.

Fig. 5 is a schematic diagram of a telephonic device used in the fifth embodiment of the invention.

Fig. 6 is a schematic diagram of the sixth embodiment of the invention.

Fig. 7 is a schematic diagram of the seventh embodiment of the invention.

Fig. 8 is a schematic diagram of the eighth embodiment of the invention.

Fig. 9 is a schematic diagram of the ninth embodiment of the invention.

Fig. 10 is a schematic diagram of the tenth embodiment of the invention.

Fig. 11 is a plan view of an enhanced Internet radio

Fig. 11A is a view of Fig. 11 taken along section lines 11A-11A.

Fig. 11B is a view of Fig. 11 taken along section lines 11B-11B.

Fig. 12 is a plan view of a remote control device for an enhanced Internet radio.

Fig. 12A is a view of Fig. 12 taken along section lines 12A-12A.

Fig. 13 is a schematic diagram of an arrangement of an enhanced Internet radio, earphones, and a remote control device.

Fig. 14 is a schematic diagram of an enhanced Internet radio, earphones, a remote control device, and speakers in a free-standing configuration.

Fig. 15 is a schematic diagram of an enhanced Internet radio with earphones, a remote control device, and speakers in a wall-mounted configuration.

Fig. 16 is a schematic diagram of an enhanced Internet radio, earphones, a remote control device, speakers in a wall-mounted configuration, and a CD player or hard drive attached to the enhanced Internet radio.

Fig. 17 is a schematic diagram of the eleventh embodiment of the invention.

Fig. 18 is a schematic diagram of the twelfth embodiment of the invention.

Fig. 19 is a schematic diagram of the thirteenth embodiment of the invention.

Fig. 20 is a schematic diagram of the fourteenth embodiment of the invention.

Fig. 21 is a schematic diagram of the fifteenth embodiment of the invention.

Fig. 22 is a schematic diagram of a portion of the sixteenth embodiment of the invention.

Fig. 23 is a schematic diagram showing an enhanced Internet television along with a remote control device.

Fig. 24 is a schematic diagram showing an enhanced Internet television with wall-mounted speakers and a remote control device.

Fig. 25 is a schematic diagram showing an enhanced Internet television with speakers in a free-standing configuration and a remote control device.

Fig. 26 is a schematic diagram showing an enhanced Internet television with wall-mounted speakers, a remote control device, and a CD player or hard drive attached to the enhanced Internet television.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

For a more detailed description of the invention in its several embodiments given only by way of example and not to be construed as limiting the invention in any fashion, we refer to the drawings.

Fig. 1 represents the first embodiment of the invention. In this embodiment, a first telephone 2 and a second telephone 4 are of the same design, each containing a microcontroller 6 allowing the first telephone 2 and the second telephone 4 to make and receive telephone calls over the Internet 8 or another computer network and a separate

alphabetic keypad as well as a numeric one. (It should be understood that a conventional telephone numeric keypad can be used in combination with a separate alphabetic keypad, although the presence of multiple letters over the numbers in such a numeric keypad would be redundant and possibly confusing to the user.) Alternatively, each telephone could have a conventional telephone numeric keypad and extra selection keys such as, for example only, "shift", "ctrl", or "alt", to select between the multiple letters shown over some of the numbers on the conventional telephone numeric keypad. (A conventional telephone numeric keypad could also be used, without any extra selection keys, in a rather inconvenient manner by making use of the keys without letters to select letters.) The first telephone 2 is connected to the Internet 8 through a first conventional telephone line 7 and the ISP 10 of the party owning the first telephone 2 and the second telephone 4 is connected to the Internet 8 through a second conventional telephone line 9 and the ISP 12 of the party owning the second telephone 4.

As an example of the operation of the invention, if the party owning the first telephone 2 wishes to call the party owning the second telephone 4, the party owning the first telephone would preferably dial alphabetic symbols corresponding to the alphabetic host address of the second telephone 4 or the numeric equivalent of the alphabetic host address, a number corresponding to the IP address of the second telephone 4.

The use of an alphabetic host address would be most convenient to connect a call to those Internet users whose IP addresses for their telephones are dynamically allocated every time they are connected to the Internet. The use of an IP address is a viable alternative convenient to connect a call to those Internet users who have permanent IP addresses for their telephones.

A typical alphabetic host address, which is analagous to an e-mail address, might be jones@johnson.com. If this were an e-mail address, the address would signify that jones is a user on a computer named johnson in the Domain Name System (DNS) domain named com. (The Internet is subdivided into administrative units containing groups of participating computers called domains.) Analogously, since we are dealing with a telephone that is the host, instead of a computer, the address signifies that jones is a user on a telephone named johnson in the Internet domain named com.

The IP address, which is the numeric equivalent of the alphabetic host address, is typically expressed in dot notation. For example, 198.95.262.38 is a typical IP address. Of course, the microcontroller 6 could be programmed so that it would respond without the use of the dots or the dots could be replaced by the use of the "*" key on the typical touch tone telephone keypad.

It should be noted that an IP address identifies one network interface on a host. Thus, if a host, in our case, a telephone, has two or

more network interfaces (see fifth embodiment of invention below), the host will have a different IP address for each network interface. Each IP address, as presently assigned by the authorities responsible for assigning such addresses on the Internet, is a 32-bit binary number written as 4 fields, 8 bits each, separated by dots. (The typical IP address given above is the decimal equivalent of the binary address.) Due to the sheer number of devices being connected to the Internet, the available addresses are running low. Any extension of the IP addressing system to cover additional addresses, whether IPng (Internet Protocol Next Generation), also known as IPv6 (Internet Protocol, Version 6), or another subsequent scheme which is numerically based, can be easily accomodated by the invention as disclosed herein.

In any event, the microcontroller 6 of the first telephone 2 is programmed to send out a signal 14 which is relayed by the ISP 10 of the party owning the first telephone 2 and the ISP 12 of the party owning the second telephone 4 to the second telephone 4 causing the second telephone 4 to ring. The owner of the second telephone 4 can then pick up the second telephone 4 and a conversation can begin between the owner of the first telephone 2 and the owner of the second telephone 4.

The signal 14 travels over the Internet 8 using the TCP/IP (Transmission Control Protocol/Internet Protocol) suite of protocols for transmission of data over the Internet. Since the type of communication ordinarily to be effected by the invention disclosed herein is simple voice,

text, audiovisual, or visual communication where everything is transmitted in realtime mode and data may be easily resent if corrupted in the transmission, those protocols in the TCP/IP suite which do not perform extensive error checking on packets sent may be used, instead of those more appropriate for data where visual and mathematical accuracy is a critical consideration. Thus, User Datagram Protocol (UDP), which causes data to flow on the Internet without error checking, may be used by the microcontroller 6 of the telephones 2,4 to transmit voice instead of the more conventional TCP which provides for such error checking. This will allow for more efficient transmission of voice by the disclosed invention than would be possible if conventional PCs using TCP to transmit voice were used.

The embodiment of the invention depicted by Fig. 1, however, requires that the first telephone 2 and the second telephone 4 be "dedicated" telephones constantly connected to the Internet 8 and therefore unavailable for use with the conventional telephone network unless they are connected to the telephone network over Integrated Services Digital Network (ISDN) lines, a Digital Subscriber Line (DSL), or cable television lines, which would possibly allow each telephone to be used for calling over the conventional telephone lines even though they are also connected to the Internet.

A second embodiment of the invention is shown in Fig. 2. A first telephone 20 and a second telephone 24 are connected to the

Internet 8. The first telephone 20 has an electronic box 28 connected to it, the electronic box 28 containing a microcontroller 6. The second telephone 24 has an electronic box 32 connected to it, the electronic box containing a microcontroller 6.

Similarly to Fig. 1, the first telephone 20 is connected to the Internet 8 through a first conventional telephone line 25 and the ISP 40 of the party owning the first telephone 20 and the second telephone 24 is connected to the Internet 8 through a second conventional telephone line 33 and the ISP 42 of the party owning the second telephone 24. The functionality of the microcontroller 6 is identical to that described in connection with Fig. 1. However, its physical location has changed from inside the telephones 2,4 shown in Fig. 1 to outside the telephones 20,24 shown in Fig. 2 and inside separate electronic boxes 28,32. The telephones 20,24 have the alphabetic and numeric keypads or, alternatively, a conventional telephone numeric keypad with extra selection keys, as described for the telephones 2,4 shown in Fig. 1. Alternatively, the alphabetic keypad or extra selection keys may be placed on the separate electronic boxes 28, 32. Finally, the operation of the invention, upon the party owning the first telephone 20 dialing the alphabetic host address or IP address of the second telephone 24, would be the same as that described in Fig. 1 upon the party owning the first telephone 2 dialing the alphabetic host address or IP address of the second telephone 4.

The advantage of the embodiment shown in Fig. 2 over that shown in Fig. 1 is that the telephones 20,24 can be unplugged from their respective electronic boxes 28,32 and used as conventional telephones communicating over the conventional telephone network since they have at least a numeric keypad. The telephones 2,4 shown in Fig. 1, on the other hand, cannot ordinarily be used as conventional telephones since they are constantly connected to the Internet.

Fig. 3 shows a third embodiment of the invention. In this embodiment, a first conventional telephone 50 and a second conventional telephone 52 can make and receive telephone calls over the Internet 8. This is possible because the first telephone 50 and the second telephone 52 are connected to telephone switching equipment 54 that is connected to the Internet 8, instead of to the conventional telephone network. This telephone switching equipment can be in the form of a centrex 56, pbx 58, or pcex 60. This telephone switching equipment 54 will work in an analagous manner to that found in the conventional telephone network, but it will be connecting subscriber telephones connected to the Internet 8 to each other.

As an example of the operation of the invention in accordance with this embodiment, if the party owning the first telephone 50 wishes to call the party owning the second telephone 52, the party owning the first telephone 50 will simply dial the telephone number of the party owning the second telephone 52. Then the signal 64 produced by

the first telephone 50, instead of traveling solely on the conventional telephone lines, will first travel over the conventional telephone lines 68 to telephone switching equipment 54, which may be any one of centrex switching equipment 56, pbx switching equipment 58, or pcex switching equipment 60, connected on one side to the first telephone 50 through the conventional telephone lines 68 and on the other side to the Internet 8. This switching equipment 54 will relay the signal 64 through the Internet 8 such that it is received by a second arrangement of switching equipment 54, which may again be any one of centrex switching equipment 56, pbx switching equipment 58, or pcex switching equipment 60, which is connected on one side to the Internet 8 and on the other side through conventional telephone lines 69 to the second telephone 52. The second arrangement of switching equipment 54 relays the signal 64 through conventional telephone lines 69 to the second telephone 52. When the second telephone 52 receives the signal 64 it rings and the party owning the second telephone 52 can pick up the receiver and a conversation can begin.

This third embodiment of the invention allows the use of completely conventional telephones and switching equipment to speak over the Internet, but requires that the switching equipment be connected to the Internet.

Fig. 4 shows the fourth embodiment of the invention. Analagously to the first embodiment shown in Fig. 1, there are a first telephone 70 and

a second telephone 72 connected to the Internet 8 and capable of making and receiving calls over the Internet 8. Each telephone 70,72 is custom designed and contains a microcontroller 74. Each telephone has both a numeric keypad and an alphabetic keypad or, alternatively, a conventional telephone numeric keypad with extra selection keys as previously described in connection with the telephones 2,4 shown in Fig. 1. Analogously to Fig. 1, the first telephone 70 is connected to the Internet 8 through a first conventional telephone line 75 and the ISP 76 of the owner of the first telephone 70 and the second telephone 72 is connected to the Internet 8 through a second conventional telephone line 77 and the ISP 78 of the owner of the second telephone 72. However, unlike the embodiment of Fig. 1, the telephones 70,72 need not always be connected to the Internet 8, but may also be used for calls over the conventional telephone lines without the use of ISDN lines because of the method by which Internet telephone calls are connected. To demonstrate this method of operation, we consider a concrete example.

If the owner of the first telephone 70 desires to make a call over the Internet 8 to the owner of the second telephone 72, the owner of the first telephone 70 would dial the alphabetic host address or the IP address of the first telephone 70 and the alphabetic host address or the IP address of the second telephone 72 followed immediately by the regular telephone number of the second telephone 72. Of course, the order of dialing the various alphabetic host or IP addresses and the telephone

number is only given by way of example and may be varied depending on the programming of the microcontroller 74.

The microcontroller 74 in the first telephone 70 would be programmed to respond to the dialing of the combined alphabetic host or IP addresses and the telephone number by transmitting, over the conventional telephone lines 80 connecting the two telephones 70,72, the alphabetic host address or the IP address 82 of the first telephone 70 to the second telephone 72. The first telephone 70 would then terminate the connection with the second telephone 72. The second telephone 72 would then dial the alphabetic host or IP address of the first telephone 70, causing a connection to the first telephone 70 through the ISP 78 of the owner of the second telephone 72 and the ISP 76 of the owner of the first telephone 70. While the second telephone 72 is dialing the alphabetic host or IP address of the first telephone 70, the first telephone 70 is dialing the alphabetic host or IP address of the second telephone 72, causing a connection to the second telephone 72 through the ISP 76 of the owner of the first telephone 70 and the ISP 78 of the owner of the second telephone 72. (It should be understood that "handshaking" or the process through which both telephones 70, 72 connect to each other can occur through numerous methods well known to those skilled in the art. For example, after the initial transmission of the alphabetic host address or IP address 82 of the first telephone 70 to the second telephone 72 over the conventional telephone lines 80, it may only be necessary for either one

of the first telephone 70 or the second telephone 72 to dial the alphabetic host address or IP address of the other telephone for the telephones 70,72 to be connected to each other over the Internet.) Thus, both telephones 70,72 have been connected to the Internet 8 through the special dialing sequence on the first telephone 70 and by the special subsequent calling sequence previously described and they are only connected to the Internet 8 for conducting a telephone conversation by the special dialing sequence on one of the telephones 70,72 specified above. If a regular telephone number is dialed, the telephones 70,72 would react as a conventional telephone, placing the call over the conventional telephone lines 80.

This embodiment thus allows the telephones 70,72 to make and receive calls over the Internet 8 when desired or, if the Internet 8 is too busy or for some other reason is unsuitable for communication, over the conventional telephone lines 80.

The fifth embodiment of the invention differs from the fourth embodiment of the invention in the telephones used. These telephones 80, one of which is shown in Fig. 5, differ from the telephones 70,72 shown in Fig. 4 insofar as they incorporate a device or devices 82 capable of sending or receiving or sending and receiving data over the Internet other than audio data and insofar as they have added functionality over that described for the telephones 70,72 and thus require a microprocesser 84 programmed to perform such additional functions. These telephones 80 will function, as did the telephones 70,72 in the

fourth embodiment of the invention, to establish a telephone conversation between the owners of the telephones.

However, once such a conversation is established one or the other of the conversants may wish to use the device or devices 82 on the telephone to send data other than voice to the other conversant. Of course, in such an instance the device or devices 82 on the two telephones involved must be compatible to send or receive, as required, the data desired. This device or devices 82 may include, but are not limited to, facsimile transmission devices, including devices which can process color facsimiles or even three-dimensional facsimiles which are created by laser mathematically measuring solid objects, devices which can send or receive live or recorded video with or without an accompanying sound track, devices which can send or receive still pictures, and screens of all types for displaying text or graphical data. Since, as explained earlier, any such device or devices 82 must each have a separate IP address, the IP address of the device 82 called to receive data will be entered prior to such transmission taking place.

For example, assume the owner of a first telephone 80 which has a device 82 comprising a color facsimile transmitting device wishes to send a color facsimile to a second telephone 80' having a device 82' comprising a color facsimile receiving device. The owner of the first telephone 80 would enter the IP address or, equivalently, the alphabetic host address of the device 82' on the first telephone's keypad and this

would cause the microcontroller 84 to establish a connection over the Internet to the device 82'. The color facsimile could then be sent from device 82 to device 82' while the owners of the two telephones 80,80' are conversing, provided that the telephone lines to the respective ISP's of the owners of the two telephones 80,80' will accomodate such simultaneous data transfer.

It should, of course, be understood that the telephones included in the fifth embodiment of the invention could be used to transmit data other than audio communication even in the absence of a telephone conversation. This would be done by following a process completely analagous to that described in the fourth embodiment of the invention for initiating a telephone call except that IP addresses or alphabetic host addresses of the sending or receiving or sending and receiving devices would be used, instead of IP addresses or alphabetic host addresses of the telephones into which those sending or receiving or sending and receiving devices are incorporated.

All embodiments of the telephonic devices described above using IP addresses or alphabetic host addresses to initiate a conversation between users of two telephonic devices could possess the ability to recognize a limited number of telephone numbers by the availability of a memory in the telephonic devices storing such limited number of telephone numbers and their equivalent IP or alphabetic host addresses. In addition, the use of such IP or alphabetic host addresses may be rendered

unnecessary in the future if telecommunications companies owning or operating the conventional telephone network assign telephone numbers to these telephonic devices.

Furthermore, all embodiments of the telephonic devices described above, except for the third embodiment of the invention, which assumes the use of completely conventional telephones, could possess the capacity to accept voice commands through voice recognition. Such a capability could be used, for example, by a voice command to the telephonic device to dial a certain IP address, alphabetic host address, or telephone number, assuming the telephonic device can recognize the telephone number as mentioned in the prior paragraph.

Such voice recognition capability can be combined with a more extensive memory capable of storing, in addition to telephone numbers and their equivalent IP or alphabetic host addresses, voiceprints of frequent callers or unwanted callers and names of persons associated with any telephone numbers stored in the memory. In such a case, the telephonic device could have the capability to identify a limited number of callers by voiceprint, the telephonic device could respond to a voice command to call the telephonic device of one of the persons whose names are stored in its memory, and the telephonic device could be told to call a certain person whose name was stored in its memory and, if the person did not answer the call, leave a message prerecorded by a user of the telephonic device, assuming that the telephonic device has a limited

recording capability. If the telephonic device has a clock or other equivalent time keeping device, the telephonic device could be told to call a person at a future time. Finally, if the telephonic device is programmed with software capable of changing or distorting a voice, the telephonic device would be able to change or distort voices transmitted or received.

Fig. 6 shows a sixth embodiment of the invention. In this embodiment, an Internet radio 86 is connected by conventional telephone lines 88 to an ISP 90 providing Internet services to the user of the Internet radio 86. A radio station 92 is also connected by conventional telephone lines 94 to an ISP 96 likewise providing Internet services to the radio station 92. Although the radio station 92 may be a conventional radio station, it may also be a private transmitter in a residential or other nonconventional location.

When a user of the Internet radio 86 desires to "tune in" to the radio station 92 and listen to whatever audio communication is then being broadcast by that radio station 92, the user activates the Internet radio 86 which may be battery powered or connected to a conventional electrical outlet just like a conventional radio. The user then tunes the Internet radio 86 to the station's frequency precisely in the same manner that the user would tune a conventional radio to that frequency. Upon being tuned to the frequency of the radio station 92, the Internet radio 86 will immediately transmit in audible form the broadcast of the radio station 92.

The process which insures this result is as follows. The radio station 92, at the same time that it generates radio waves 98 corresponding to the audible sounds being generated by a live event or by audio tapes being played in its studio, sends out a digital signal 100 over the conventional telephone lines 94 connecting it to its ISP 96. That digital signal 100 preferably also corresponds as fully as do the radio waves 98 to the audible sounds being generated by a live event or by tapes being played in its studio. Of course, the audible sounds being generated in its studio would be generated by a "live performance" by, for example, players of some musical instruments, singer, or talk show, or by audio tapes being played which could be of any such previous live performance. The digital signal 100 would be "broadcast" to those of the ISPs on the Internet 8 agreeing to receive that signal. Assuming that the user of the Internet radio 86 has the Internet radio 86 connected to an ISP 90 agreeing to receive the digital signal 100, tuning the Internet radio 86 to the frequency of the radio station 92 will cause the digital signal 100 to travel from the ISP 90 over the conventional telephone lines 88 to the Internet radio 86. Once the digital signal 100 is received at the Internet radio 86, the Internet radio 86 will reconvert the digital signal 100 into the original audible sounds generated live at the studio of the radio station 92 or generated by the data recorded on the audio tape played at the studio.

The Internet radio 86 comprises a microcontroller just as the telephonic device previously described does. That microcontroller is

programmed to convert the selection of a frequency in the tuner of an Internet radio 86 into a digital signal sent by the Internet radio 86 to the ISP 90 which will cause the selection of the digital signal sent by the radio station corresponding to the frequency tuned to from all of the radio digital signals received by the ISP 90.

The Internet radio 86 optionally also possesses the capability to function as a conventional radio receiving radio signals which are transmitted by conventional radio stations not connected to the Internet.

There are several advantages of this embodiment of the invention over conventional radio transmission and reception. First, it greatly reduces any problem that the radio station might face if it desires to transmit large quantities of information simultaneously. Instead of being limited to a strictly defined bandwidth in airwaves that are increasingly crowded and subject to atmospheric disturbances and interference from other transmission sources, the radio station can transmit over a "dedicated" bandwidth of the Internet to certain select users, with the size of the bandwidth only subject to its economic capacity to pay for it and the overall capacity of the Internet. Atmospheric disturbances for the most part need no longer be feared for their potential interference with quality transmission and reception. Second, the limited range of its transmission by atmospheric means due to rapid signal attenuation is replaced by the transmission through the Internet which is only limited by the geographical extent of the Internet and the ISPs to which it wishes or

is able to transmit the signal. On the other hand, this embodiment of the invention makes the Internet radio 86 not portable as it must be connected to conventional telephone lines 88, where a conventional radio can be easily carried about, being operable in wireless mode. This feature is, of course, balanced by the fact that an Internet radio 86 can receive signals from any and all stations transmitting to its ISP largely independent of weather conditions, (excluding perhaps solar flares, or other atmospheric electromagnetic disturbances) be they a few miles away or halfway around the globe, whereas conventional radios, excluding shortwave models, are strictly limited in the stations that can be received to those within a comparatively short distance.

Figure 7 shows a seventh embodiment of the invention. This embodiment differs from the sixth embodiment in that the radio station 102 in this embodiment is not connected to its ISP 104 through conventional telephone lines, but relies on the radio waves 106 of its conventional radio transmission to connect with its ISP 104. Alternatively, the radio station 102 may broadcast at frequencies normally used for cellular telephones or at any other frequencies that may prove convenient.

The embodiment, of course, assumes that the ISP 104 is capable of receiving wireless communications as well as communications over the conventional telephone lines. Once the radio waves 106 of the conventional analog radio transmission of the radio station 102 are

received by the ISP 104, the radio waves 106 are converted to digital signals 108 which are sent over the Internet 8 as in the sixth embodiment and received by those ISPs 110 agreeing to receive the digital signals 108 corresponding to the radio broadcast of radio station 102. As in the sixth embodiment, the Internet radio 112 will receive the digital signals 108 corresponding to the radio broadcast of the radio station 102 when it is tuned to the frequency of the radio station 102. The seventh embodiment of the invention saves the radio station 102 the additional expense of being connected to the ISP 104 through conventional telephone lines and any associated equipment needed to convert its otherwise wireless radio broadcast into a digital signal to be sent over telephone lines to the ISP 104.

Of course, the advantage of greatly increased bandwidth available to the radio station for broadcasts by digital signals sent to its ISP may be somewhat affected by possible interference from other transmission sources and by atmospheric disturbances because of the wireless transmission between the radio station 102 and its ISP 104. It should be noted that these factors may also cause degradation of analog and digital radio signals in general, cellular telephone signals, and other analog and digital wireless transmissions. However, if wireless transmissions are sent in digital form such degradation may not prevent successful reception of transmissions due to the availability of numerous and effective error correction schemes. These factors can also be

minimized if the ISP 104 is located in proximity to the radio station 102 and is able to receive signals over a large bandwidth, even though such a bandwidth may be impossible to employ if wireless transmission is desired directly between the radio station 102 and the user of the Internet radio 112.

Figure 8 shows an eighth embodiment of the invention. The embodiment differs from the sixth embodiment in that the ISP 120 of the user of the Internet radio 124 is not connected to the Internet radio 124 by conventional telephone lines. Instead, wireless transmission 122 is relied upon from the ISP 120 to the Internet radio 124. However, as in the sixth embodiment, the radio station 114 sends out a digital signal 126 over conventional telephone lines 116 to its ISP 118, which, in turn, relays that digital signal over the Internet 8 to the ISP 120. The ISP 120 must have the capability of transmitting that digital signal as a wireless transmission 122, intended for the Internet radio 124. The Internet radio 124 in this embodiment must have the capability of receiving the wireless transmission 122, similarly to a conventional radio, in addition to or instead of the capability of receiving digital signals 100 over conventional telephone lines 88 possessed by Internet radio 86 in the sixth embodiment of the invention. The characteristics of wireless transmissions, as described in the seventh embodiment of the invention in connection with the radio station 102 and its ISP 104, apply in an analogous fashion to the Internet radio 124 and its ISP 120.

The advantage of this embodiment of the invention over the sixth embodiment of the invention is the result that the Internet radio 124 becomes truly portable as a conventional radio is. The Internet radio 124 may be portably carried by a person or may be installed in an automobile, ship, train, airplane, or other means of transportation. In contrast to a conventional radio, however, the limit of its portability is not the strength of the broadcast from the radio station 114, but rather the strength of the wireless transmission 122 from its ISP 120 and the medium by which that wireless transmission 122 is conducted to the Internet radio 124, either being wholly atmospheric or using one or more satellites.

Figure 9 shows a ninth embodiment of the invention. This embodiment differs from the sixth embodiment in that both the radio station 126 and the ISP 128 of the user of the Internet radio 130 are transmitting in a wireless mode to the ISP 132 of the radio station 126 and the Internet radio 130, respectively. As previously indicated, the advantage of greatly increased bandwidth available to the radio station 126 in the sixth embodiment may be somewhat affected by the abandonment of a conventional telephone line connection between the radio station 126 and the ISP 132, although, as before commented, the use of digital wireless transmissions and a proximity between the radio station 126 and the ISP 132 may largely obviate any such possible effect. As further previously indicated, the Internet radio 130 in this embodiment becomes truly portable as a conventional radio is.

In this embodiment, both the ISP 132 of the radio station 126 and the ISP 128 of the user of the Internet radio 130 must have, respectively, the capability of receiving wireless transmission and the capability of transmitting such transmission, and must have, respectively, the capability of converting wireless transmission to digital signals capable of traversing the Internet and the capability of receiving such digital signals and converting them to wireless transmission if the wireless transmissions are assumed to be analog. To the extent, however, that the wireless transmissions are digital, no conversions between analog and digital signals will be necessary. Furthermore, the Internet radio 130 must have the capability of receiving the wireless transmission from the ISP 128 similar to the wireless reception capability of Internet radio 124 in the eighth embodiment of the invention. The characteristics of wireless transmissions, as described in the seventh embodiment of the invention in connection with the radio station 102 and its ISP 104, apply in an analogous fashion to the Internet radio 130 and its ISP 128.

Figure 10 shows the tenth embodiment of the invention. This embodiment differs from the sixth through ninth embodiments of the invention in that the Internet radio 132 is no longer receiving audio data from a broadcasting radio station which is simultaneously broadcasting such audio data by conventional radio waves through the atmosphere. Instead, the source of the audio data is what may be termed an "Internet radio station" 134. Such an Internet radio station 134 would be capable

of transmitting the range of live, prerecorded, or archival radio broadcasts that a conventional radio station would, with the crucial difference that simultaneous wireless transmission would not occur. Instead, all such audio data would be channeled exclusively by conventional telephone lines 136 to the ISP 138 of the Internet radio station. This would produce the previously discussed advantages of greatly increased bandwidth available to the sixth embodiment of the invention, while saving the Internet radio station the expense of both the equipment and power consumption involved in conventional wireless transmission. The digital signal 140 sent out by the Internet radio station 134 would, as in the sixth embodiment of the invention, be relayed over the Internet 8 to the ISP 142 of the user of the Internet radio 132, again assuming that the ISP 142 has agreed to receive the digital signal 140.

An Internet radio station 134 could optionally broadcast only subject matter restricted in certain ways such, as for example, music related to a certain ethnic group, music directed only to children, or music containing no sexual references or other material objectionable to certain listeners for religious or other moral reasons.

In the tenth embodiment of the invention, the ISP 142 is shown as transmitting by wireless transmission 144 data contained within the digital signal 140. As previously noted, the ISP 142 must have the capacity to produce such a wireless transmission 144 and to convert the digital signal 140 into the wireless transmission 144 if an analog wireless

transmission is used. Such a transmission 144, as previously noted, would make the Internet radio 132 truly portable in the same manner that a conventional radio is truly portable, assuming again that the Internet radio 132 can receive such wireless transmission 144. The characteristics of wireless transmissions, as described in the seventh embodiment of the invention in connection with the radio station 102 and its ISP 104, apply in an analogous fashion to the Internet radio 132 and its ISP 142. It should be understood, however, that, as in previous embodiments, the Internet radio 132 can be connected by conventional telephone lines to its ISP 142 if no wireless transmission capability of the ISP 142 exists or if the Internet radio 132 cannot receive wireless transmission.

Although the Internet radio, as previously described, has minimal differences from a conventional radio, such differences being transparent to the user, i.e., a microcontroller, an enhanced version of the Internet radio incorporating within itself many of the capabilities traditionally associated with personal computers, yet easily used by the ordinary consumer, is disclosed below. Such an enhanced Internet radio is shown in several views in Figures 11, 11A and 11B. This enhanced Internet radio 146 allows for an interactive menu of virtually unlimited audio selections, including, but not limited to, live audio broadcasts from major radio stations, historical audio, entertainment audio, educational audios, multi-casting and private custom broadcasts for specialized audiences with common interests. Internet radio 146 can also display on

its LED (Light Emitting Diode) or active matrix or passive matrix LCD (Light Crystal Display) type screen 148 media such as music lyrics and text to teach vocabulary and diction of songs or audiobooks to teach musical scores, biographical information, motion and still commercial advertising and marketing information, and motion and still graphical pictures and text to enhance the mood and listening experience.

In another embodiment of the Internet radio (not shown), the video read-out screen can also be worn as a visor sunglasses type device either separately or as a one-piece unit to provide for automatic hands-free viewing.

In general, the Internet radio can have any variety of downloading capability onto storage, the storage being fixed or removable for subsequent replaying of audio, text and image files. Examples of such storage are memory flash cards, hard, floppy, and hybrid drive combinations, standard and digital audio tapes and any other storage mediums that may present themselves. The storage device, if removable, can be used in an independent walkman type device for portable playing of the files stored. The radio can be connected to the Internet through ordinary phone lines, DSL (Digital subscriber Lines) enhanced telephone lines, Sonet, ATM (Asynchronous Transfer Mode), ONU (Optical Network Line), T1, T3 ISDN, cable television lines, and so forth. The radio can be attached to the Internet via physical wire or wireless and antennae using wireless technologies such as Spread Spectrum technology,

cellular technology, satellite technology and so forth. The enhanced Internet radio can be a portable walkman type device that can replay previously downloaded audio, text, or images or receive audio media and associated text or image files via wireless transmission. The audio and other associated files can be downloaded singly from individual servers and devices or in bulk off central databases with digitized media placed on a computer server to allow for virtually unlimited audio, image, and text files. The radio can accept user input to pay for selected audio and associated files, such as credit card information, pin number, electronic fingerprint, etc., and advertisers can play commercials to provide payment for artists, producers, actors, and studios whose music, audio, and graphics or text is transmitted to the consumer at no cost.

The enhanced Internet radio can offer musical bass and treble equalizing through hardware or software methods. It can also receive and send e-mail in all text, image, and audio forms and can offer a touch screen to provide for input. Such input capability by touch screen or other equivalent method known to those with ordinary skill in the art would optionally allow a user of an enhanced Internet radio to interact with, for example, a radio station transmitting music to which the user is listening by selecting music which the user desires to hear. Of course, in such a case the radio station would, most probably, be required to possess a server or other equivalent electronic equipment to effectively handle the potential myriad of requests from listeners. Furthermore, any capability

to handle multiple types of interaction with users would only increase the demands on such electronic equipment.

The enhanced Internet radio can also be capable of receiving standard am/fm radio broadcasts from radio stations not connected to the Internet and, as well, can be combined with other appliances, such as, for example, a house intercom.

In the particular embodiment of the enhanced Internet radio shown in Figures 11, 11A, and 11B, the touch screen 148 shows a world map which allows the user to indicate by touch a particular geographical area of the world from which he wishes to receive a broadcast. For example, in Figure 11, the user has indicated the eastern half of the United States (indicated in black). The upper part of the screen indicates the time and the radio station and particular program being listened to. There is also on the screen a touch record button 150 giving the user the capability to record the broadcast or another audio selection being played. A mute button 152 allows the user to mute a selection while it is being recorded. The source button 154 allows the user through another screen (not shown) to select a radio station or other source on the Internet or a compact disc (CD), which may be loaded into the enhanced Internet radio, as a source of audio to be played for the listener.

Of course, the CD may be of the type to which audio data can be written as well as read, and, in that case, audio obtained from the Internet may be recorded by a CD placed in the enhanced Internet radio

as it is being listened to by a user. The mode button 156 may, through other screens (not shown), allow the listener to do such things as obtain a timed record of a certain audio selection, set the time kept by the enhanced Internet radio, or adjust the bass, treble, and balance of an audio selection. The station button 158 allows a user, through other screens (not shown), to select a particular station or source on the Internet to which the user wishes to listen. The volume button 160 allows the user to adjust the volume, through other screens (not shown), showing graphically the volume level and its adjustment in real time.

Figure 11A, a side view of the enhanced Internet radio, shows a power switch 162 for turning the unit on and off, a power outlet 164 for wired operation, a CD connection 166 for connection to a CD player playing a CD external to the unit, a connection for earphones 168 to allow the user to listen to the unit through earphones, and a speaker connection 170 to allow the unit to be plugged into speakers for enhanced sound during play. Although the unit can be operated in the wired mode as previously stated, battery-powered operation is equally feasible. A side view also shows a telephone jack connection 172 so that the unit can be connected to conventional telephone lines. As previously stated, however, the unit can be operated in a wireless mode so that it connects to the Internet by wireless reception instead of through conventional telephone lines. The top view, Figure 11B, shows an eject button 174 for use in

removing a CD placed in the enhanced Internet radio for playing and/or recording purposes.

Associated with the enhanced Internet radio is an optional remote control device, controlled by either manual entry or voice entry, of which views are shown in Figures 12 and 12A. The remote control device has the capacity to search the memory of the enhanced Internet radio 146 by such categories as subject, station name, program title or location of station. The database being searched is, of course, internally stored in the memory of enhanced Internet radio 146.

The enhanced Internet radio may optionally be programmed with software enabling it to recognize voices, and to synthesize a voice for the purpose of responding to a limited number of voice commands. Such a capability would potentially greatly reduce the need for the optional remote control device described in the prior paragraph. For example, the user might specify by voice a certain station to which the user desires to listen, and the enhanced Internet radio would tune to that station. If the request of the user was not clear to the enhanced Internet radio, it could ask for clarification using its capability of voice synthesis. As an additional example, the user could request by voice an adjustment of the volume, bass, treble, or balance of an audio selection. The enhanced Internet radio could make a trial adjustment in response to such a request, with a voice synthesized response inquiring of the user whether the adjustment was satisfactory. For example, if the user requested that the

volume be increased, a trial adjustment could be made by the enhanced Internet radio, and the enhanced Internet radio could ask, "Is that loud enough?". Alternatively, an adjustment to the volume could be made by the enhanced Internet radio, without any subsequent voice response by the enhanced Internet radio.

The enhanced Internet radio may also be capable of converting the voice portion of a broadcast into a digital form representing text corresponding to the words spoken by the voice, assuming the enhanced Internet radio has the voice recognition capability mentioned above, and storing the digital data in its memory. The enhanced Internet radio may also be capable of storing in its memory text from text files downloaded from the Internet or received from fixed or removable storage devices. The text can be printed out either by a printer integrally contained within the enhanced Internet radio or, alternatively, the enhanced Internet radio may have a printer port to transmit the digital data corresponding to the voice portion of a broadcast or the text from one or more text files to an attached printer for print out.

The memory of the enhanced Internet radio may be large enough to contain a database of many songs categorized by genre (eg., classical, folk, pop, rock), artist, instruments used, or other classification or such database may be contained on a server connected by the Internet to the enhanced Internet radio. In such case, the user may request a list of songs classified by any of these categories to be displayed on the touch

screen 148 of the enhanced Internet radio or may request a particular song to be played. The request could be entered on the remote control device, assuming the remote control device has the capability to search the song database by the requested category or for the particular song requested. Alternatively, direct voice commands to the enhanced Internet radio would be possible if the voice recognition capability of the enhanced Internet radio mentioned above exists and if the enhanced Internet radio is capable of searching its internal song database or any previously mentioned remotely stored song database by the requested category or for the particular song requested.

Several alternative configurations of the enhanced Internet radio and peripheral accessories are possible.

Figure 13 shows an enhanced Internet radio 176, with earphones connected 178, and the remote control device 180.

Figure 14, in addition to the components shown in Figure 13, adds a set of speakers 182, 184 supported by a shelf 186 on a wall 188, which also supports the enhanced Internet radio 190.

Figure 15 shows the speakers 192, 194 mounted some distance away from the enhanced Internet radio 196 on a supporting wall. The enhanced Internet radio 196 is communicating in a wireless fashion with the speakers 192, and 194.

Figure 16 shows speakers 198, 200, enhanced Internet radio 202, and the remote control device 204, but adds a unit capable of holding

multiple CDs or a hard drive 206 attached to the enhanced Internet radio 202. The enhanced Internet radio 202 is capable of reading and playing audio data stored on the CD or hard drive unit 206 or of storing audio data on the CD or hard drive unit 206.

Fig. 17 shows an eleventh embodiment of the invention. In this embodiment, an Internet television 208 is connected by conventional telephone lines 210 to an ISP 212 providing Internet services to the user of the Internet television 208. A television station 214 is also connected by conventional telephone lines to 216 to ISP 218, likewise providing Internet services to the television station 214. Although the television station 214 may be a conventional television station, it may also be a private transmitter in a residential or other nonconventional location.

When a user of the Internet television 208 desires to select the channel of the television station 214 and view whatever video communication is then being broadcast by that television station 214, the user activates the Internet television 208, which may be battery-powered or connected to a conventional electrical outlet just like a conventional television. The user then selects the channel desired on the Internet television 208 precisely in the same manner the user would select a channel on a conventional television. Upon the channel of the television station 214 being selected, the Internet television 208 will immediately transmit in visible and audible form the broadcast of the television station 214.

The process which insures this result is as follows. The television station 214, at the same time that it generates electromagnetic waves 215, corresponding to the images and audible sounds being generated in its studio, sends out a digital signal 217 over the conventional telephone lines 216 connecting it to its ISP 218. That digital signal 217 preferably also corresponds as fully as do the electromagnetic waves 215 to the images and audible sounds being generated in the studio of the television station 214. Of course, the images and audible sounds being generated in the studio would be produced by a "live performance" of a show or by videotapes being played which could be of any such previous live performance. The digital signal 217 would be "broadcast" to those of the ISPs on the Internet 8 agreeing to receive that signal. Assuming that the user of the Internet television 208 has the Internet television connected to an ISP 212 agreeing to receive the digital signal 217, selecting the channel of the television station 214 on the Internet television 208 will cause the digital signal 217 to travel from the ISP 212 over the conventional telephone lines 210 to the Internet television 208. Once the digital signal 217 is received at the Internet television 208, the Internet television 208 will reconvert the original signal 217 into the original images and audible sounds generated at the studio of the television station 214 by a live performance or by the data recorded on the videotape played at the studio.

The Internet television 208 comprises a microcontroller just as the Internet radio 86 and the telephonic device previously described do. That microcontroller is programmed to convert the selection of a channel in the tuner of an Internet television 208 to a digital signal sent by the Internet television 208 to the ISP 212, which will cause the selection and reception by the Internet television 208 of the digital signals sent by the television station corresponding to the channel selected from all of the television digital signals received by the ISP 212.

The Internet television 208 optionally also possesses the capability to function as a conventional television receiving television signals either through wireless (atmospheric or satellite) transmission of television signals or transmission of those signals over conventional cable networks.

There are several advantages of this embodiment of the invention over conventional wireless television transmission and reception. First, it greatly reduces any problem that the television station might face if it desires to transmit large quantities of information simultaneously. Instead of being limited to a strictly defined bandwidth in airwaves that are increasingly crowded and subject to atmospheric disturbances and interference from other transmission sources, the television station can transmit over a "dedicated" bandwidth of the Internet to certain select users, with the size of the bandwidth only subject to its economic capacity to pay for it and the overall capacity of the Internet. Atmospheric

disturbances, for the most part, need no longer be feared for the potential interference with quality of transmission and reception.

Second, the limited range of transmission of the television station by atmospheric means due to rapid signal attenuation is replaced by the transmission through the Internet, which is only limited by the geographical extent of the Internet and the ISPs to which the television station wishes or is able to transmit the signal.

Fig. 18 shows a twelfth embodiment of the invention. This embodiment differs from the eleventh embodiment in that the television station 220 in this embodiment is not connected to its ISP 222 through conventional telephone lines, but rather relies on the electromagnetic waves 224 of its conventional television transmission to connect with its ISP 222.

The embodiment, of course, assumes that the ISP 222 is capable of receiving wireless communications as well as communications over the conventional telephone lines. Once the electromagnetic waves 224 of the conventional television transmission of the television station 220 are received by the ISP 222, the electromagnetic waves 224 are converted to digital signals 221 which are sent over the Internet 8 as in the eleventh embodiment and received by those ISPs 223 agreeing to receive the digital signals 221 corresponding to the television broadcast of television station 220. As in the eleventh embodiment, the Internet television 225 will receive the digital signals 221 corresponding to the television broadcast of

the television station 220 when the channel of the television station 220 is selected. By this arrangement, the television station 220 can save the expense of the use of conventional telephone lines to connect to its ISP 222 and the expense of any equipment needed to convert or otherwise place its transmission into the form of a digital signal appropriate for travel over conventional telephone lines.

Of course, the advantage of greatly increased bandwidth available to the television station for broadcasts by digital signals sent to its ISP may be somewhat affected by possible interference from other transmission sources and by atmospheric disturbances because of the wireless transmission between the television station 220 and its ISP 222. It should be noted that these factors may also cause degradation of analog and digital radio signals in general, cellular telephone signals, and other analog and digital wireless transmissions. However, if wireless transmissions are sent in digital form such degradation may not prevent successful reception of transmissions due to the availability of numerous and effective error correction schemes. These factors can also be minimized if the ISP 222 is located in proximity to the television station 220 and is able to receive signals over a large bandwidth, even though such a bandwidth may be impossible to employ if wireless transmission is desired directly between the television station 220 and the user of the Internet television 225.

Fig. 19 shows a thirteenth embodiment of the invention. This embodiment differs from the eleventh embodiment in that the Internet television 226 is not connected to its ISP 228 by conventional telephone lines, but, rather, receives a wireless signal 230 from its ISP 228. This, of course, assumes that the ISP 228 is equipped to send out such a wireless signal 230 and to convert the digital signal 232, which it receives from the Internet 8 and which ultimately originated with the television station 234 to such a wireless signal 230. The Internet television 226 in this embodiment must have the capability of receiving the wireless signal 230, in addition to or instead of the capability of receiving digital signals 217 over conventional telephone lines 210 possessed by the Internet television 208 in the eleventh embodiment of the invention. The characteristics of wireless transmissions, as described in the twelfth embodiment of the invention in connection with the television station 220 and its ISP 222, apply in an analogous fashion to the Internet television 226 and its ISP 228. The thirteenth embodiment produces the advantage of a portable Internet television 226 since the Internet television 226 is no longer dependent on a connection to the conventional telephone lines, but can receive a wireless transmission 230 from its ISP 228.

Fig. 20 shows a fourteenth embodiment of the invention. This embodiment differs from the eleventh embodiment in that both the ISP 236 of the television station 238 and the ISP 240 of the user of the Internet television 242 are not connected to the television station 238 and

the Internet television 242 respectively, by conventional telephone lines. Rather, the ISP 236 receives the conventional television transmission 244 of the television station 238 instead, and the Internet television 242 receives a wireless transmission 246 from the ISP 240. The characteristics of the twelfth and thirteenth embodiments of the invention are combined in this embodiment. As previously indicated, the television station 238 saves any expense associated with sending out its separate digital signal over conventional telephone lines to its ISP 236. However, the advantage of greatly increased bandwidth available to the television station 238 in the eleventh embodiment may be somewhat affected by the abandonment of a conventional telephone line connection between the television station 238 and the ISP 236, although, as before commented, the use of digital wireless transmissions and a proximity between the television station 238 and the ISP 236 may largely obviate any such possible effect. Furthermore, as previously noted, the Internet television 242 is rendered portable as it no longer depends on a digital signal transmitted to it over conventional telephone lines, but rather receives the wireless transmission 246 sent to it by its ISP 240. Finally, the characteristics of wireless transmissions, as described in the twelfth embodiment of the invention in connection with the television station 220 and its ISP 222, apply in an analogous fashion to the Internet television 242 and its ISP 240.

Fig. 21 shows a fifteenth embodiment of the invention. In this embodiment, an Internet television 248 is capable of receiving a

wireless transmission 250 from its ISP 252. The ISP 252 has converted a digital signal 254 which the ISP 252 has received from the Internet 8. That digital signal 254 ultimately has originated with a source of video information 256 connected to the Internet 8 through conventional telephone lines 258 and its ISP 260. The source of video information or "Internet television station" 256 can in all respects be the same as a conventional television station, except that the source of video information 256 has no capability of atmospheric or other wireless transmission of the video information which it generates. It thus only has the capability to broadcast any video information, which it has previously stored or creates on a live basis, through the Internet or other computer network, but not through atmospheric or other wireless transmission.

An Internet television station 256 could optionally broadcast only subject matter restricted in certain ways such, as for example, television programs related to a certain ethnic group, television programs directed only to children, or television programs containing no sexual references or other material objectionable to certain listeners for religious or other moral reasons.

The wired connection of the Internet television station would produce the previously discussed advantages of greatly increased bandwidth available to the eleventh embodiment of the invention, while saving the Internet television station the expense of both the equipment and power consumption involved in conventional wireless transmission. The

digital signal 254 sent out by the Internet television station 256 would, as in the eleventh embodiment of the invention, be relayed over the Internet 8 to the ISP 252 of the user of the Internet television 248, again assuming that the ISP 252 has agreed to receive the digital signal 254. The characteristics of wireless transmissions, as described in the twelfth embodiment of the invention in connection with the television station 220 and its ISP 222, apply in an analogous fashion to the Internet television 248 and its ISP 252, and also render the Internet television 248 portable, as the Internet televisions receiving wireless transmissions in previous embodiments of the invention were portable. It should be understood, however, that, as in previous embodiments, the Internet television 248 can be connected by conventional telephone lines to its ISP 252 if no wireless transmission capability of the ISP 252 exists or if the Internet television 248 cannot receive wireless transmission.

Fig. 22 shows a portion of the sixteenth embodiment of the invention. This embodiment differs from the eleventh embodiment of the invention in that the television 261 does not comprise an internal microcontroller as the eleventh embodiment of the invention does. Instead, a microcontroller is contained within an external set top box 263 and, thus, the television 261 itself is, in all respects, a conventional television. The microcontroller in the set top box 263 performs the same function with respect to the television 261 as the microcontroller in the

eleventh embodiment of the invention performed with respect to the Internet television 208.

Although the Internet television, as previously described, has minimal differences from a conventional television, such differences being transparent to the user, i.e., a microcontroller, an exemplary enhanced version of the Internet television incorporating within itself many of the capabilities traditionally associated with personal computers, yet easily used by the ordinary consumer, is disclosed below. Such an enhanced Internet television is included in Fig. 23 which shows an enhanced Internet television 262 and a remote control device 264 to control the enhanced Internet television 262 in a remote fashion. The enhanced Internet television allows for an interactive menu of virtually unlimited video selections, including, but not limited to, live television broadcasts from major television networks, cable TV, satellite TV, historical videos, entertainment videos, educational videos, multi-casting, and private or custom broadcasts for specialized audiences with common interests.

The Internet television can also display on a LED (Light Emitting Diode) or LCD (Liquid Crystal Display), for example, active matrix or passive matrix, type screen media such as music lyrics and text to teach vocabulary and diction of songs or audio books, musical notes to teach scores, biographical information, motion and still commercial

advertising and marketing information, and motion and still images and text.

In another embodiment of the enhanced Internet television (not shown), the video screen can also be worn as a visor sunglasses type device, either separately or as a one-piece unit to provide for automatic hands-free viewing.

The enhanced Internet television can have any variety of downloading capability onto storage, the storage being fixed or removable for subsequent replaying of video files combined with soundtrack and, possibly, text. Examples of such storage are memory flash cards, hard, floppy, and hybrid drive combinations, standard and digital videotapes and any other storage media that present themselves. The enhanced Internet television can be connected to the Internet or other computer network through ordinary telephone lines, DSL (digital subscriber lines), enhanced phone lines, Sonet, ATM (Asynchronous transfer mode), ONU (Optical Network Line), T1, T3, ISDN, cable TV lines, and so forth. The enhanced Internet television can be attached to the Internet or other computer networks by physical wire or wireless antenna using wireless technology such as spread spectrum technology, cellular technology, satellite technology, and so forth. The enhanced Internet television may be a portable walkman type device that can replay previously downloaded video files with audio soundtrack and possibly, text, or receive such audio/video/text media via wireless transmission. Removable storage

devices can be used to store any audio/video/text files played on a portable walkman type enhanced Internet television. The audio/video/text files can be downloaded singularly from individual servers and devices or in bulk off central databases with digitized media placed on a computer server to allow for virtually infinite storage of such media.

The enhanced Internet television can accept user input to pay for selected audio/video/text files such as credit card information, pin numbers, fingerprint I.D. or other means, and advertisers can play commercials to provide payment for artists, producers, actors, and studios whose audio/video/text files are played to the consumer at no cost. The enhanced Internet television can provide color, contrast, and tint adjustments to video reception, and bass, balance, and treble equalizing to the associated soundtrack through hardware or software methods.

The enhanced Internet television can also receive and send e-mail in all text, audio, and video forms and can offer a touch screen, keyboard, or other remote control device, including, for example, voice control, to provide input and control of the enhanced Internet television. This input and control function can be used, analogously to the input capability of the enhanced Internet radio, to allow the user of an enhanced Internet television to interact with, for example, a television station transmitting a television broadcast to a user. The potential for such interaction is enormous, including any type of interaction that may be embodied in electromagnetic signals tramsmitted from the user to the

television station, and responsive signals of the same type from the television station to the user. Such possibilities include, for example, voting by users on various questions presented during a broadcast, responses to a fundraising or shop at home program, or the selection by users from multiple choices of plots for television shows. Such interactive possibilities may, for example, be by voice, video, text, or other modes of communication. Of course, television stations offering such interactive capabilities to viewers will require electronic and computing equipment to handle the data transmission and reception requirements for multiple users with perhaps multiple types of requests.

The enhanced Internet television may also be capable of receiving standard television broadcasts from television stations not connected to the Internet and, as well, may be combined with other appliances, such as, for example, a house intercom.

The enhanced Internet television may optionally be programmed with software enabling it to recognize voices, and to synthesize a voice for the purpose of responding to a limited number of voice commands. Such a capability would potentially greatly reduce the need for the optional remote control device described previously. For example, the user might specify by voice a certain station to which the user desires to listen, and the enhanced Internet television would tune to that station. If the request of the user was not clear to the enhanced Internet television, it could ask for clarification using its capability of

voice synthesis. As an additional example, the user could request by voice an adjustment of the volume, color, contrast, tint, bass, treble, or balance of a television broadcast. The enhanced Internet television could make a trial adjustment in response to such a request, with a voice synthesized response inquiring of the user whether the adjustment was satisfactory. For example, if the user requested that the volume be increased, a trial adjustment could be made by the enhanced Internet television, and the enhanced Internet television could ask, "Is that loud enough?". Alternatively, an adjustment to the volume could be made by the enhanced Internet television, without any subsequent voice response by the enhanced Internet television.

The enhanced Internet television may also be equipped with a memory and programmed with software capable of converting the video image at any instant shown on the television screen into digital form capable of being stored in the memory. The software may also be capable of voice recognition, as mentioned above, and capable of converting the voice portion of a broadcast into a digital form, representing text corresponding to the words spoken by the voice, which can be stored in the memory. The enhanced Internet television may also be capable of storing in its memory text from text files downloaded from the Internet or received from fixed or removable storage devices. Such video image or such text corresponding to a text file or the voice portion of a broadcast may be printed out either by a printer integrally contained within the

enhanced Internet television or, alternatively, the enhanced Internet television may have a printer port to transmit the digital data corresponding to the video image or the voice portion of a broadcast or the text from one or more text files to an attached printer for print out.

A database of many television broadcasts categorized by genre (eg., news, documentary, situation comedy, drama), actor, television network, or other classification may be contained on a server connected by the Internet to the enhanced Internet television. In such a case, the user may request a list of television broadcasts classified by any of these categories to be displayed on the LED or LCD type screen of the enhanced Internet television or may request a particular television broadcast to be played. The request could be entered on the remote control device, assuming the remote control device has the capability to search the television broadcast database by the requested category or for the particular television program requested. Alternatively, direct voice commands to the enhanced Internet television would be possible if the voice recognition capability of the enhanced Internet television mentioned above exists and if the enhanced Internet television is capable of searching the television broadcast database by the requested category or for the particular television program requested.

Several alternative configurations of the enhanced Internet television and peripheral accessories are possible.

Fig. 24 shows an enhanced Internet television 266 with wall-mounted speakers 268, 270 and a remote control device 272.

Fig. 25 shows an enhanced Internet television 274 with free-standing speakers 276, 278 held on a shelf 280 projecting from a wall 282. In addition, a remote control device 284 for input and control of the enhanced Internet television is also shown.

Fig. 26 shows an enhanced Internet television 286 with wall-mounted speakers 288, 290 and a remote control device 292. In addition, compact disc reader or hard drive 294 is attached to the enhanced Internet television 286. Compact disc reader or hard drive 294 is capable of reading and/or storing video files with associated soundtrack to be played or recorded by the enhanced Internet television 286.

It should be understood that all references to the Internet herein are meant to be exemplary only since this invention will allow telephonic or other data communications over other computer networks than the Internet such as, for example only, Bitnet, local area networks (LANs), and wide area networks (WANs) by analogous methods well known to those with ordinary skill in the art. It should also be understood that music or other sounds as well as the human voice may be transmitted over the telephonic devices contemplated herein, just as conventional telephones can transmit a variety of sounds. It should also be understood that when we have referred to conventional telephone lines connecting the telephones or any of the other devices in any one of the embodiments

above to either an ISP or telephone switching equipment, such conventional telephone lines can include high capacity lines, such as, for example, a T1 line, a line primarily carrying cable television (with or without a cable modem), a Digital Subscriber Line (DSL), or an ISDN line, which will allow many telephones or any of the other devices to be connected to the ISP or switching equipment over one high capacity line. This can be done so long as a network server, which is a dedicated computer, or other equivalent device acts as an interface between the high capacity line and the individual telephones. Finally, all references to a microcontroller should be understood as being exemplary only since any programmable electronic device will serve the purpose contemplated by this invention just as effectively.

It should also be understood that, in the sixth through tenth embodiments of the invention, the radio station to which the user of an Internet radio is listening may, optionally, decide to eliminate the need for an ISP interposed between it and the Internet through the use, at the radio station, of a server or equivalent electronic equipment normally used by ISPs to connect their customers to the Internet. The radio station, in such a case, would be connected directly to the Internet without the use of an ISP and would, thus, become its own ISP.

An analogous variation on the eleventh through sixteenth embodiments of the invention would result from a television station

dispensing with an ISP and becoming its own ISP by the installation of the necessary servers or equivalent electronic equipment.

It should also be understood that in the event multiple devices of various kinds similar to those described above are all located in one residence or building and are all connected to the Internet such as, for example, telephonic devices, Internet radios, and Internet televisions, they may connected to the Internet through one master control unit which will receive one data stream from the Internet for all these devices and direct the appropriate portion of the data stream to the appropriate device. The use of the master control unit to connect to the Internet will obviate the otherwise existing need for each device to be independently connected to the Internet.

While preferred embodiments have been described herein, it will be understood by those with ordinary skill in the art that various modifications, changes, or alterations may be made to the invention disclosed and described herein without departing from its scope or its equivalent as claimed in the appended claims. For instance, it may easily be imagined that one of the telephonic devices described herein may be connected to more than one computer network simultaneously upon suitable programming of its microcontroller or that the telephone switching equipment described in connection with Fig. 3 may be connected to and allow communication on more than one computer network simultaneously.

Other modifications too numerous to mention will easily occur to one of ordinary skill in the art.

What is claimed is:

1. A device for receiving digital signals corresponding to at least video communication from at least one source of video communication and causing a user of said means to sense said video communication, said device comprising:

a means for selecting a source from said at least one source; and

a means for converting said digital signals into said video communication;

said device for receiving digital signals being connected to at least one computer network, said digital signals traveling over said at least one computer network.

2. A device for receiving digital signals as claimed in Claim 1, wherein said connection to said at least one computer network comprises conventional telephone lines and a provider of service with respect to said at least one computer network.

3. A device for receiving digital signals as claimed in Claim 1, wherein said connection to said at least one computer network comprises a wireless connection between said means for receiving digital signals and a provider of service for said at least one computer network.

4. A device for receiving digital signals as claimed in Claim 1, wherein said at least one source comprises a television station.

5. A device for receiving digital signals as claimed in Claim 4, wherein said television station is connected to said at least one computer network by conventional telephone lines and a service provider for said at least one computer network.

6. A device for receiving digital signals as claimed in Claim 4, wherein said television station is connected to said at least one computer network by wireless communication with a service provider for said at least one computer network.

7. A device for receiving digital signals as claimed in Claim 4, wherein said television station transmits television signals by wired means only, said wired means consisting of said at least one computer network.

8. A device for receiving digital signals as claimed in Claim 7, wherein said television station transmits television broadcasts of restricted content.

9. A device for receiving digital signals as claimed in Claim 7, wherein said television station transmits television broadcasts directed to a limited audience.

10. A device for receiving digital signals as claimed in Claim 1, wherein said at least one source comprises a means for storing said video communication.

11. A device for receiving digital signals as claimed in Claim 1, wherein said means for receiving digital signals further comprises a LED (Light Emitting Diode) or active matrix or passive matrix LCD (Liquid Crystal Display) screen.

12. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises a means for recording said video communication.

13. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises earphones and speakers.

14. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises a means for controlling contrast, tint and brightness of said video communication.

15. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises a means for searching, by at least one criterion, a database contained within said means for receiving digital signals.

16. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises a means for storage of said video communication.

17. A device for receiving digital signals as claimed in Claim 1, wherein said video communication comprises images and associated soundtrack.

18. A device for receiving digital signals as claimed in Claim 1, wherein said device for receiving digital signals further comprises:

a means for entry of input to be sent to said source; and

a means for converting said input to digital signals to be transmitted to said source over said at least one computer network.

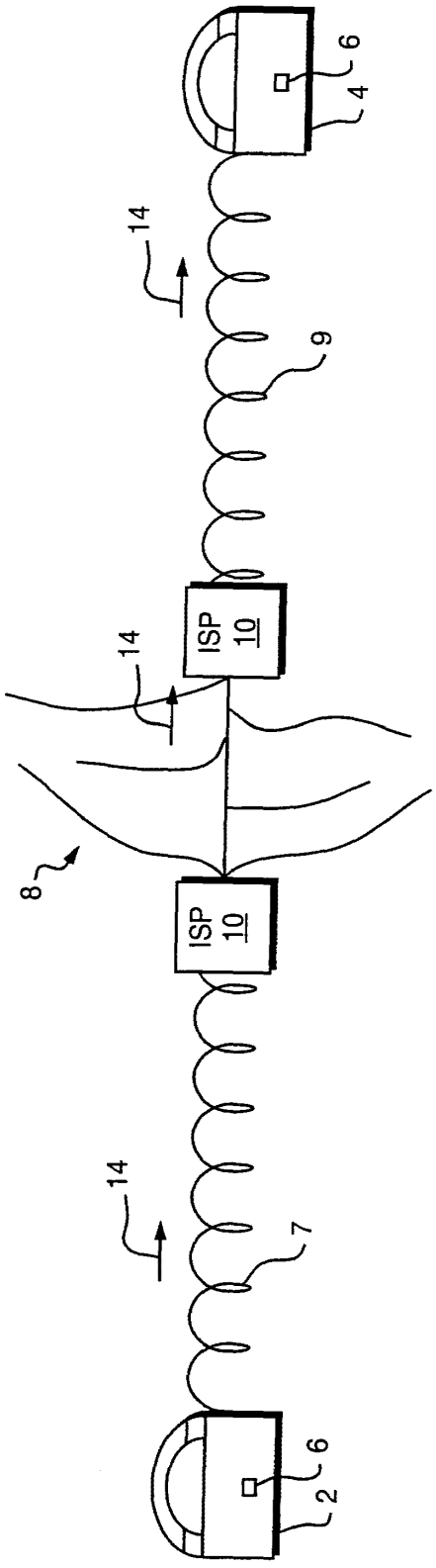


FIG. 1

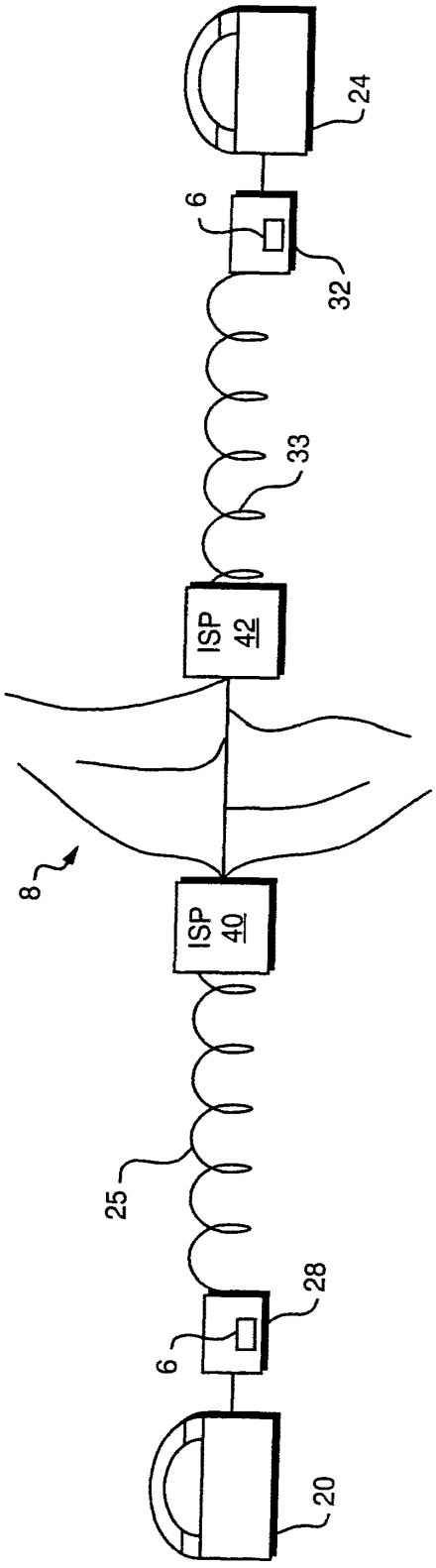


FIG. 2

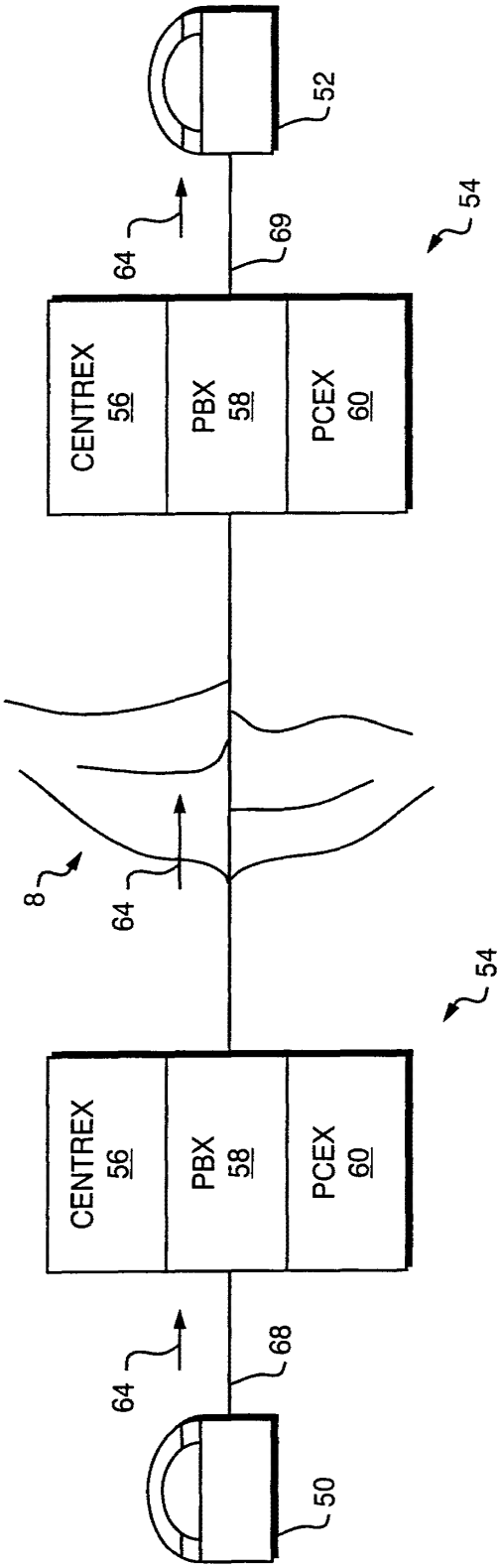

52
54
64
69
CENTREX 56
PBX 58
PCEX 60
8
64
54
CENTREX 56
PBX 58
PCEX 60
64
68
50

FIG. 3

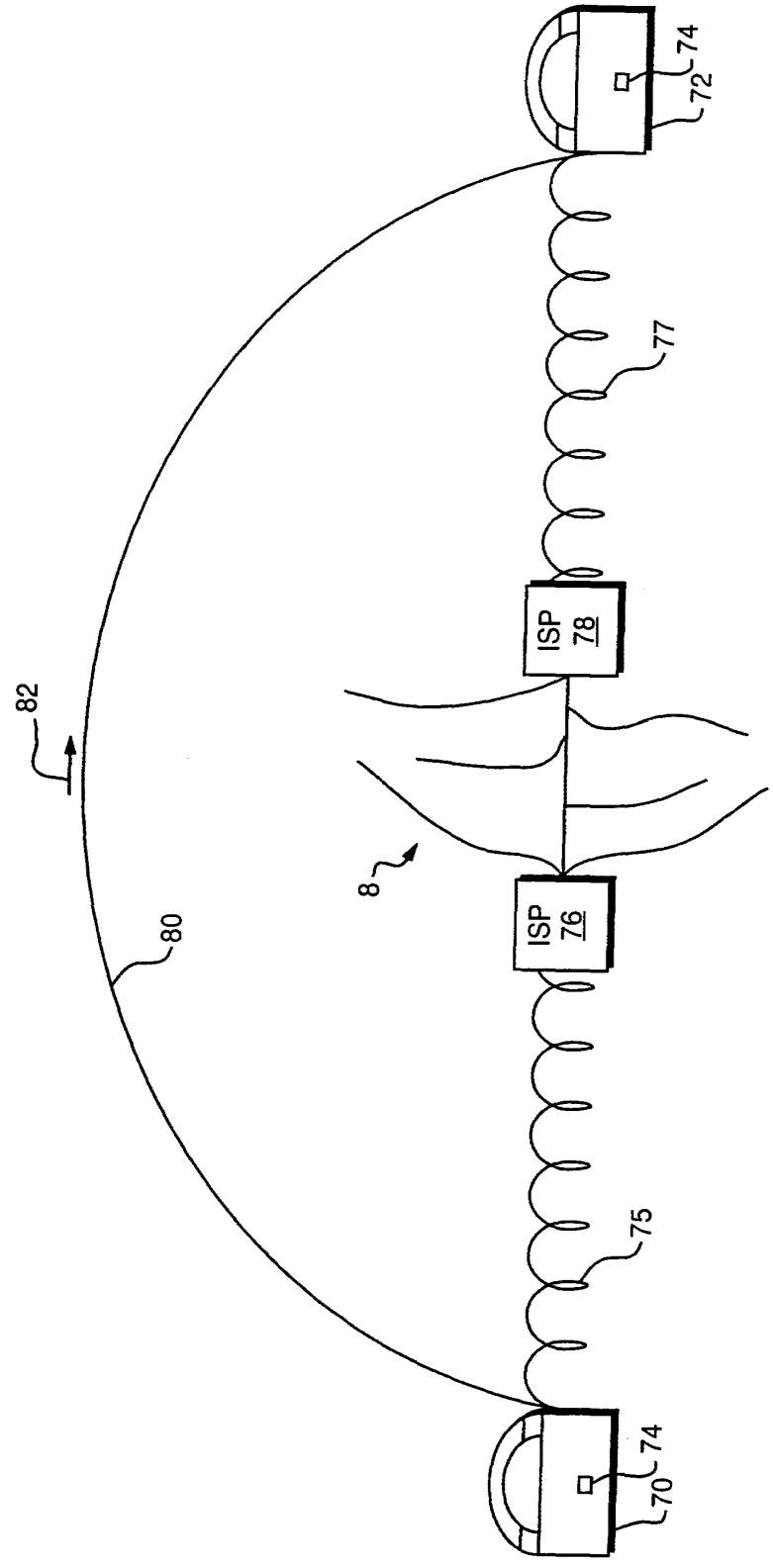


FIG. 4

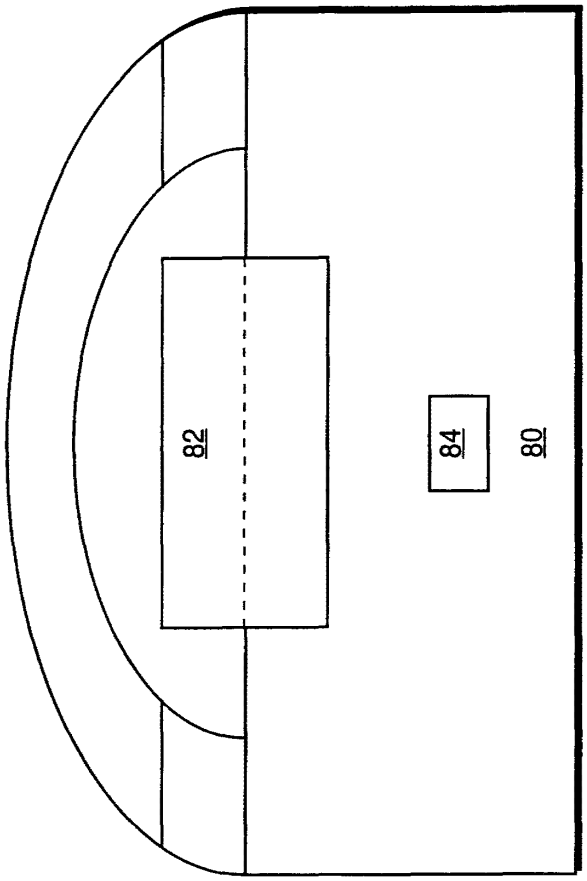


FIG. 5

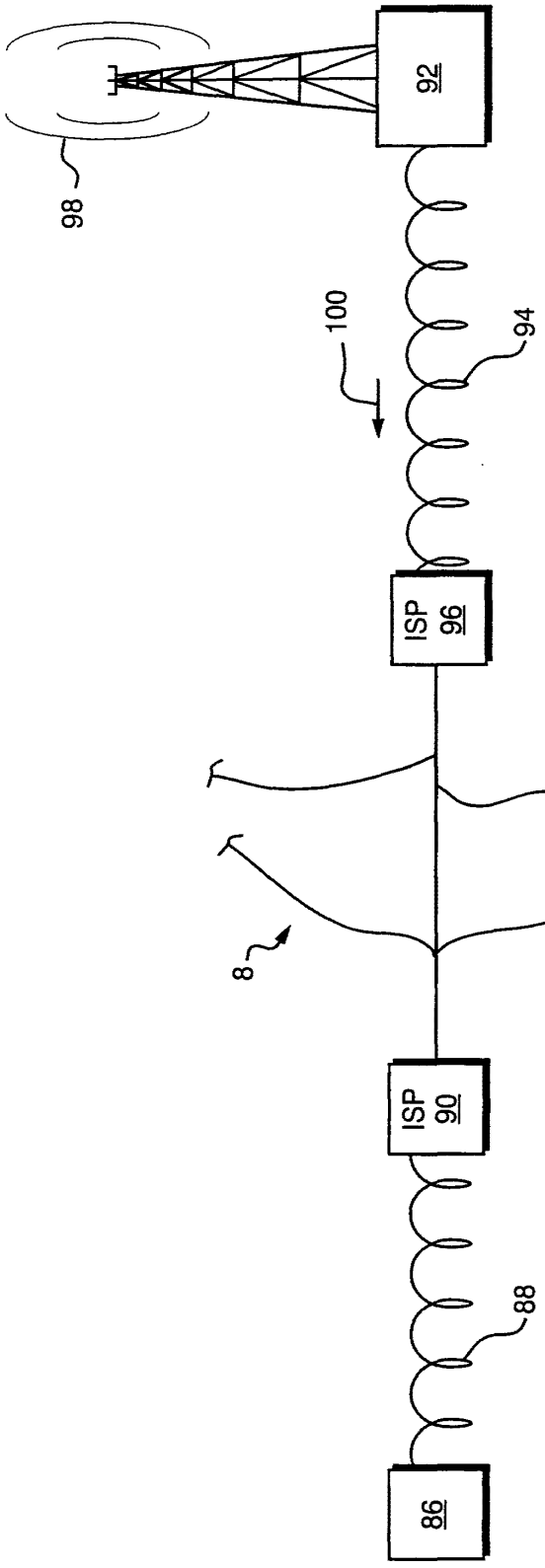


FIG. 6

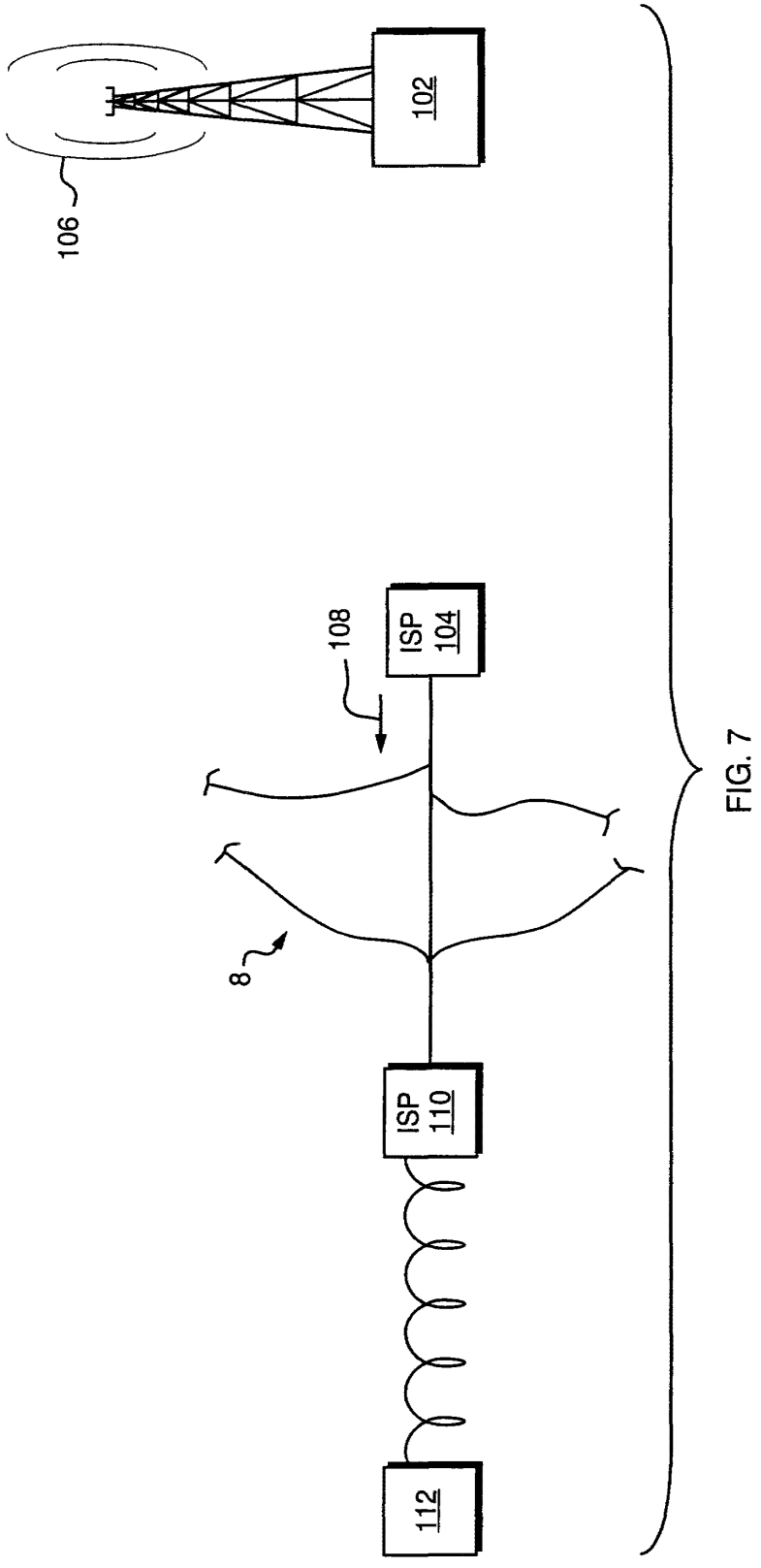


FIG. 7

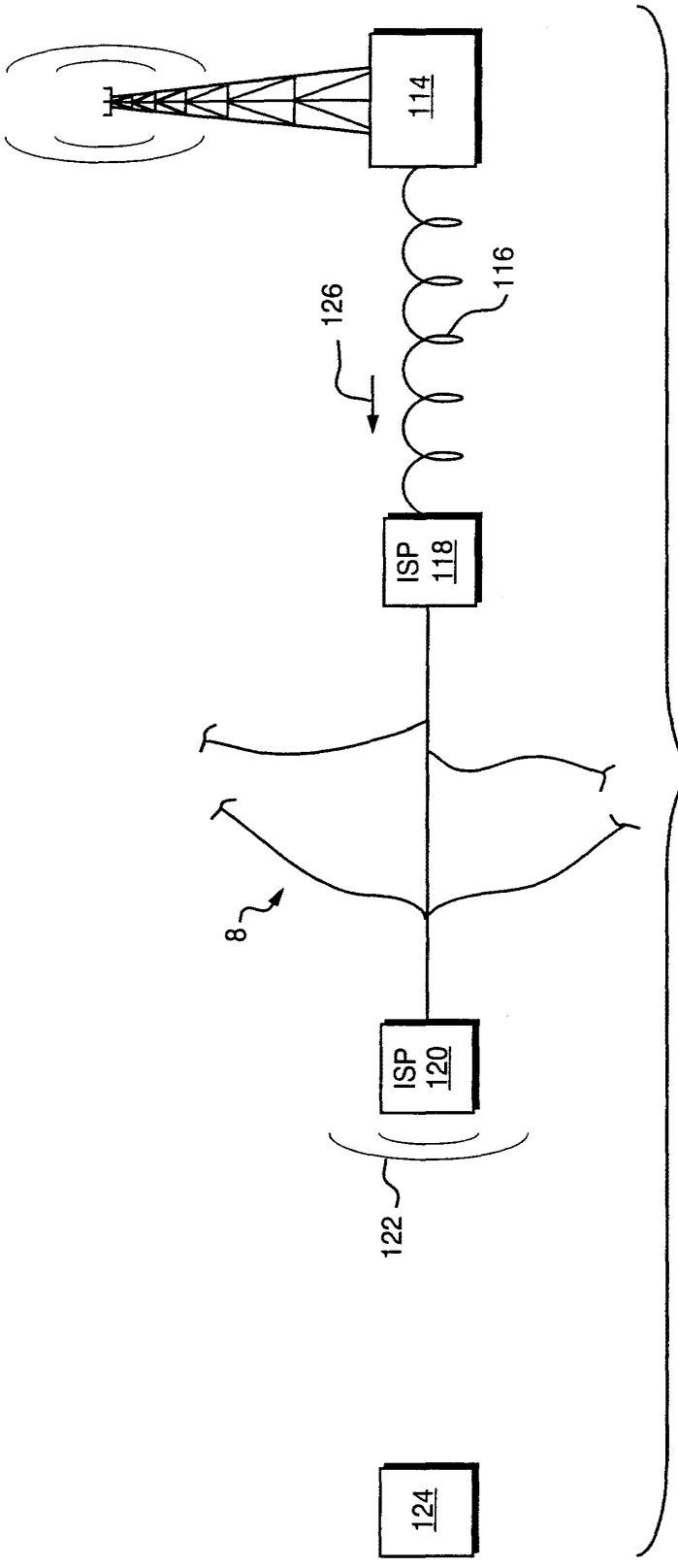


FIG. 8

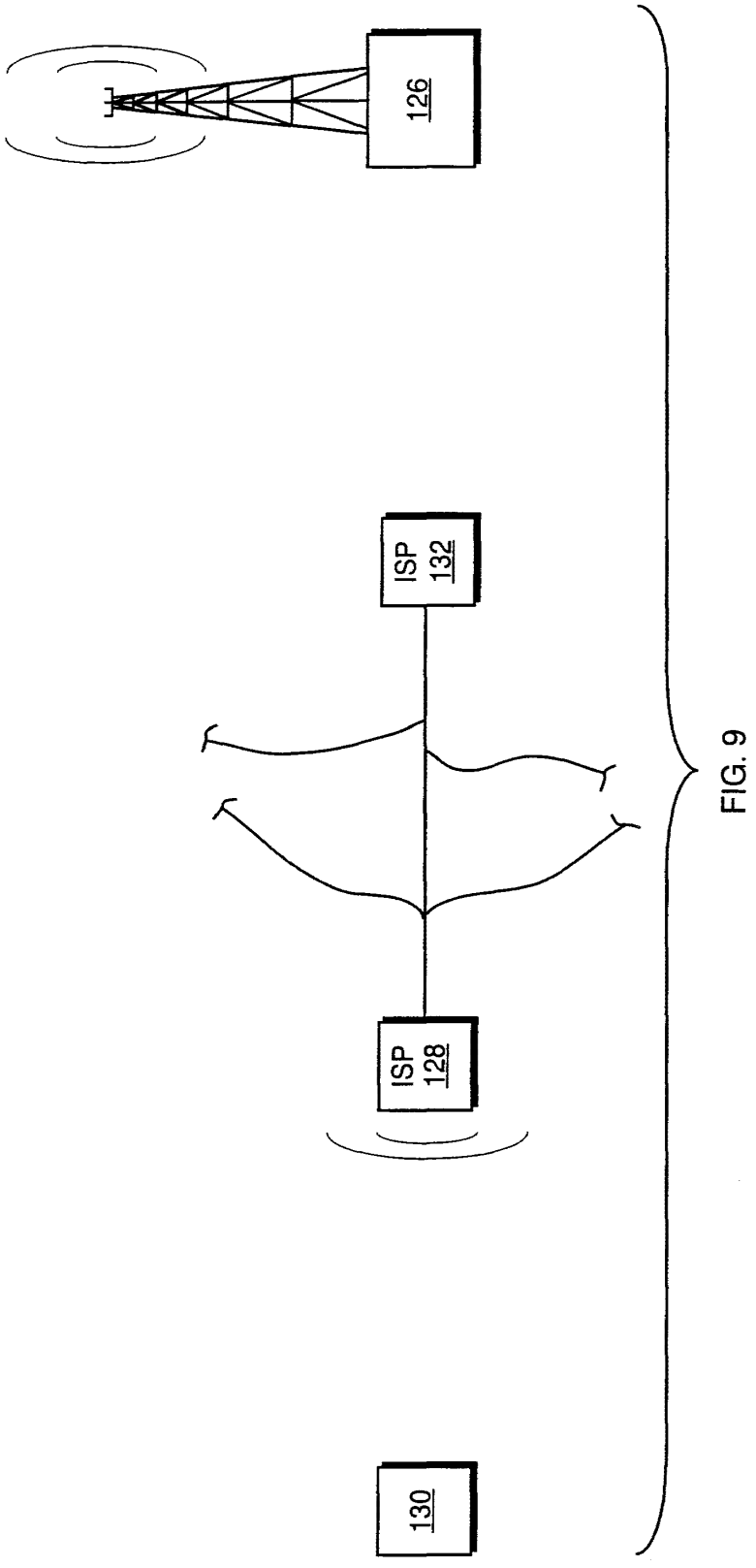


FIG. 9

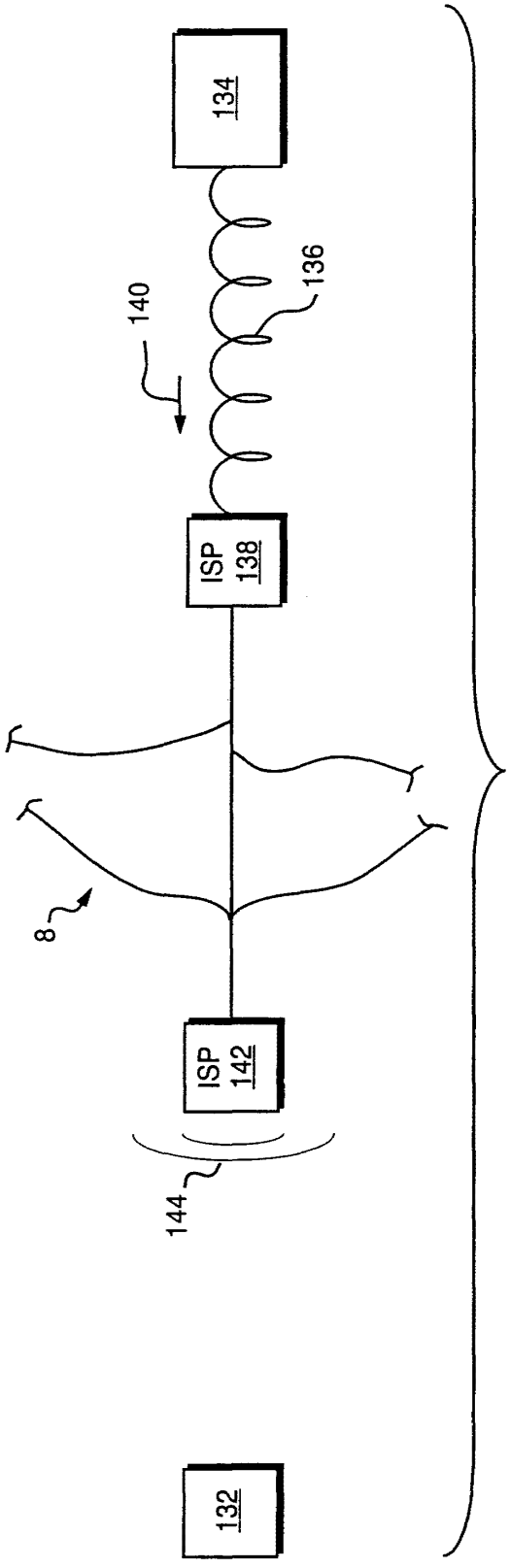


FIG. 10

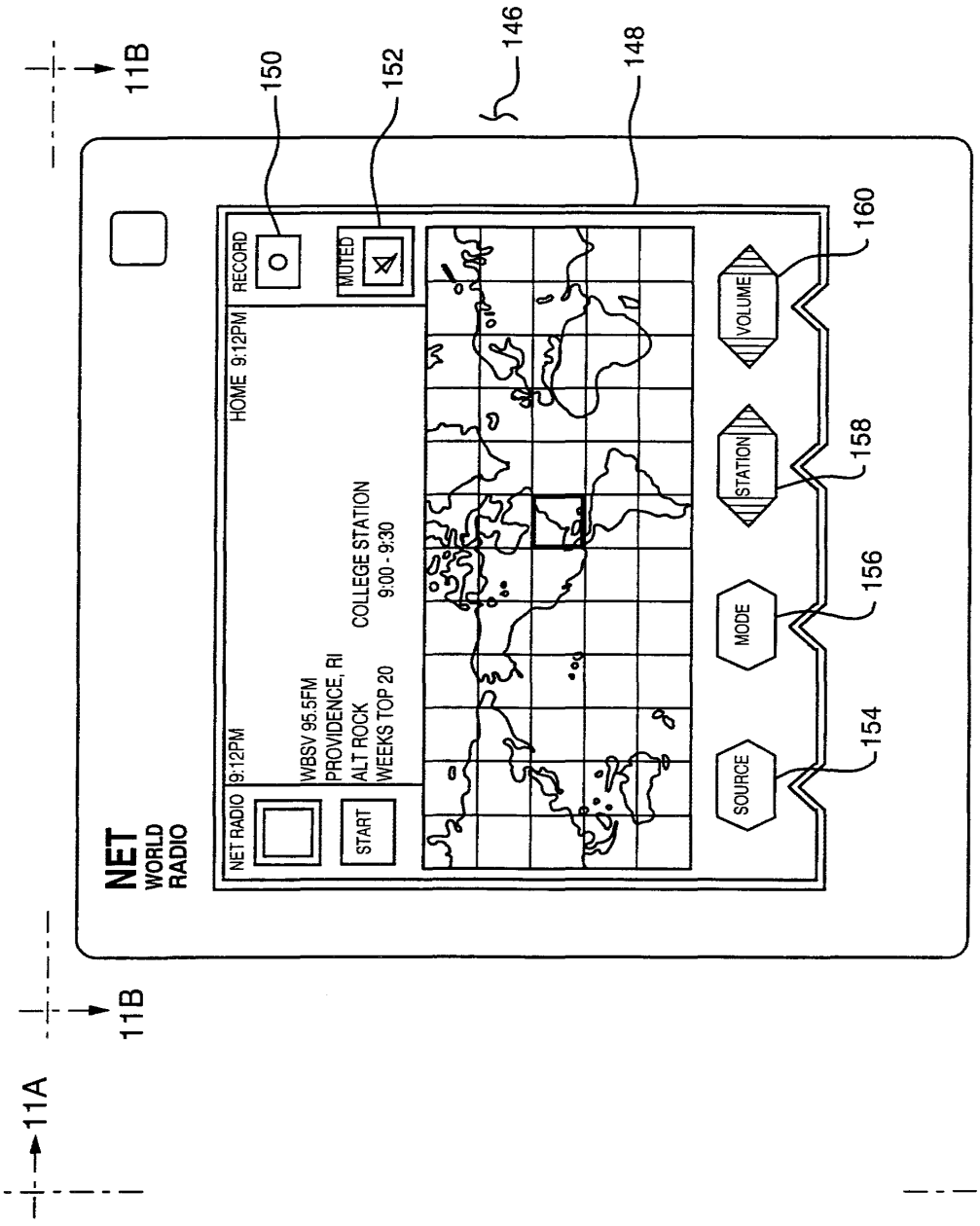


FIG. 11

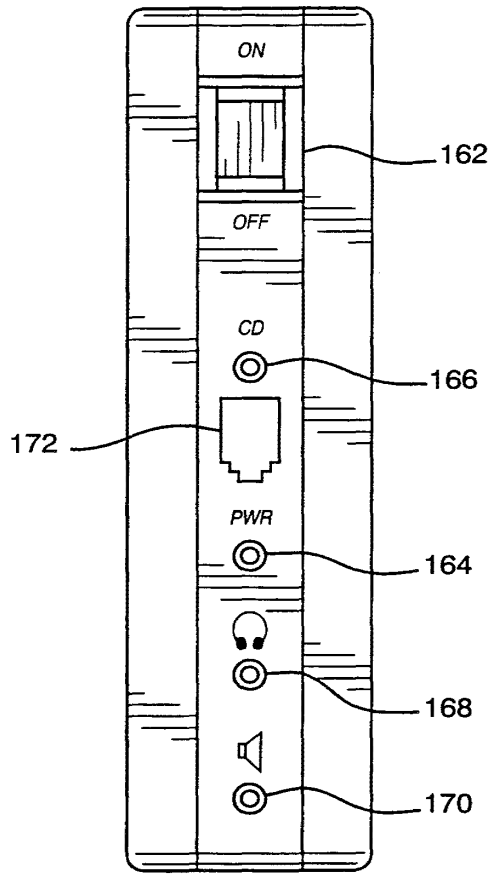


FIG. 11A

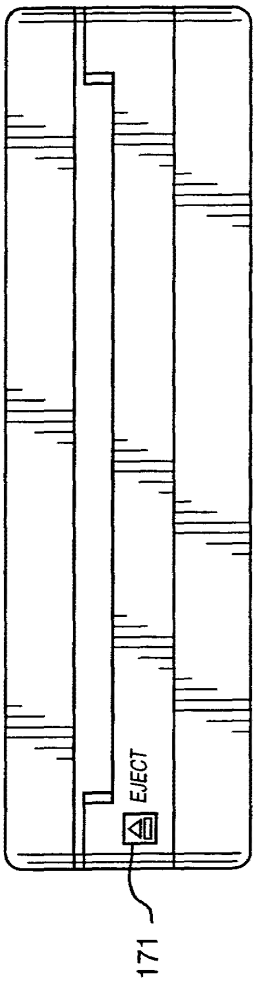


FIG. 11B

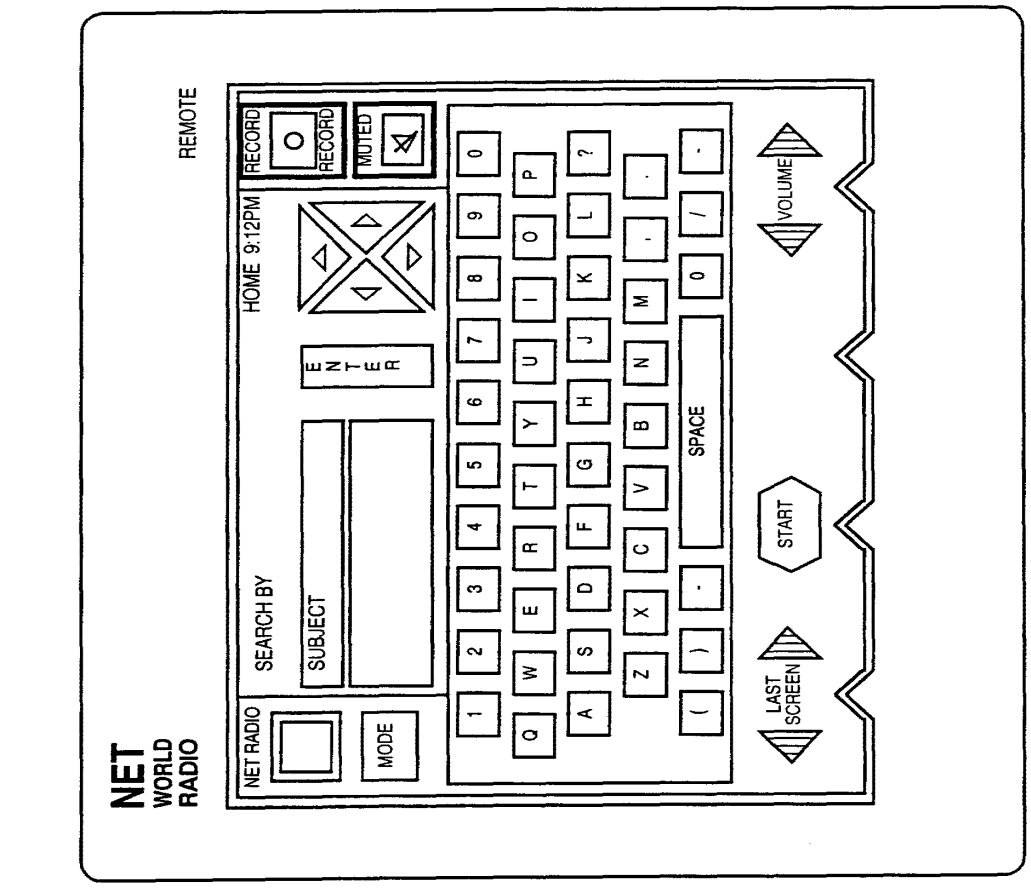

REMOTE
NET
WORLD
RADIO
NET RADIO
MODE
SEARCH BY
SUBJECT
HOME 9:12PM
ENTER
RECORD
RECORD
MUTED
VOLUME
LAST SCREEN
START
SPACE
12A
12A

FIG. 12

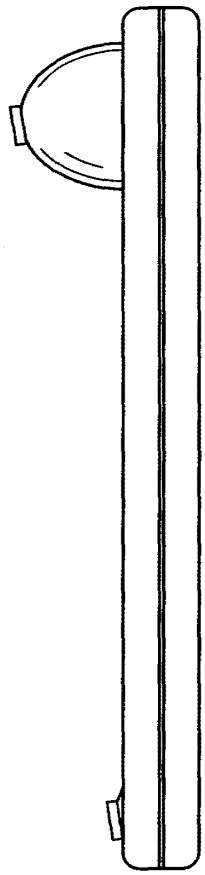


FIG. 12B

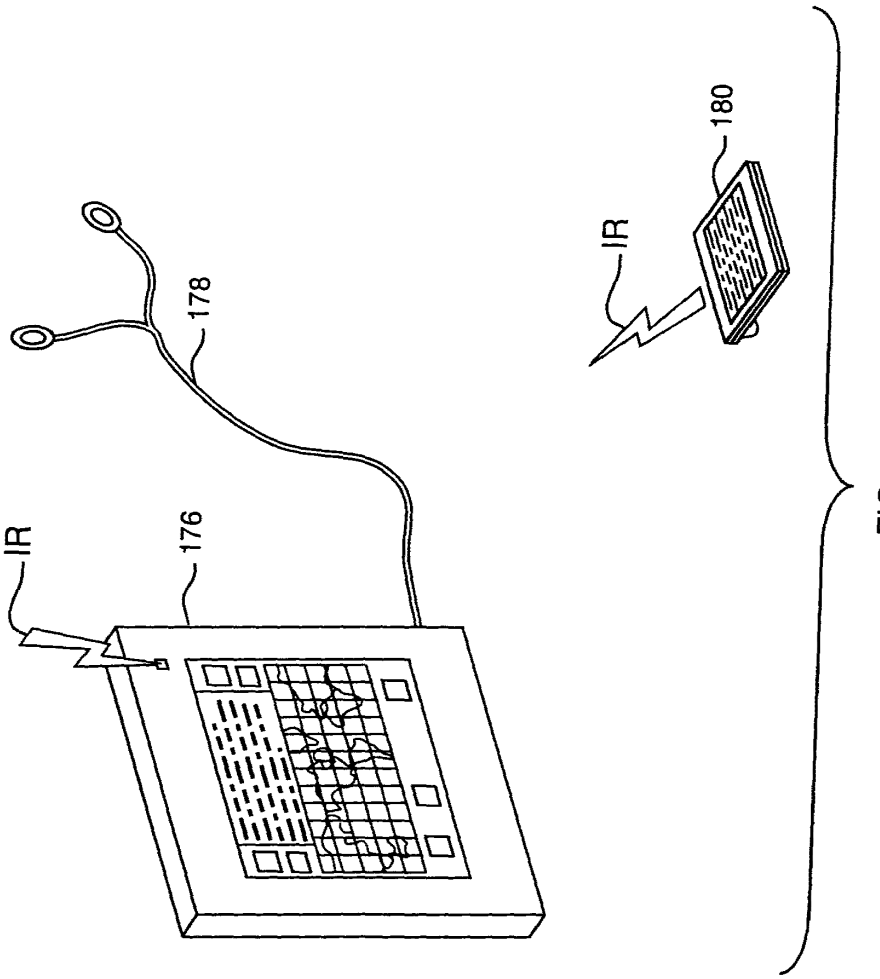


FIG. 13

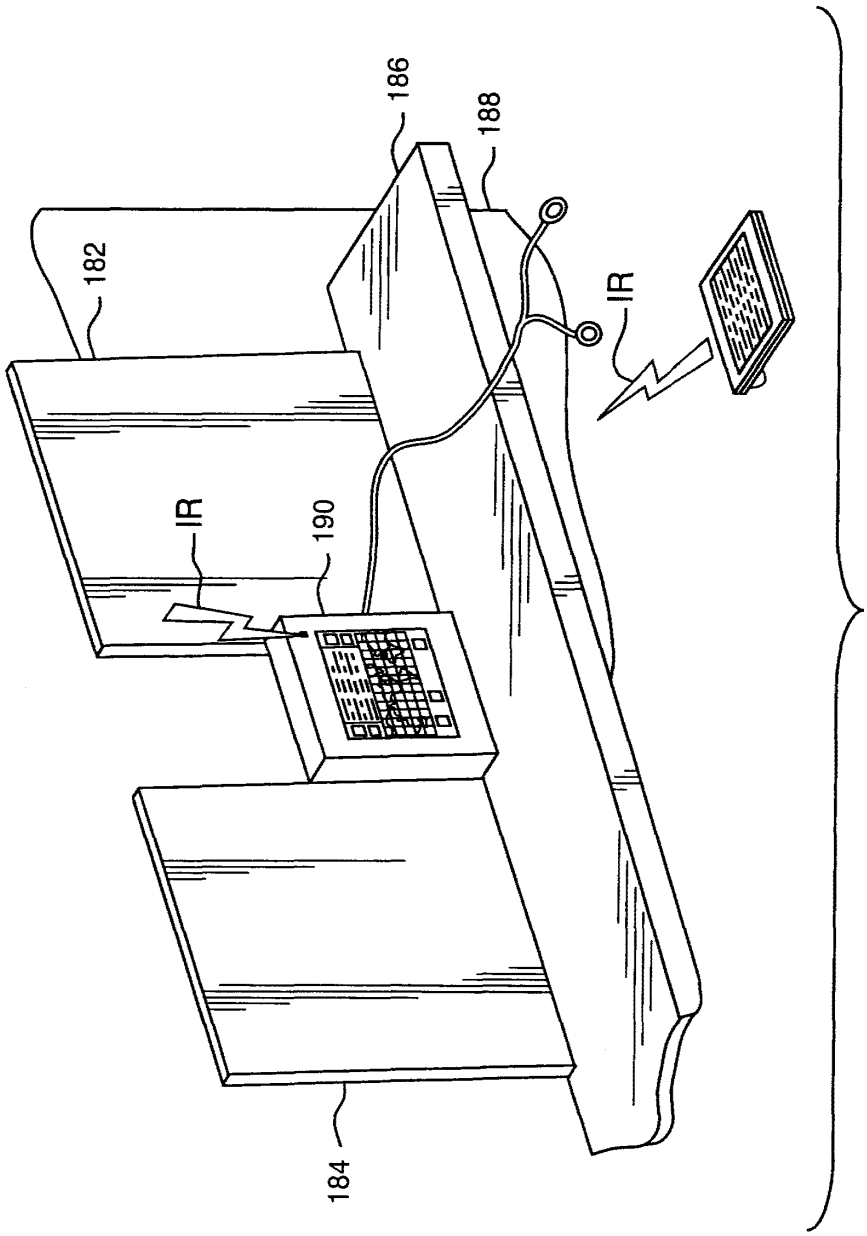


FIG. 14

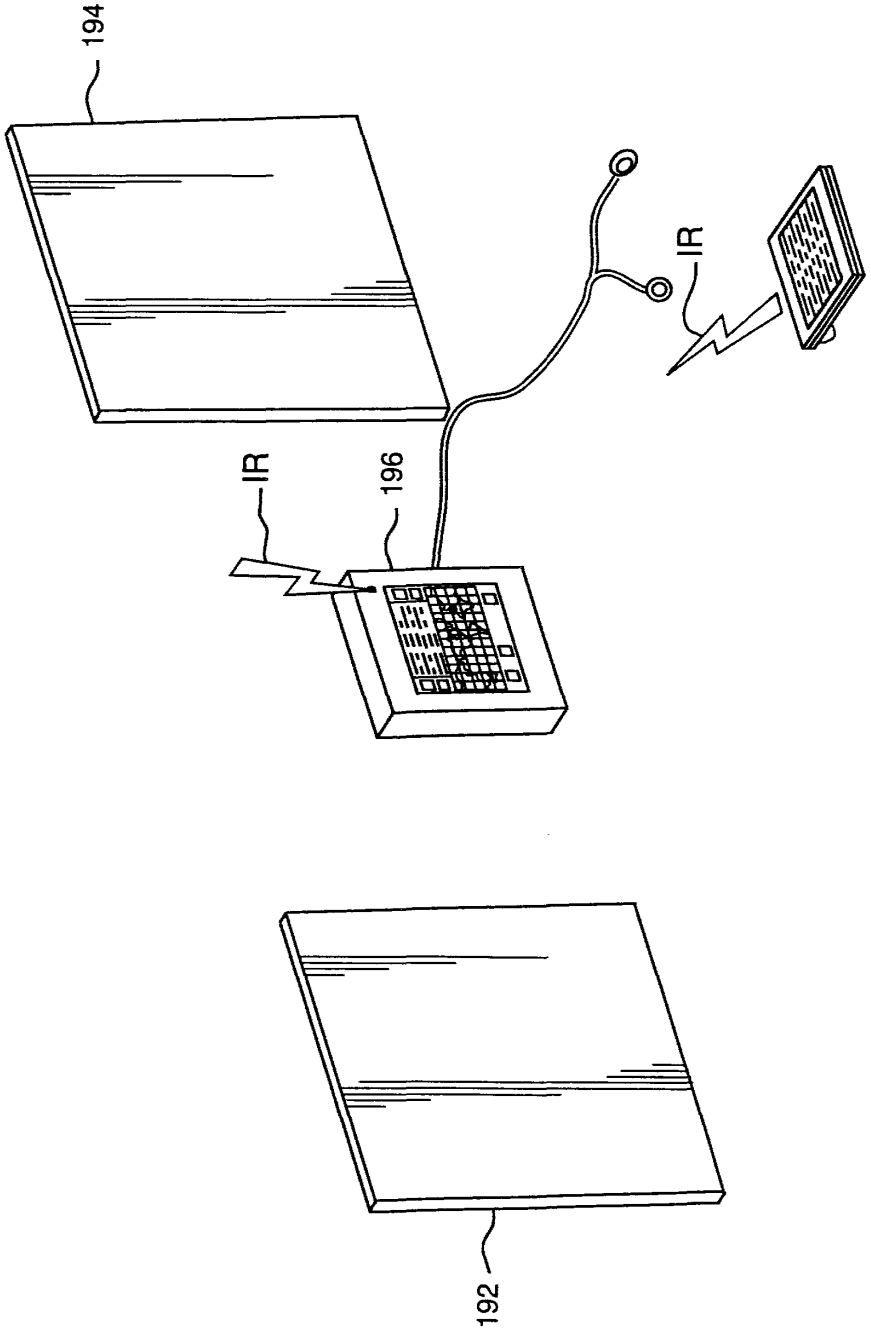


FIG. 15

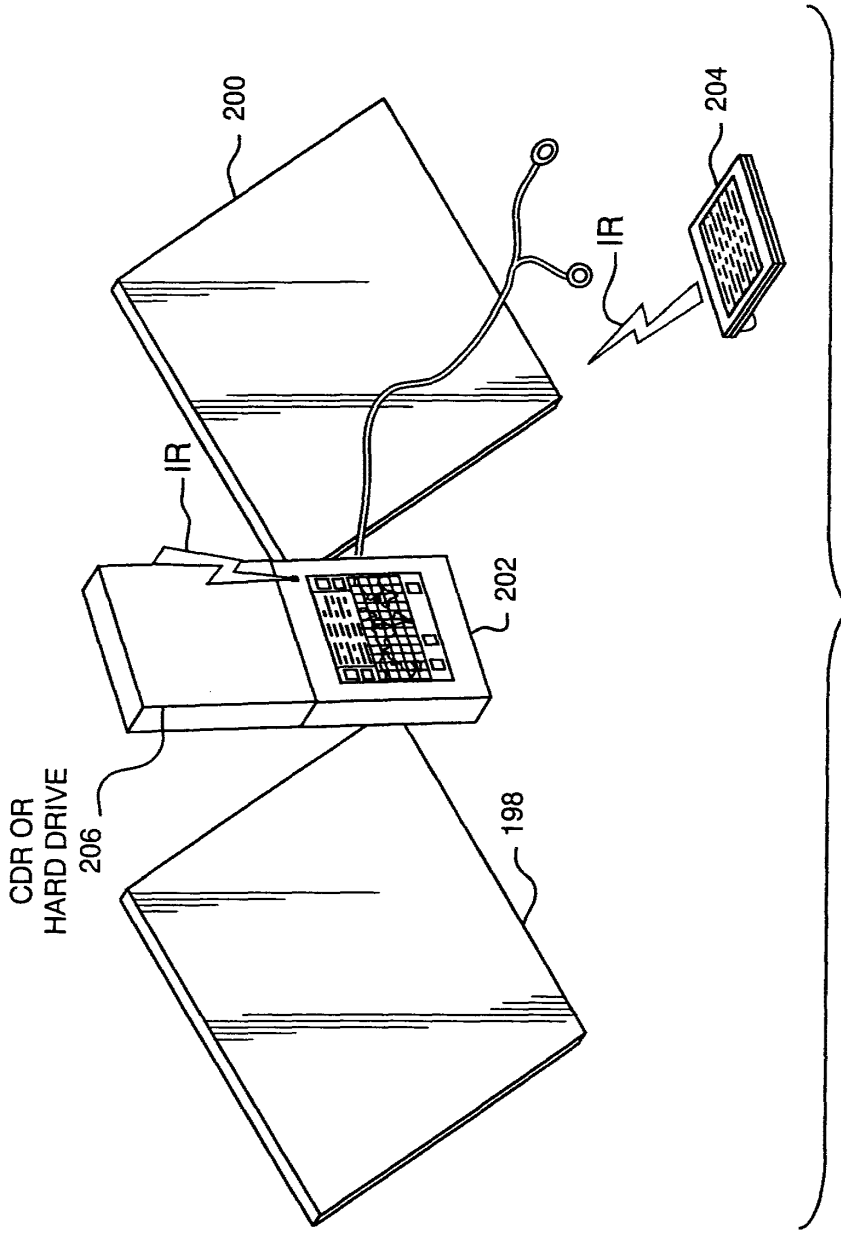


FIG. 16

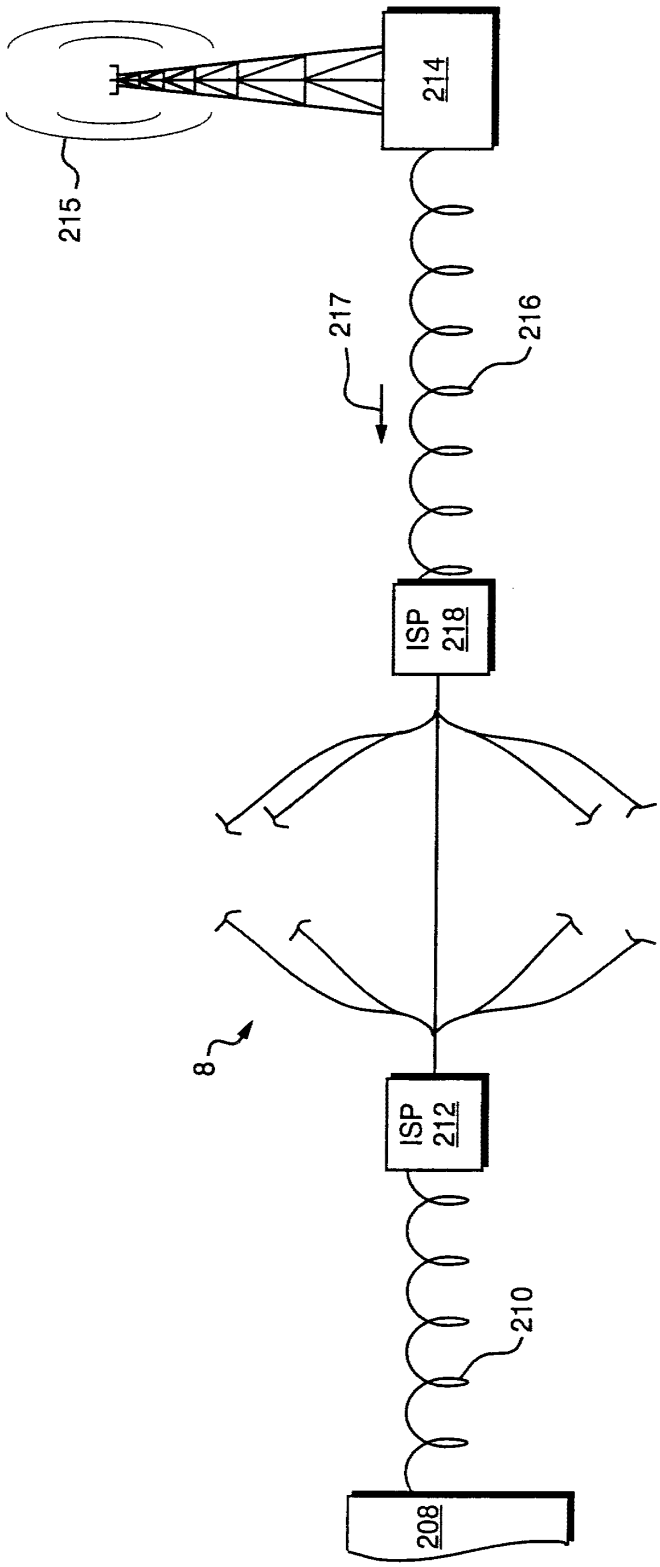


FIG. 17

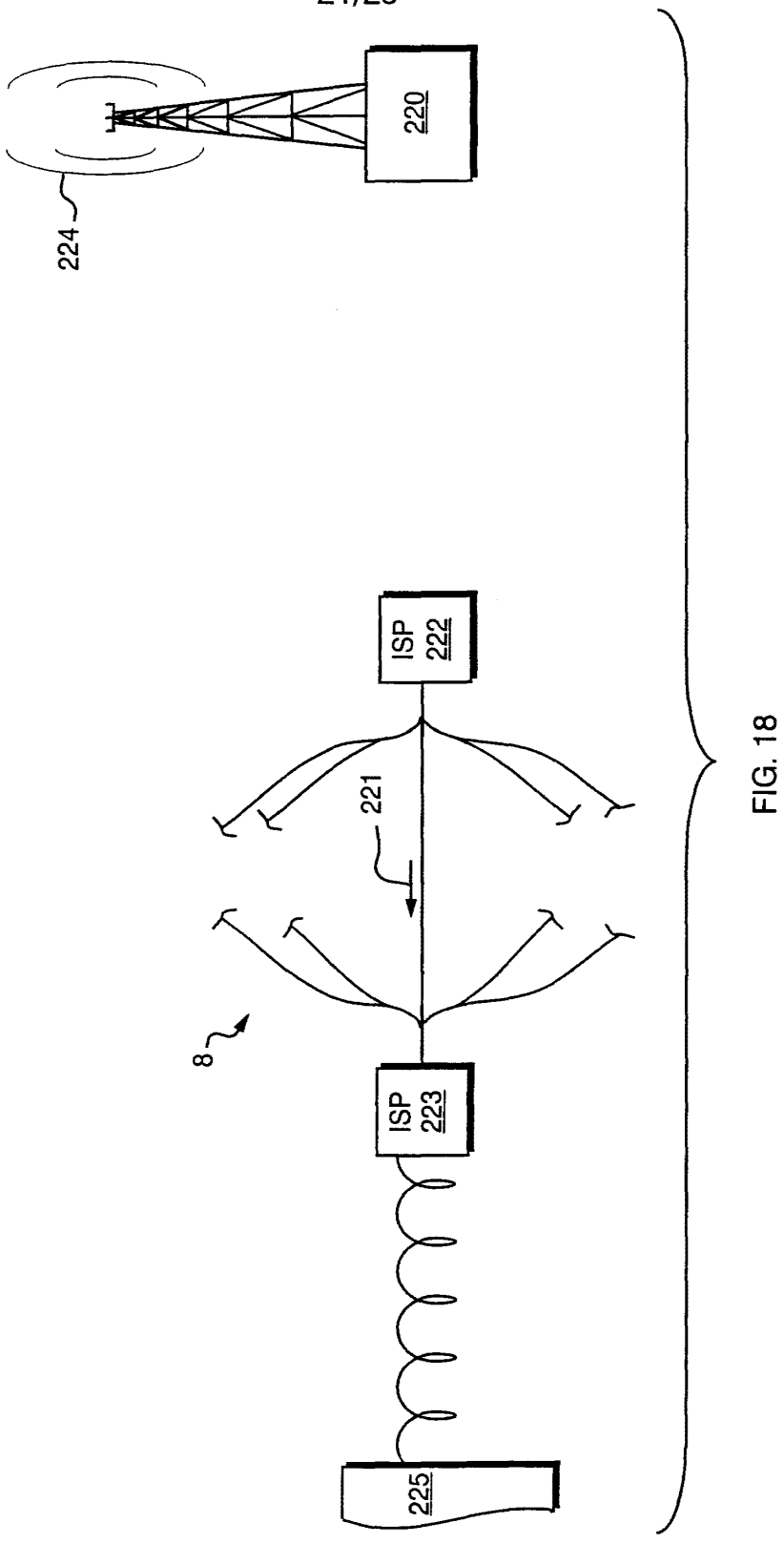


FIG. 18

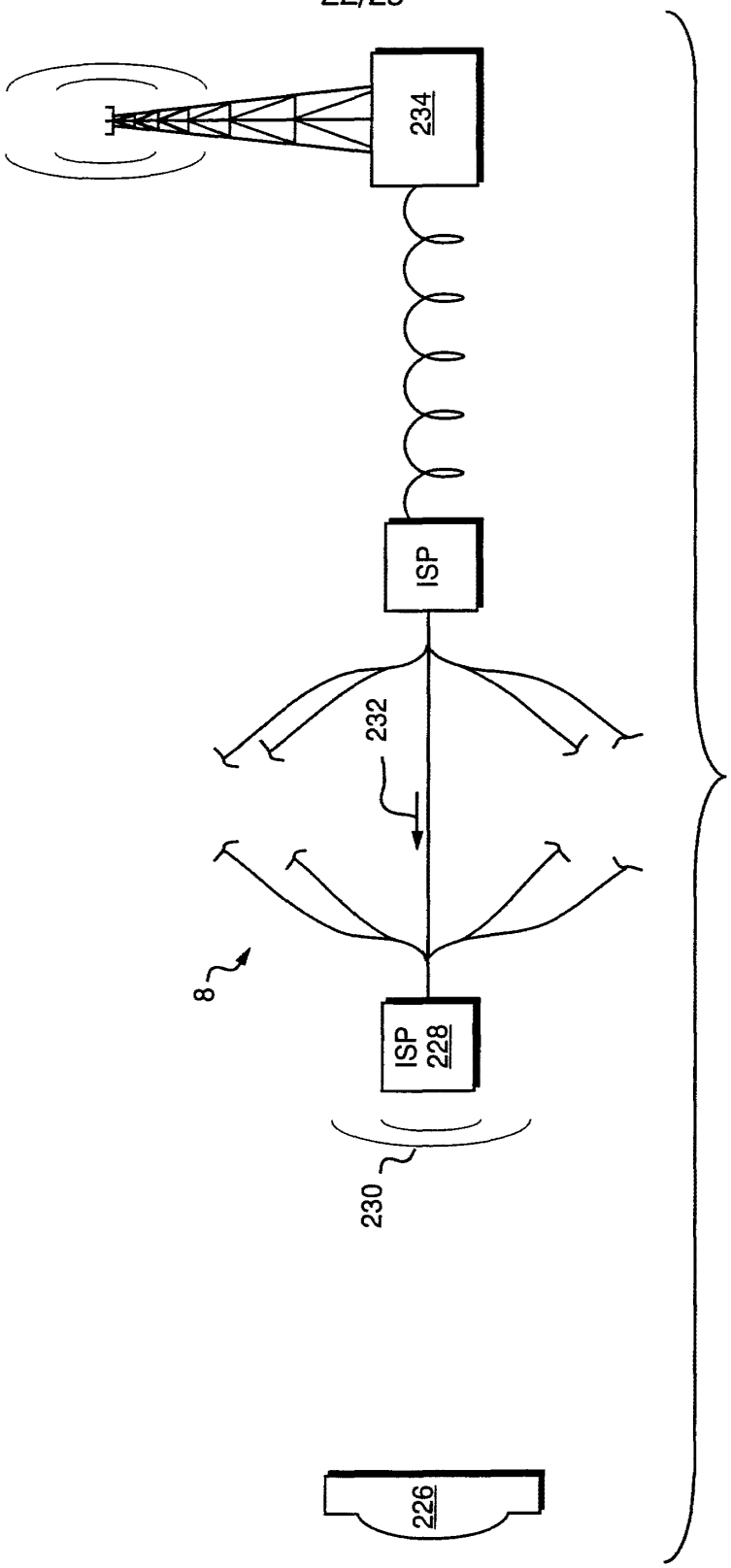


FIG. 19

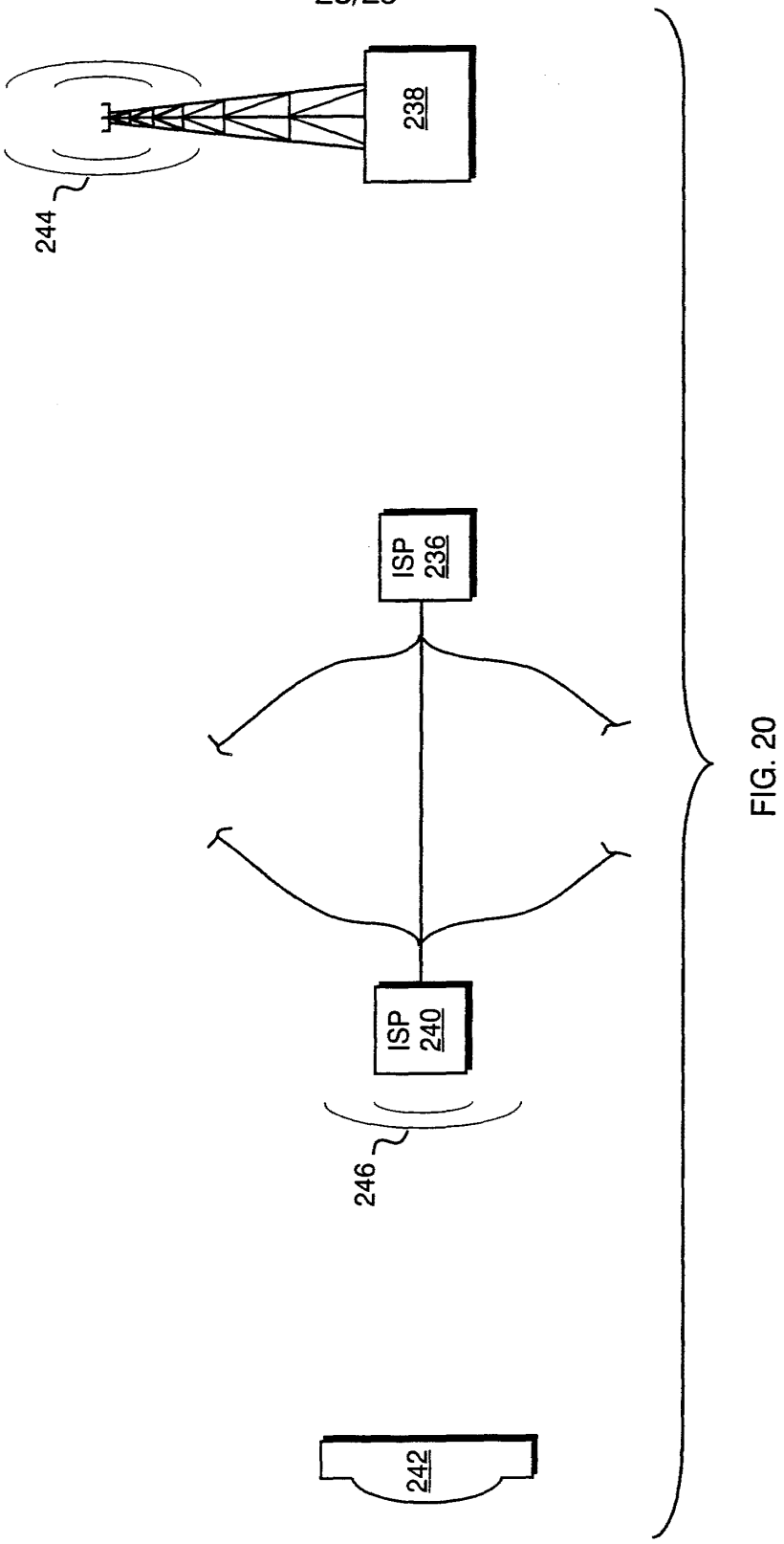


FIG. 20

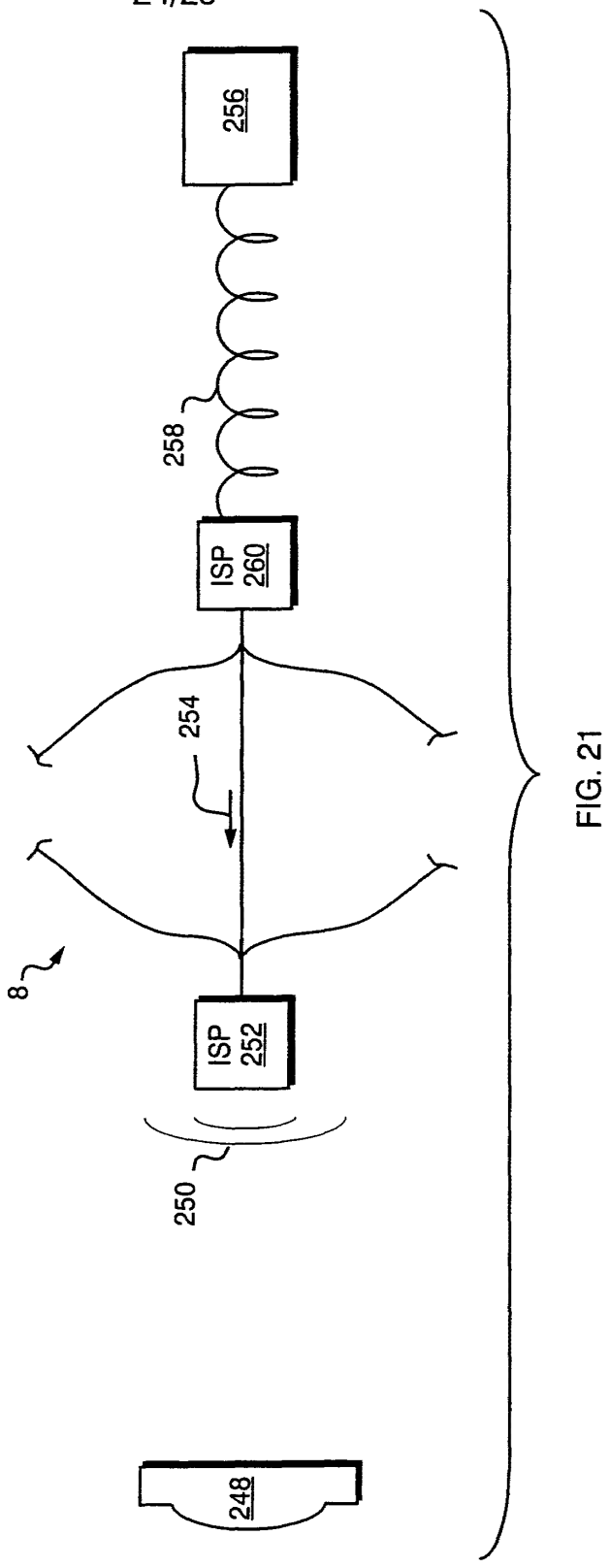


FIG. 21

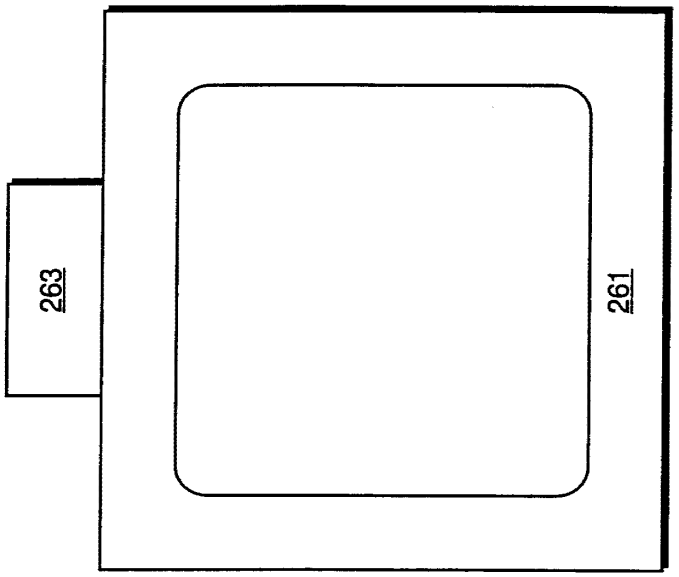


FIG. 22

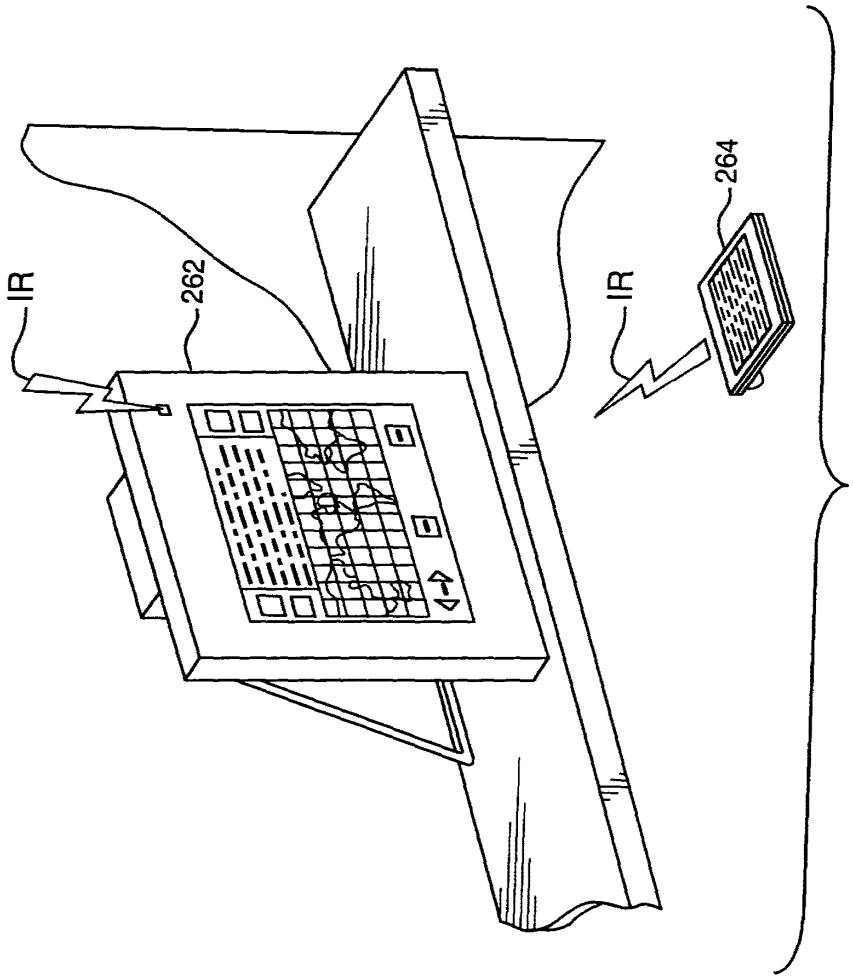


FIG. 23

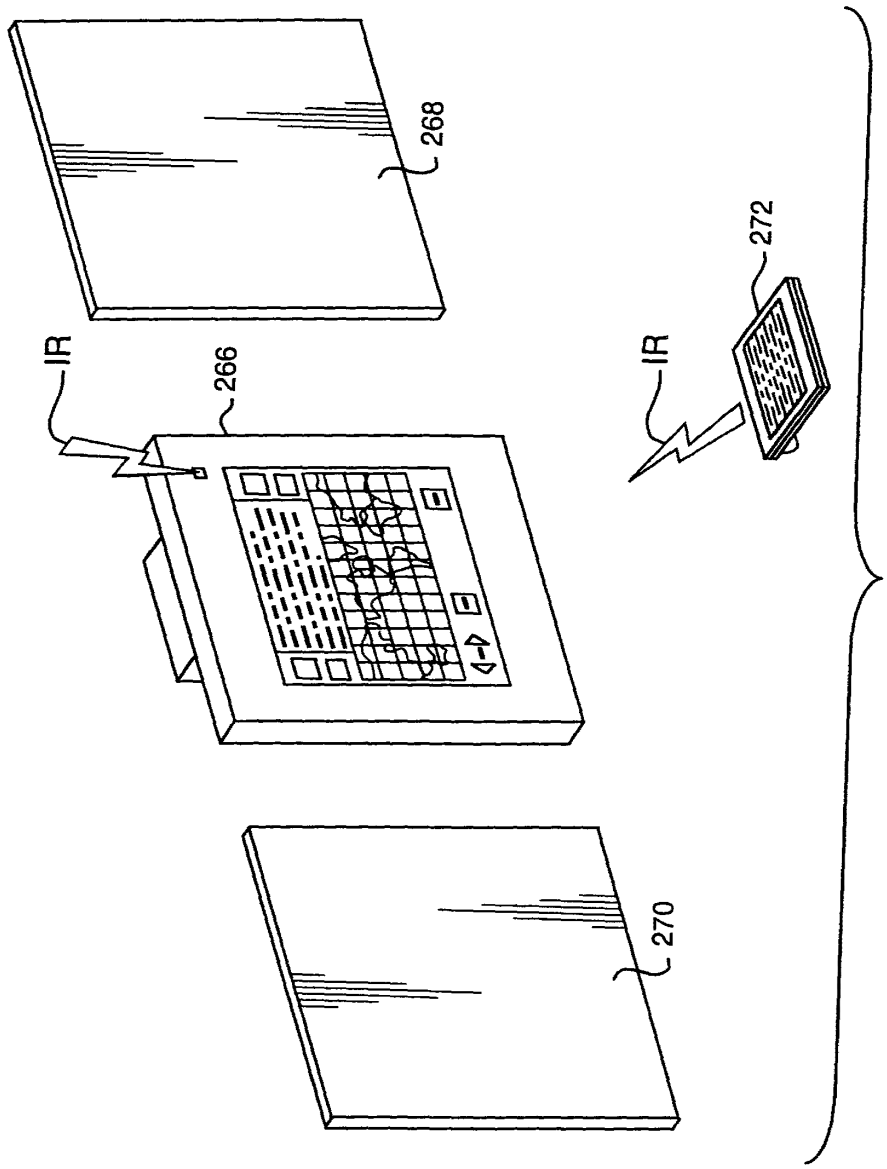


FIG. 24

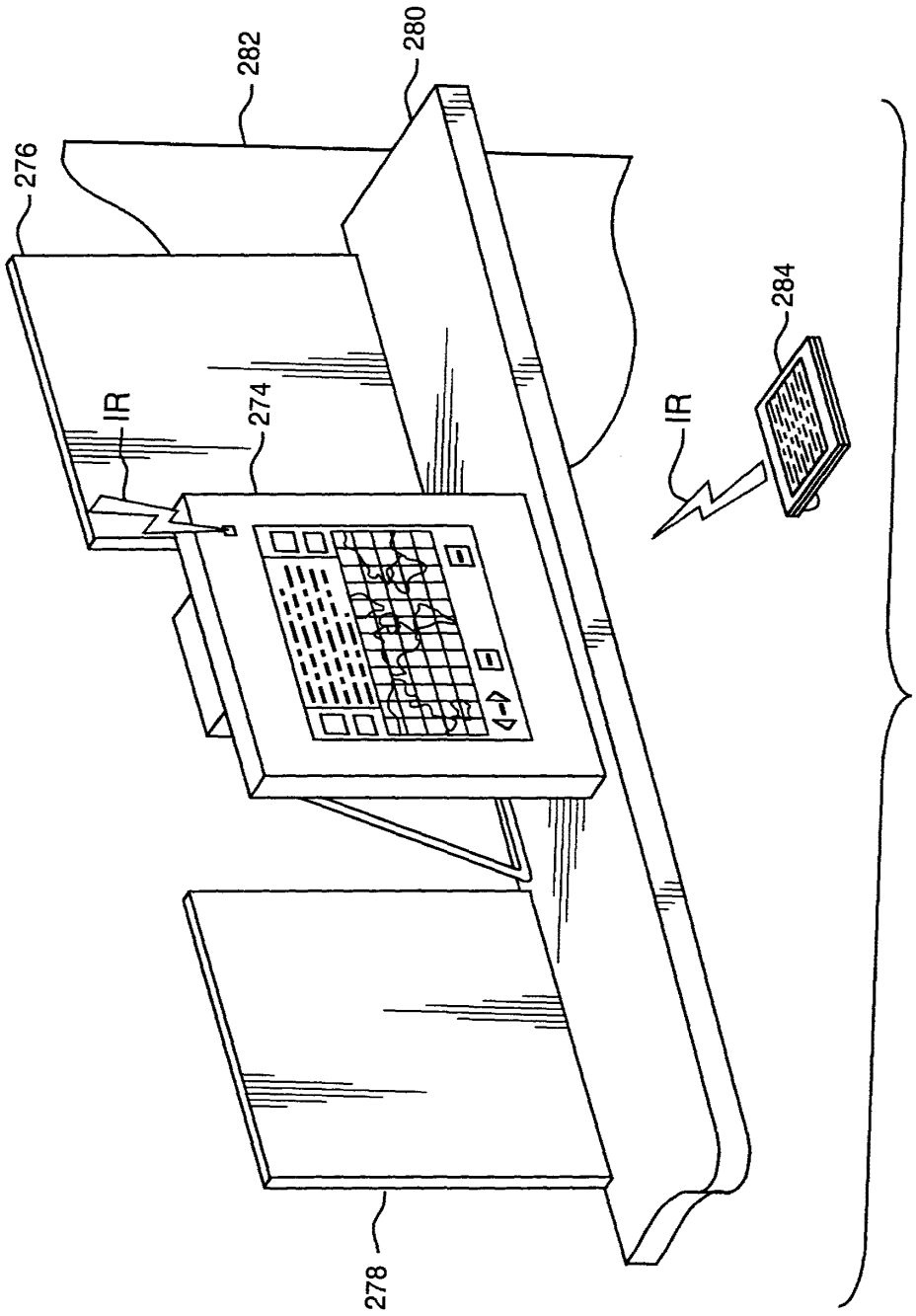


FIG. 25

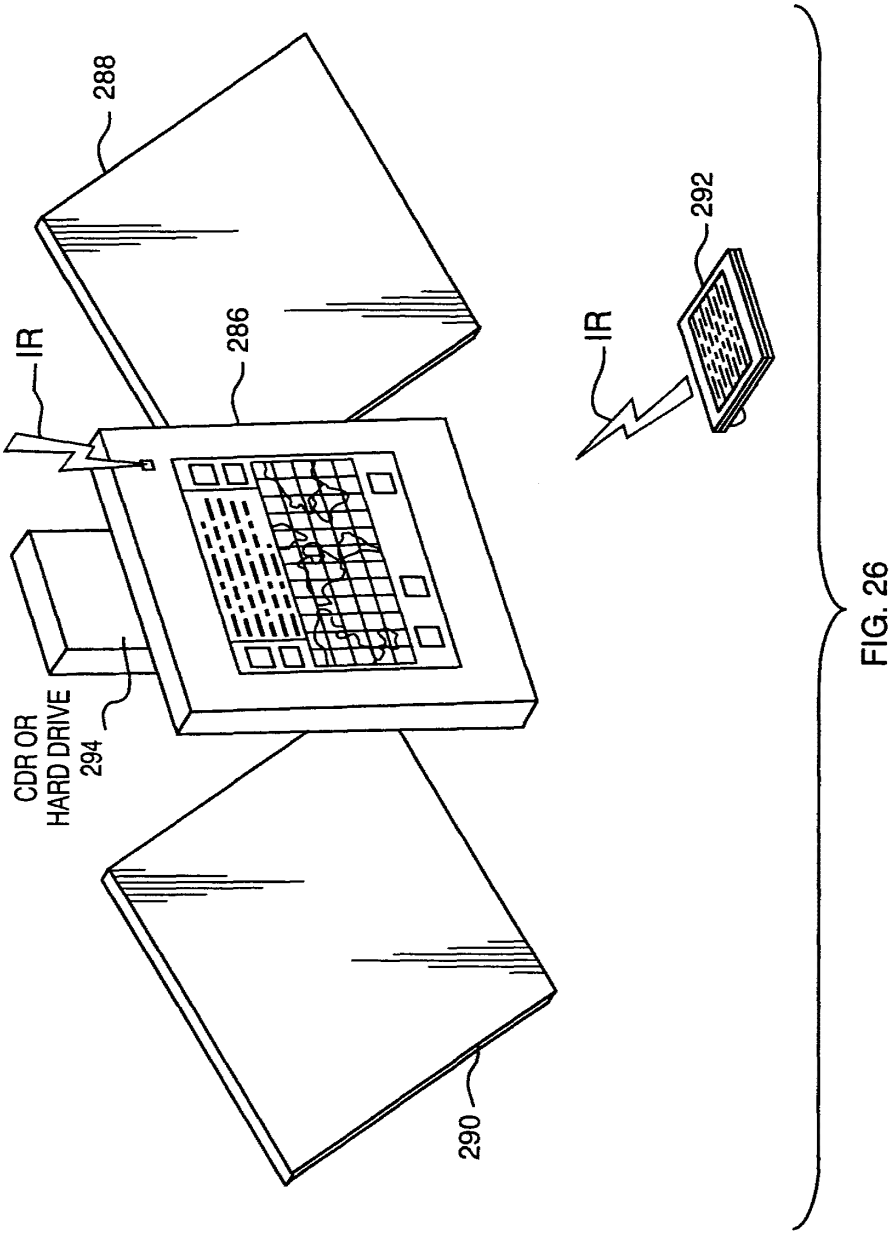


FIG. 26