handheld device to the terminal in the personal network *(not shown; inherent in a GSM system in order for mobile register with base station* or ADD) (Figure 3-1 or 3-2).

Regarding **claim 42**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Karagiannis further discloses wherein the software component (*Functional entities)* includes a service repository software component (ADD) to provide services available in the personal network *(page 16).*

Regarding **claim 43**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Karagiannis further discloses wherein the software component (Functional entities) includes a management software component (ADD) *(page 16).*

Regarding **claim 44**, in accordance with Karagiannis reference entirety, Karagiannis discloses a first wireless handheld device (Figure 2-9 to Figure 3-2; Host X), comprising:

a storage device (QoS API);

a processor (*TS*), coupled to the storage device (see connection depicted in Figure 3-1); and

the storage device storing a software component (*Functional entities; page 15, section 3.1.2*) for controlling the processor (TS); and, the processor (TS) operative with the software component to:

access the Internet (IP network) through a cellular network (UTRAN) (Figure 2-9);

provide a first short range (Bluetooth link) to a second handheld wireless device (Bluetooth Terminal (BT)) and a second short-range radio signal (Bluetooth link) to a second handheld wireless device (BT' implement per teaching of Figure 2-5) and a second short range signal (Bluetooth link) to a third wireless handheld device (not shown; inherent),

control access between the Internet and the first, second and third wireless handheld devices (Figure 3-1; MC and RC);

translate IP address between cellular network and PDA devices (*page 20 or Figure 3-4; Translation functions*).

Regarding **claim 45**, in addition to features recited in base claim 44 (see rationales discussed above), Karagiannis further discloses wherein the second wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal, a digital camera and an equivalent thereof (*Figure 2-8*).

Regarding **claim 46**, in addition to features recited in base claim 44 (see rationales discussed above), Karagiannis further discloses wherein the wireless device is a thin terminal (*Figure 2-8*).

Regarding **claims 47**, in addition to features recited in base claim 44 (see rationales discussed above), Karagiannis further discloses wherein the wireless device includes a 2.4 Ghz transmitter (*Figure 3-2; Bluetooth)* coupled to the processor (TS).

Regarding **claims 48**, in addition to features recited in base claim 44 (see rationales discussed above), Karagiannis further discloses wherein the wireless device includes a 5.7 Ghz transmitter (*Figure 3-2; Bluetooth)*.

Regarding **claims 49**, in addition to features recited in base claim 44 (see rationales discussed above), Karagiannis further discloses wherein the software component includes an application software component capable of providing a service (ADD) to the second wireless handheld device (BT) (pages 16-17).

Regarding **claim 50**, in accordance with Karagiannis reference entirety, Karagiannis discloses an article of manufacture (Figure 3-2, including a computer readable medium, comprising:

a short-range radio software component (Bluetooth) for communicating with a device (BT) in a short distance wireless network (Bluetooth link) by using a short-range radio signal (*Figure 2-8 and Figure 3-2*);

a cellular software component (Other) for communicating with a cellular network (UMTS) by using a cellular signal (Figure 2-9 and Figure 3-2); and,

a network software component (ADD, MC, TS, QoS API and RC) for selectively transferring a data packet between the device (BT) and the cellular network (UMTS) (pages 10-17).

Regarding **claim 51**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses a security software component (ADD) to control access between the short distance wireless network and the cellular network (Figures 3-1 to 3-2).

Regarding **claim 52**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses a network address translator software component to translate between a first internet protocol address and a second internet protocol address.

Regarding **claim 53**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses a domain naming service ("DNS") component capable of translating between a human readable name and an internet protocol address (page 20 or Figure 3-4; translation functions).

Regarding **claim 54**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses a domain naming service ("DNS") component capable of translating between a human readable name and an internet protocol address (page 20 or Figure 3-4; translation functions).

Regarding **claim 55**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses wherein the article of manufacture is a memory storage device in a cellular phone (Figures 3-1 to 3-4; Mobile phone).

Regarding **claim 56**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses wherein the short range radio software component is a Bluetooth component (Figure 3-3; Bluetooth).

Regarding **claim 57**, in addition to features recited in base claim 50 (*see rationales discussed above*), Karagiannis further discloses wherein the cellular software component is a GSM component (*Figure 3-2; Other).*

Regarding **claim 58**, in accordance with Karagiannis reference entirety, Karagiannis discloses a handheld device (*Figures 3-3 to 3-4*) for providing a short distance wireless network (*Bluetooth wireless access; page 14, section 3.1*), comprising:

a storage device (QoS API) (*page 15, section 3.1.2*);

means for selectively providing (TS) a plurality of services to a plurality of application software components in the short distance wireless network (*page 16, section 3.1.2*); and

means for selectively transferring (RC) a data packet between a cellular network (UMTS) and a terminal in the short distance wireless network (Bluetooth wireless access) (*page 15, section 3.1.2*).

(*note: should the Applicants contest Examiner's position in the rejection of claims 19-22 discussed above, the below rejection is applied*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable

Karagiannis in view of Parekh (OPERATING SYSTEMS ON WIRELESS HANDHELD DEVICES, pages 1-8, September 28, 2000).

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Karagiannis fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Karagiannis reference is well known and disclosed by Parekh.

In accordance with Parekh reference entirety, Parekh discloses the operating system such as Linux, EPOC, PocketPC and Stinger is the primary user interface that serves as the software intermediary between the applications and the handheld devices (see Parekh reference, page 3 and thereinafter). The operating systems differ in features such as size distribution, homogeneity, asset specificity and demand stability (*see Parekh reference, page 5*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Karagiannis's operating system with Linux, EPOC, PocketPC or Stinger disclosed by Parekh to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Parekh reference, page 5*).

6. Claims 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karagiannis in view of DELL (WHITE PAPER, HANDHELD DEVICES: COMPARING THE MAJOR PLATFOMRS, pages 1-7) (hereinafter "DELL").

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Karagiannis fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Karagiannis reference is well known and disclosed by DELL.

In accordance with Dell reference entirety, Dell compares the four major handheld platforms to include Linux, EPOC, PocketPC and Stinger. The platforms differ in features such as size, weight, functionality and applications, battery life, display characteristics, cost, and expansion and connectivity (*see Dell, page 1, left column, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Karagiannis's operating system with Linux, EPOC, PocketPC or Stinger disclosed by DELL to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Dell, page 1, left column, first paragraph*).

Response to Amendment

7. The declaration filed on 4/9/04 under 37 CFR 1.131 is sufficient to overcome the Dorenbosch et al reference.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Vij et al (USP 6,452,910).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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).

Frank Duong
Examiner
Art Unit 2666

June 27, 2004

Notice of References Cited	Application/Control No. 09/850,399	Applicant(s)/Patent Under Reexamination HALLER ET AL.	
	Examiner Frank Duong	Art Unit 2666	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,452,910	09-2002	Vij et al.	370/310
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Karagiannis, Mobility support for ubiquitous Internet access, ERICSSON Open report, pages 1-70, December 21, 2000.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

PTO/SB/08B (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use as many sheets as necessary)

Sheet 1 of 1

DEC 22 2003 JC10 PATENT & TRADEMARK OFFICE

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JAN 02 2004
Technology Center 2600

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Art Unit	2666
Examiner Name	Duong, Frank
Attorney Docket Number	IXIM-01000US0

NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
FD		GUTHERY et al., "The WebSIM - Clever Smartcards Listen to Port 80", version 15.12.99	
FD		Project P946-GI, Smart Devices "When Things Start to Think", January 2000, 2000 EURESCOM Participants in Project P946-GI	

Examiner Signature		Date Considered	6/24/04

*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 Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 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.**

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2668
#18
6/17/04

Electronic Filing System (EFS) Data

Electronic Patent Application Submission

USPTO Use Only

EFS ID:	62294
Application ID:	09850399
Title of Invention:	A SYSTEM, DEVICE, AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS
First Named Inventor:	Amit Haller
Domestic/Foreign Application:	Domestic Application
Filing Date:	2001-05-07
Effective Receipt Date:	2004-06-09
Submission Type:	Information Disclosure Statement
Filing Type:	
Confirmation number:	2705
Attorney Docket Number:	IXIM-01000US0
Total Fees Authorized:	

Digital Certificate Holder: cn=Kirk James DeNiro,ou=Registered Attorneys,ou=Patent and Trademark Office,ou=Department of Commerce,o=U.S. Government,c=US
Certificate Message Digest: 7f04813e75d80b9c93d82f2448db29b29dfd751a

TRANSMITTAL

Electronic Version v1.1
Stylesheet Version v1.1.0

Title of Invention	A SYSTEM, DEVICE, AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Confirmation Number: 2705
Attorney Docket Number: IXIM-

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Submitted by:	Elec. Sign.	Sign. Capacity
Kirk J DeNiro Registered Number: 35854	/Kirk J. DeNiro/	Attorney

Documents being submitted	Files
us-ids	1000us0.ids-june2004-usidst.xml
	us-ids.dtd
	us-ids.xsl

Comments

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18
Stylesheet Version v18.0

Title of Invention	A SYSTEM, DEVICE, AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Confirmation Number: 2705
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong
Search string: (6064734 or 6630925 or 20020102974 or 20030017810 or 20030091917).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	6064734	2000-05-16	Hasegawa et al.			
	2	6630925	2003-10-01	Osterg.ang.rd et al.			

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
	1	20020102974	2002-08-01	Raith			
	2	20030017810	2003-01-23	Janninck et al.			
	3	20030091917	2003-05-15	Davenport et al.			

Signature

Examiner Name	Date

#17
4/26/04

Electronic Filing System (EFS) Data

Electronic Patent Application Submission

USPTO Use Only

EFS ID:	59253
Application ID:	09850399
Title of Invention:	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS
First Named Inventor:	Amit Haller
Domestic/Foreign Application:	Domestic Application
Filing Date:	2001-05-07
Effective Receipt Date:	2004-04-19
Submission Type:	Information Disclosure Statement
Filing Type:	
Confirmation number:	2705
Attorney Docket Number:	IXIM-01000US0
Total Fees Authorized:	180.0
Payment Category:	Deposit Account
Deposit Account Number:	501826
Deposit Account Name:	Kirk J. DeNiro
Access Code:	****
RAM Payment Status:	RAM success
RAM User ID:	EFSPROD
RAM Accounting Date:	2004-04-19
RAM Sequence Number:	12

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Electronic Version v1.1
Stylesheet Version v1.1.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Confirmation Number: 2705
Attorney Docket Number: IXIM-01000US0

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Submitted by:	Elec. Sign.	Sign. Capacity
Kirk J. DeNiro Registered Number: 35854	/Kirk J. DeNiro/	Attorney

Documents being submitted	Files
us-fee-sheet	1000.ids-usfees.xml
	us-fee-sheet.xsl
	us-fee-sheet.dtd
us-ids	1000.ids-usidst.xml
	us-ids.dtd
	us-ids.xsl

Comments

FEE TRANSMITTAL

Electronic Version v08
Stylesheet Version v08.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong

TOTAL FEE AUTHORIZED $180

Patent fees are subject to annual revisions on or about October 1st of each year.

BASIC FILING FEE

Fee Description	Fee Code	Amount $	Fee Paid $
Submission Of Information Disclosure Stmt Fee	1806	180	180

AUTHORIZED BILLING INFORMATION

The commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit account number: 501826
Access Code ****
Deposit name: Vierra Magen Marcus Harmon DeNiro LLP
Deposit authorized name: Kirk J. DeNiro
Signature: /Kirk J. DeNiro/
Date (YYYYMMDD): 2004-04-01

FEE TRANSMITTAL

Electronic Version v08
Stylesheet Version v08.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong

TOTAL FEE AUTHORIZED $180

Patent fees are subject to annual revisions on or about October 1st of each year.

BASIC FILING FEE

Fee Description	Fee Code	Amount $	Fee Paid $
Submission Of Information Disclosure Stmt Fee	1806	180	180

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Deposit account number: 501826
Access Code ****
Deposit name: Vierra Magen Marcus Harmon DeNiro LLP
Deposit authorized name: Kirk J. DeNiro
Signature: /Kirk J. DeNiro/
Date (YYYYMMDD): 2004-04-01

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18
Stylesheet Version v18.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Confirmation Number: 2705
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong
Search string: (6665549 or 6636489 or 6600734 or 6434537 or 6298443 or 20020068559 or 20020155830 or 20020055333 or 20020069037 or 20020068600 or 20030027563 or 20030078036 or 20020143952 or 20040048671 or 20020091633 or 20020065817 or 20030153280 or 20030224773 or 20030115351 or 20030214940 or 20030232616 or 20030122856 or 20030187807).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	6665549	2003-12-16	Reed			
	2	6636489	2003-10-21	Fingerhut			
	3	6600734	2003-07-29	Gernet			
	4	6434537	2002-08-13	Grimes			
	5	6298443	2001-10-02	Colligan et al.			

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass

	1	20020068559	2002-06-06	Sharma et al.
	2	20020155830	2002-10-24	Iyer
	3	20020055333	2002-05-09	Davies et al.
	4	20020069037	2002-06-06	Hendrickson et al.
	5	20020068600	2002-06-06	Chihara et al.
	6	20030027563	2003-02-06	Herle et al.
	7	20030078036	2003-04-24	Chang et al.
	8	20020143952	2002-10-03	Sugiarto et al.
	9	20040048671	2004-03-11	Rowe
	10	20020091633	2002-07-11	Proctor
	11	20020065817	2002-05-30	Ito et al.
	12	20030153280	2003-08-14	Kopp et al.
	13	20030224773	2003-12-04	Deeds
	14	20030115351	2003-06-19	Giobbi
	15	20030214940	2003-11-20	Takken
	16	20030232616	2003-12-18	Gidron et al.
	17	20030122856	2003-07-03	Hubbard
	18	20030187807	2003-10-02	Matsubara et al.

Signature

Examiner Name	Date

PTO/SB/17 (10-03)
Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 880

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Examiner Name	Duong, F.
Art Unit	2666
Attorney Docket No.	IXIM-01000US0

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 501826

Deposit Account Name: Vierra Magen Marcus Harmon & DeNiro LLP

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	=	Fee Paid
Total Claims		-20** =		X	= 0
Independent Claims		- 3** =		X	= 0
Multiple Dependent					= 0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	110
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	770
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 880

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Kirk J. DeNiro	*Registration No. (Attorney/Agent)*	35,854	*Telephone*	(415) 369-9660
Signature				*Date*	April 6, 2004

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This collection of information is required by 37 CFR 1.17 and 1.27. 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.**

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PTO/SB/30 (08-03)
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Request For Continued Examination (RCE) Transmittal

Address to:
Mail Stop RCE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Art Unit	2666
Examiner Name	Duong, Frank
Attorney Docket Number	IXIM-01000US0

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. See Instruction Sheet for RCEs (not to be submitted to the USPTO) on page 2.

1. 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).

   a. ☐ 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.

      i. ☐ Consider the arguments in the Appeal Brief or Rely Brief previously filed on _____

      ii. ☐ Other _____

   b. ☑ Enclosed

      i. ☑ Amendment/Reply

      ii. ☑ Affidavit(s)/ Declaration(s)

      iii. ☐ Information Disclosure Statement (IDS)

      iv. ☐ Other _____

2. Miscellaneous

   a. ☐ 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)

   b. ☐ Other _____

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

   a. ☑ The Director is hereby authorized to charge the following fees, or credit any overpayments, to Deposit Account No. 501826

      i. ☑ RCE fee required under 37 CFR 1.17(e) 04/12/2004 BABRAHA1 00000105 09850399

      ii. ☑ Extension of time fee (37 CFR 1.136 and 1.17) 01 FC:1801 770.00 OP

      iii. ☐ Other _____

   b. ☑ Check in the amount of $ 880 enclosed

   c. ☐ Payment by credit card (Form PTO-2038 enclosed)

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

Name (Print/Type)	Kirk J. DeNiro	*Registration No. (Attorney/Agent)*	35,854
Signature		*Date*	April 6, 2004

CERTIFICATE OF MAILING OR TRANSMISSION

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Name (Print/Type)	Kirk J. DeNiro		
Signature		Date	April 6, 2004

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 1.14. 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: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Pre AMDTB 4/19/04 #15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		) PATENT APPLICATION	
Inventors:	Amit Haller, et al.	)	
		) Art Unit:	2666
Appl. No.:	09/850,399	)	
		) Examiner:	Duong,F.
Filed:	May 7, 2001	)	
Title:	A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	) **Customer No. 28554**	

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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4/6/04

Kirk J. DeNiro, Reg. No. 35,854
Signature Date: April 6, 2004

PRELIMINARY AMENDMENT

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

Sir:

This Preliminary Amendment is in reply to the Office Action mailed January 5, 2004.

AMENDMENTS to the CLAIMS begin on Page 2 of this paper.

REMARKS begin on Page 12 of this paper.

Attorney Docket No.: IXIM-01000US0
ixim/1000/1000.response-B

AMENDMENTS TO THE CLAIMS

This listing of claim will replace all prior versions and listings of claim in the application.

1) (Currently Amended) A system for providing access to the Internet, comprising:

a first wireless device, coupled to a cellular network, having a software component capable of accessing information from the Internet by communicating with the cellular network responsive to a first short-range radio signal, wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range radio signal ~~concurrently~~; and,

a second wireless device, coupled to the first wireless device, capable of providing the first short-range radio signal.

2) (Previously Presented) The system of Claim 1, wherein the second wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof.

3) (Currently Amended) The system of Claim 1, wherein the first wireless device is a cellular telephone using a protocol selected from a group consisting of a Global System for Mobile Communications ("GSM") protocol, a Code Division Multiple Access ("CDMA") protocol, a cellular telephone using a CDMA 2000 protocol, a Time Division Multiple Access ("TDMA") protocol and an equivalent thereof.

4) (Currently Amended) The system of Claim 1, wherein ~~the first wireless device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol~~ the software component includes a network address translator software component capable of translating between a first Internet Protocol ("IP") address provided to the first wireless device and a second IP address supplied by the first wireless device for the second wireless device.

5) (Currently Amended) The system of Claim 1, wherein the ~~first wireless device is a cellular telephone using a CDMA 2000 protocol~~ software component includes a domain naming service ("DNS") software component capable of translating between a human readable name and an Internet Protocol ("IP") address.

6) (Currently Amended) The system of Claim 1, wherein the ~~first wireless device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol~~ software component includes a security software component capable of controlling access between the cellular network and the first wireless device.

7) (Previously Presented) The system of Claim 1, wherein the second wireless device is a thin terminal.

8) (Previously Presented) The system of Claim 1, wherein the second wireless device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

9) (Previously Presented) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

10) (Previously Presented) The system of Claim 1, wherein the second wireless device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

11) (Previously Presented) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

12) (Previously Presented) The system of Claim 1, wherein the software component includes a plug and play software component capable of loading and executing software for the second wireless device.

13) (Previously Presented) The system of Claim 1, wherein the software component includes a PIN number management software component capable of obtaining and providing PIN numbers.

14) (Previously Presented) The system of Claim 1, wherein the software component includes a service repository software component capable of obtaining an availability of a service from the second wireless device.

15) (Previously Presented) The system of Claim 1, wherein the second wireless device includes an application software component capable of providing a service; and, wherein the software component includes a management software component capable of accessing the service.

16) (Previously Presented) A system for providing access to the Internet, comprising:

a first wireless device, coupled to a cellular network, having a software component capable of accessing information from the Internet by communicating with the cellular network responsive to a first short-range radio signal;

a second wireless device, coupled to the first wireless device, capable of providing the first short-range radio signal; and,

a third wireless device, coupled to the first wireless device, capable of providing a second short-range signal, wherein the second wireless device communicates with the third wireless device through the first wireless device.

17) (Previously Presented) A system for providing access to the Internet, comprising:

a first wireless device, coupled to a cellular network, having a software component capable of accessing information from the Internet by communicating with the cellular network responsive to a first short-range radio signal;

a second wireless device, coupled to the first wireless device, capable of providing the first short-range radio signal; and,

a third wireless device, coupled to the first wireless device, capable of providing a second

short-range signal, wherein the first wireless device provides access to the Internet for the second and third wireless devices.

18) (Previously Presented) The system of Claim 1, wherein the software component operates with an operating system software component.

19) (Original) The system of Claim 18, wherein the operating system software component is a Linux operating system.

20) (Original) The system of Claim 18, wherein the operating system software component is a EPOC operating system.

21) (Original) The system of Claim 18, wherein the operating system software component is a PocketPCoperating system.

22) (Original) The system of Claim 18, wherein the operating system software component is a Stinger operating system.

23) (Previously Presented) The system of Claim 1, wherein the first wireless device further includes 1) an application software component capable of providing a service and 2) a server software component coupled to the software component.

24) (Previously Presented) The system of Claim 1, wherein the first wireless device further includes a firewall software component.

25) (Previously Presented) The system of Claim 1, wherein the first wireless device further includes a virtual private network ("VPN") software component.

26) (Currently Amended) A system for providing access to information on a cellular network, comprising:

a first wireless device capable of providing a first short-range radio signal; and,

a second wireless device, coupled to the first wireless device and the cellular network, capable of selectively transferring information between the first wireless device and the cellular network responsive to ~~the short-range radio signal~~ a security software component.

B1 Cont

27) (Currently Amended) The system of claim 26, wherein ~~the cellular network includes a corporate network~~ the security software component is a firewall software component capable of controlling access to the cellular network.

28) (Currently Amended) The system of claim 26, wherein ~~the cellular network includes a private IP network~~ the security software component is a virtual private network ("VPN") capable of controlling access to the cellular network .

29) (Currently Amended) The system of claim 26, wherein ~~the first short-range radio signal is an 802.11 signal~~ the security software component is a uniform resource locator ("URL") filter capable of controlling access to the cellular network.

30) (Currently Amended) The system of claim 26, wherein the first short-range radio signal is selected from a group consisting of a HomeRF signal, an 802.11 signal and an equivalent thereof.

31) (Previously Presented) The system of claim 26, wherein the information is provided in the form of data packets.

32) (Previously Presented) The system of claim 26, wherein the information is provided in the form of IP packets.

33) (Previously Presented) The system of claim 26, wherein the second wireless device is coupled to the cellular network by either an Ethernet connection, DSL connection or a cable modem.

34) (Previously Presented) The system of claim 26, wherein the second wireless device is coupled to the cellular network by a landline network.

35) (Previously Presented) The system of claim 26, wherein the first wireless device provides execution space for executable software from the second wireless device.

36) (Currently Amended) A handheld device for providing a personal network, comprising:

a storage device;

a processor, coupled to the storage device; and,

the storage device storing a software component for controlling the processor; and, the processor operative with the software component to:

provide an Internet Protocol ("IP") data packet from the handheld device to a terminal ~~a first handheld wireless device to a second handheld wireless device~~ using short-range radio signals,

control access between the personal network and a cellular network,

translate between a first IP address provided to the handheld device and a second IP address supplied by the handheld device for the terminal in the personal network .

37) (Previously Presented) The device of Claim 36, further comprising:

a Bluetooth™ transmitter, coupled to the processor, capable of generating the short-range radio signals.

38) (Previously Presented) The device of Claim 36, further comprising:

a GSM transmitter, coupled to the processor.

39) (Currently Amended) The device of Claim 36, wherein the personal network provides a service and includes an application software component and, wherein the software component includes a network software component to disconnect the application software component from the service.

40) (Currently Amended) The device of Claim 36, wherein the software component includes a plug and play software component to identify the terminal in the personal network and obtain an application software component for the terminal.

41) (Currently Amended) The device of Claim 36, wherein the software component includes a PIN number management software component to provide a PIN number used in pairing the handheld device to the terminal in the personal network.

42) (Currently Amended) The device of Claim 36, wherein the software component includes a service repository software component to provide services available in the personal network.

43) (Previously Presented) The device of Claim 36, wherein the software component includes a management software component.

44) (Currently Amended) A first wireless handheld device, comprising:

a storage device;

a processor, coupled to the storage device; and,

the storage device storing a software component for controlling the processor; and, the processor operative with the software component to:

access the Internet through a cellular network,

provide a first short-range radio signal to a second wireless handheld device ~~capable of accessing the Internet~~ and a second short-range radio signal to ~~the second wireless handheld device for communicating with~~ a third wireless handheld device,

control access between the Internet and the first, second and third wireless handheld devices,

translate between a first Internet Protocol ("IP") address provided to the first wireless handheld device from the cellular network and a second IP address supplied by the first wireless handheld device for the second wireless handheld device, and a third IP address supplied by the first wireless handheld device for the third wireless handheld device.

45) (Currently Amended) The first wireless handheld device of Claim 44, wherein the second wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal a digital camera and an equivalent thereof.

46) (Currently Amended) The first wireless handheld device of Claim 44, wherein the second wireless handheld device is a thin terminal.

47) (Currently Amended) The first wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 2.4 GHZ transmitter coupled to the processor.

48) (Currently Amended) The first wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 5.7 GHZ transmitter coupled to the processor.

49) (Currently Amended) The first wireless handheld device of Claim 44, wherein the software component includes an application software component capable of providing a service to the second wireless handheld device.

50) (Previously Presented) An article of manufacture, including a computer readable medium, comprising:

a short-range radio software component for communicating with a device in a short distance wireless network by using a short-range radio signal;

a cellular software component for communicating with a cellular network by using a

cellular signal; and,

a network software component for selectively transferring a data packet between the device and the cellular network.

51) (Currently Amended) The article of manufacture of Claim 50, further comprising ~~a Linux operating system~~ security software component to control access between the short distance wireless network and the cellular network.

52) (Currently Amended) The article of manufacture of Claim 50, further comprising ~~an EPOC operating system~~ a network address translator software component to translate between a first Internet Protocol ("IP") address and a second IP address.

53)(Currently Amended) The article of manufacture of Claim 50 further comprising a ~~PocketPC operating system~~ domain naming service ("DNS") software component capable of translating between a human readable name and an Internet Protocol ("IP") address.

54) (Currently Amended) The article of manufacture of Claim 50, further comprising a ~~Stinger operating system~~ plug and play software component to identify the terminal in the short distance wireless network and obtain an application software component for the terminal.

B1 Cont

55) (Original) The article of manufacture of Claim 50, wherein the article of manufacture is a memory storage device in a cellular telephone.

56) (Original) The article of manufacture of Claim 50, wherein the short-range radio software component is a Bluetooth™ component.

57) (Original) The article of manufacture of Claim 50, wherein the cellular software component is a GSM component.

58) (New) A handheld device for providing a short distance wireless network,

comprising:

a storage device;

means for selectively providing a plurality of services to a plurality of application software components in the short distance wireless network; and

means for selectively transferring a data packet between a cellular network and a terminal in the short distance wireless network.

REMARKS

The above Amendments and these Remarks are in reply to the Office action mailed January 5, 2004. Claims 1-58 are presented herewith for consideration. Claims 1, 3-6, 26-30, 36, 39-42, 44-49 and 51-54 have been amended. Claim 58 has been added.

I. Rejection of Claims 1-25 Under 35 U.S.C. §112

Claims 1-25 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. "Concurrently" has been removed from claim 1 and it is therefore respectfully requested the Examiner withdraw the rejection of claims 1-25 under 35 U.S.C. §112, first paragraph.

II. Rejection of Claims 45-48 Under 35 U.S.C. §112

Claims 45-48 are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 45-49 have been amended to clearly claim "the first wireless handheld device." Therefore it is respectfully requested that the Examiner withdraw the rejection of claims 45-48 under 35 U.S.C. §112, second paragraph.

III. Rejection of Claims 1-18, 23-50 and 55-57 Under 35 U.S.C. §102(e)

Claims 1-18, 23-50 and 55-57 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Publication No. 2002/0118663 ("*Dorenbosch et al.*"). Filed concurrently herewith is a Declaration of Amit Haller Pursuant to 37 C.F.R. §1.131 ("DECLARATION") "swearing behind" the *Dorenbosch et al.* reference. While the present claims are patentable over the *Dorenbosch et al.* reference, the DECLARATION is provided to expedite prosecution of the present application. Therefore, withdrawal of the Examiner's rejections based on *Dorenbosch et al.* is respectfully requested.

IV. Rejection of Claims 19-22 and 51-54 Under 35 U.S.C. §103(a)

Claims 19-22 and 51-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Dorenbosch et al.* in view of OPERATING SYSTEMS ON WIRELESS HANDHELD DEVICES

("*Parekh*"). Based on the DECLARATION cited above and the present claims, withdrawal of the rejection of claims 19-22 and 51-54 under 35 U.S.C. §103(a) is respectfully requested.

V. Rejection of Claims 19-22 and 51-54 Under 35 U.S.C. §103(a)

Claims 19-22 and 51-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over by *Dorenbosch et al.* in view of WHITE PAPER, HANDHELD DEVICES: COMPARING THE MAJOR PLATFORMS ("*Dell*"). Based on the DECLARATION cited above and the present clams, withdrawal of the rejection of claims 19-22 and 51-54 under 35 U.S.C. §103(a) is respectfully requested.

VI. Art Made of Record and Not Relied Upon

Applicant's attorney has reviewed the art made of record and not relied upon: US. Patent No. 6,519,460 to *Haartsen*; US. Patent No. 6,446,127 to *Schuster et al.*; BLUETOOTH – The universal radio interface for ad hoc, wireless connectivity by *Haartsen*; Integrating Bluetooth with Wireless Ricocheting by *Lee et al.*; and Short Range Radio Based Ad-hoc Networking: Performance and Properties by *Johansson et al.*, and believes the art made of record and not relied upon is no more relevant than the relied upon art.

VII. Novel Elements

The present claims provide numerous novel elements that are not taught or suggested by the cited art and even *Dorenbosch et al.* For example, claim 4 calls for "a network address translator software component capable of translating between a first Internet Protocol ("IP") address provided to the first wireless device and a second IP address supplied by the first wireless device for the second wireless device."

Claim 5 calls for "a domain naming service ("DNS") software component capable of translating between a human readable name and an Internet Protocol ("IP") address."

Claim 6 calls for "a security software component capable of controlling access between the cellular network and the first wireless device."

Claims 16 and 17 call for "a third wireless device, coupled to the first wireless device, capable of providing a second short-range signal, wherein the second wireless device communicates with the third wireless device through the first wireless device" and "a third wireless device, coupled to the first wireless device, capable of providing a second short-range signal, wherein the first wireless device provides access to the Internet for the second and third wireless devices."

Claim 26 calls for "a security software component."

Claims 27, 28 and 29 call for "a firewall", "VPN" and "URL filter".

Claim 36 calls for "control access between the personal network and a cellular network" and "translate between a first IP address provided to the handheld device and a second IP address supplied by the handheld device for the terminal in the personal network."

Claim 39 calls for " the personal network provides a service and includes an application software component and, wherein the software component includes a network software component to disconnect the application software component from the service."

Claim 40 calls for "a plug and play software component to identify the terminal in the personal network and obtain an application software component for the terminal."

Claim 41 calls for "a PIN number management software component to provide a PIN number used in pairing the handheld device to the terminal in the personal network."

Claim 42 calls for "a service repository software component to provide services available in the personal network."

All of the above claims include elements that are not taught or suggested in the cited art.

These exemplary claims have been provided to aide the Examiner in identifying novel elements and should not be interpreted as being the only novel features of the present claims.

VIII. Conclusion

Based on the above amendments and these remarks, reconsideration of claims 1-57 and consideration of claim 58 is respectfully requested.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: April 6, 2004

By: _____

Kirk J. DeNiro
Reg. No. 35,854

VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 Market Street, Suite 540
San Francisco, CA 94105-4206
Telephone: (415) 369-9660
Facsimile: (415) 369-9665

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) IXIM-01000US0

In re Application of	Amit Haller		
Application Number	09/850,399	Filed	May 7, 2001
For	A System, Device And Computer Readable Medium...		
Art Unit	2666	Examiner	Duong, Frank

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and appropriate non-small-entity fee are as follows (check time period desired):

- ☑ One month (37 CFR 1.17(a)(1)) $ 110
- ☐ Two months (37 CFR 1.17(a)(2)) $
- ☐ Three months (37 CFR 1.17(a)(3)) $
- ☐ Four months (37 CFR 1.17(a)(4)) $
- ☐ Five months (37 CFR 1.17(a)(5)) $

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount shown above is reduced by one-half, and the resulting fee is: $.

☑ A check in the amount of the fee is enclosed.

04/12/2004 BABRAHA1 00000105 09850399
02 FC:1251 110.00 OP

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

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501826.

I have enclosed a duplicate copy of this sheet.

I am the ☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71. Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration Number 35,854

☐ attorney or agent under 37 CFR 1.34(a). Registration number if acting under 37 CFR 1.34(a) .

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April 6, 2004	[signature]
Date	Signature
415-369-9660	Kirk J. DeNiro
Telephone Number	Typed or printed name

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 forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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.**

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		)	PATENT APPLICATION
		)	
Inventors:	Amit Haller, et al.	)	
		)	Art Unit: 2666
Appl. No.:	09/850,399	)	
		)	Examiner: Duong,F.
Filed:	May 7, 2001	)	
		)	
Title:	A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	)	
		)	RECEIVED
		)	Customer No. 28554 APR 15 2004
		)	

Technology Center 2600

DECLARATION OF AMIT HALLER PURSUANT TO 37 C.F.R. §1.131

I, AMIT HALLER, declare that:

1. I am an inventor of the invention described and claimed in the above-identified patent application. I am currently the President, Chief Executive Officer ("CEO") and a Director of IXI Mobile, Inc. ("IXI"), assignee of the above-identified patent application. I have reviewed the pending application as stated in my Declaration for Patent Application and the pending claims as set forth in the PRELIMINARY AMENDMENT ("AMENDMENT") accompanying this DECLARATION. I have also reviewed U.S. Publication No. US 2002/0118663 A1 ("*Dorenbosch et al.* reference") having a filing date of February 27, 2001 ("Effective Date") which has been cited against the above-identified patent application.

2. I understand that this DECLARATION will be filed in the United States Patent and Trademark Office in order to provide factual evidence showing that the subject matter claimed in the above-identified patent application was conceived prior to the Effective Date and with due diligence was constructively reduced to practice by filing the above-identified patent application.

3. The facts set forth hereinafter to establish that the subject matter of the above-identified patent application was conceived and reduced to practice prior to the Effective Date relate to acts which occurred and were carried out within the United States and/or a World Trade Organization ("WTO") member country, Israel.

4. IXI was founded in August 2000 by wireless and information technology industry veterans from Texas Instruments, Butterfly and DSPC. IXI founders include myself, Gideon Barak and Ziv Haparnas. IXI is headquartered in Redwood City, California, with a research and development center outside of Tel Aviv, Israel.

5. I have 15 years of experience in wireless technology and business development. I founded and served as CEO of Butterfly VLSI where I created the Short Distance Wireless ("SDW") division and developed the first complete SDW chipset (Radio Frequency, Baseband and Software). Buffterfly VLSI was acquired by Texas Instruments in 1999. I came to IXI from Texas Instruments, where I directed the Short Distance Wireless (Bluetooth) business unit. Prior to founding Butterfly VLSI, I worked in the Israel Defense Forces' Research and Development unit.

6. I, along with my co-inventors, conceived of the subject matter of the present claims in the above-identified patent application prior to the Effective Date of the *Dorenbosch et al.* reference.

7. I, along with my co-inventors, acted with due diligence from at least a conception date of February 20, 2001 to the filing of the above-identified patent application. While I am providing factual evidence by way of the accompanying Exhibits and this DECLARATION of at least a conception date of February 20, 2001, other documents and evidence support an earlier conception date. Accordingly, this DECLARATION and the accompanying Exhibits should not be construed in any way to limit the subject matter of the above-identified patent application to a conception date of February 20, 2001.

8. I emailed to IXI's outside patent attorney, Kirk J. DeNiro, three documents (attached as Exhibits B, C and D) on February 20, 2001 showing our conception of the subject matter of the above-identified patent application was at least on February 20, 2001, prior to the Effective Date. Kirk J. DeNiro is a registered patent attorney and a partner in the law firm Vierra Magen Marcus Harmon & DeNiro LLP which specializes in Intellectual Property Law having an office located in San Francisco, California.

9. Exhibit A is a copy of a detailed Internet header of the email transmitted to Kirk J. DeNiro on February 20, 2001 listing the attachments.

10. Exhibit B entitled IXI Mobile, Inc. System Requirements for the IXIware Mobile Computing Platform is a copy of an attachment to the February 20, 2001 email.

11. Exhibit C entitled IXI PMG™ Solution is a copy of an attachment to the February 20, 2001 email.

12. Exhibit D entitled IXI Mobile: The Personal Mobile Gateway™ Software Solution is a copy of an attachment to the February 20, 2001 email.

13. On March 29, 2001, Kirk J. DeNiro emailed to me a set of draft claims of the above-identified patent application.

14. On April 13, 2001, Kirk J. DeNiro emailed to me a draft of the above-identified patent application.

15. On April 21 and 22, 2001, I emailed to Kirk J. DeNiro a list of inventors and accompanying personal information for the above-identified patent application.

16. After a review and revision of the first draft patent application, a second draft patent application was emailed to me by Kirk J. DeNiro on April 24, 2001.

17. After a review and revision of the second draft patent application, the above-identified patent application was filed with the United States Patent and Trademark Office on May 7, 2001.

18. 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.

Date: 4-5-04 By: _____

Amit Haller,
President, CEO and Director of
IXI Mobile, Inc.

Exhibit A

Received: from exchange.voquette.co.il (199.203.118.118 [199.203.118.118]) by kauai.fdml.com with SMTP (Microsoft Exchange Internet Mail Service Version 5.5.2650.21)
	id F2NKXFQB; Tue, 20 Feb 2001 10:43:52 -0800
Received: by EXCHANGE with Internet Mail Service (5.5.2650.21)
	id <FB0SDAGV>; Tue, 20 Feb 2001 20:43:55 +0200
Message-ID: <E4371858253ED411818F00508BC23F8A7D0C6C@EXCHANGE>
From: Amit Haller <AmitH@iximobile.com>
To: kjd@fdml.com
Subject: IXI
Date: Tue, 20 Feb 2001 20:43:53 +0200
MIME-Version: 1.0
X-Mailer: Internet Mail Service (5.5.2650.21)
Content-Type: multipart/mixed;
	boundary="----_=_NextPart_000_01C09B6D.13563532"

This message is in MIME format. Since your mail reader does not understand this format, some or all of this message may not be legible.

------_=_NextPart_000_01C09B6D.13563532
Content-Type: text/plain;
	charset="iso-8859-1"

------_=_NextPart_000_01C09B6D.13563532
Content-Type: application/vnd.ms-powerpoint;
	name="IXI Overview - Marketing Feb-19-01.ppt"
Content-Transfer-Encoding: base64
Content-Disposition: attachment;
	filename="IXI Overview - Marketing Feb-19-01.ppt"

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Content-Transfer-Encoding: base64
Content-Disposition: attachment;
	filename="Overall block diagram.ppt"

------_=_NextPart_000_01C09B6D.13563532
Content-Type: application/msword;
	name="IXI System Specification V0_2.doc"
Content-Transfer-Encoding: base64
Content-Disposition: attachment;
	filename="IXI System Specification V0_2.doc"

------_=_NextPart_000_01C09B6D.13563532--

Exhibit B

IXI Mobile, Inc.
System Requirements
For the

IXIware
Mobile Computing Platform

Change Control

Author	Date	Version	Comment	Reviewed	Approved
Peter Fornell	10/12/00	V0.1b	Initial draft version	ZivH	
	10/25/00	V0.1c	Updates	ZivH, AmitH	
	11/3/00	V0.1d	Removed earbud, more details	AmirG	
		V0.1e	Added charging, new device category,landline connection	AmirG	
	12/15/00	V0.2	Removed the PMG and device requirements into separate documents		

Related Documents

Ref.	Name	Description	Document Number
1	PMG Requirements Document	General requirements for the PMG	IXI-SS-PMG-010108
2	Handset Requirements Document	General requirements for the handset terminal	IXI-SR-HSET-010110
3	Messaging Terminal Requirements Document	General requirements for the Messaging application and device	IXI-SR-MSG-010110
4	Email Terminal Requirements Document	General requirements for the email terminal	IXI-SR-EML-010110
5	Backend Requirements Document	General requirements for the backend services	IXI-SR-BE-010110
6	Application Toolkit Requirements Document	Requirements for the third-party developers toolkit	IXI-SR-APP-010110

1 Introduction

To address the mobile computing industry's need for a standard platform to manage next generation devices, applications and interoperability, IXI is developing a technology called the Personal Mobile Gateway[tm] (PMG). The PMG is an enabling technology that allows for the creation of function-optimized mobile devices and applications for both voice and data while using a powerful mobile computing platform to provides core services. The PMG utilizes 2.5G and 3G wireless air-interfaces along with Bluetooth (BT) technology and can be integrated into mobile phones or be a standalone device.

The initial focus of the product will be two market segments; the professional "road warrior" and teenagers, or generation Y. Suggested name for the product family is IXIware, with the subcategories XPro for the road warrior version (primary application will be the Email Terminal [4]) and XGear for the GEN-Y version (primary application will be the Messaging Terminal [3]).

2 Scope

This document provides a system overview for the IXIware product family. Each system component will then have a separate requirements document. Also, further specifications will be developed for each system component, such as User Guides, Usability Document, Software Requirements Document (SRD), Hardware Requirements Document (HRD), Integration Plan, Test Plan, etc.

3 Overview

The PMG separates the functions end-users desire from the required hardware and software resources. Such core resources include, but are not limited to; radio access system and provided function (e.g. SMS, RSSI), baseband processing, memory storage and management, general OS services, voice recognition algorithms, predictive text input and other functionality commonly required. These functions will run on the PMG.

A device is generically a "dumb" unit that contains the minimum required hardware and software to enable interaction with the user, also commonly referred to as a thin client. Such functionality can be (based on the particular device); microphone and speaker, keypad, touch screen, speakerphone, etc. In most cases, the PMG will run the applications and provide the features and functionality of a particular device. It is anticipated that there will be some devices that provide a particular function that requires additional hardware, such as GPS, MP3 decoder, TV receiver, etc. Each device will have a registration code, or profile, that when transmitted to the PMG, the PMG will utilize to load the required programs and capabilities. A device can also be a "thick" terminal, for example a PalmPilot,

laptop or PowerPC device. The PMG will in this case provide drivers to operate with the thick client as well as resources for Personal Area Network (PAN) management and software interoperability such as synchronization services.

The PMG is agnostic to the wireless air interface technology. It will fundamentally require both data and voice services, based on the devices that are envisioned. Standalone voice is not sufficient to make this concept successful. Based on the current capabilities of the wireless mobile systems and market penetration, GSM with GPRS and possibly EDGE is the best overall technology. Ideally, GPRS class A (simultaneous voice and data) is the most desired, although GPRS class B will suffice for the first product if component, protocol stack and network support precludes releasing a product in a timely manner using Class A. Future upgrades to CDMA-1XRTT or TDMA/EDGE may be considered, if the networks are available and the market potential can support it.

By separating the core functionality with the user features, significant efficiencies are gained in not duplicating resources for the user to achieve a desired feature. This translates into a lower cost upgrade model and an overall cost-reduction in multi-featured devices. Today's wireless products require the user to purchase the features as a bundle based on the manufacturer's decision, such as the "smartphones" and "communicators".

The PMG and the devices will exchange information using a PAN that will be based on Bluetooth. Bluetooth allows for new devices to be added seamlessly. By adopting the Bluetooth standard, 3rd party developers may create new devices and it provides for low-cost hardware due to the anticipated volumes of Bluetooth.

When a customer purchases a new device, the device will automatically register itself with the PMG software, using a plug-and-play concept. Devices that require user interaction in order to register correctly must have an input device to accommodate the data input. This may be complemented with being able to provide advanced configurations via the web, which get automatically downloaded to the PMG enabled device. Having existing Web access should not be a requirement in order to use the PMG, since some users may utilize this device as a replacement for landline Web access.

Authentication of a device will be performed when the PMG detects the device for the first time. The procedure for authentication is further outlined in section "Adding a New Device".

If other devices can share the functionality of the new device, e.g. a GPS receiver, the other devices should automatically be notified of the functionality and report to the user that such functionality has been added (e.g. an icon on the screen).

There should be two types of authentication; temporary and persistent. A persistent device will only need to be authenticated once. The PMG will remember this device and automatically register with it when detected. A temporary authentication is for devices that will only be allowed to be connected during a session, i.e. until the connection with the PMG is lost. *(Is this possible within the BT spec?)*The user will have access to a personal web page on the

backend server. This web page can be used for downloading new features, upgrades, configure features, backups, purchase additional devices or features, etc. It is envisioned that wireless carriers may provide these backend services, or third party Application Service Providers (ASP) can provide them.

3.1 Device Classes

The devices will be functionally separated into several classes, or categories, from a capability point-of-view. A device category consists of core functions that will be available for device developers. It is up to the device developers what functions to use and to add their own, if so required. The list of device categories will be dynamic as new device categories are added. IXI will provide toolkits and, in some cases, hardware reference designs, for each major supported category, in order to encourage 3rd party developers to create new devices. The toolkits will be provided only to third party developers via the 3rd party development program and will not be part of the PMG application. All device classes will be voice capable, although voice may not be included with all devices. Each feature listed below is a capability that the 3rd party developer may chose to use, or not, depending on their requirements. Advanced 3rd party developers may chose not to use the pre-defined device toolkits, but rather gain access to a full development environment.

1. *Handset* – this category supports mainly the voice function. Ability to initiate and terminate a call. Core MMI functions will be provided as libraries (?). Support for LCD, keypad, ringer, microphone, speaker and other peripherals.
2. *Voice OnlyTerminal* – Headset functionality. All commands are initiated by voice or a "command" button. Voice recognition will be supported by the PMG. The voice recognition feature shall be speaker dependent and will require a training sequence. It should recognize pre-recorded phrases, such as "Home", or individual digits. Speaker independent VR can be provided as an additional feature via the data services, where the VR engine runs on the IXI server. The user should also be able to record and modify the VR commands via their IXI web page, to provide an intuitive user interface and flexibility.
3. *Audio Terminal* – Support for advanced audio processing, such as MPEG3, Dolby surround sound(?)...
4. *Text Terminal* – Data centric, but not Web focused. This will require PMG support for SMS, email, WAP and a micro browser. Keyboard and display functions are also required. Hand writing recognition, such as Tegic's T9. Ability to store messages local to the PMG. Chat function without permanent storage on the PMG. Potentially support for a removable storage media, such as MultiMedia or Smartmedia cards.
5. *Web Terminal* – Focused on Web access and email. Will require support for a full keyboard, either using a physical keyboard or a touch screen, and a large color display. PDA-type functionality (e.g. PIM, browser, email,

etc.). *What about support for full HTML? Could we provide some caching mechanism that will automatically re-fresh the user's top n webpages and download them in the background?*

6. *Gaming Terminal* – Support for streaming multimedia. Able to decode streaming video, such as MPEG4, and streaming audio, such as MPEG3.
7. *Thick Clients* – Support for existing devices, such as PalmPilots, PowerPC, laptops, etc.

3.2 Sample Devices

- *Handset* – Core terminal with functionality of a regular mobile. Since the unit has few hardware functions, it can be physically tailored to specific markets (ultra thin, ultra small, particular shape, etc.). This unit will come with the PMG as the standard accessory. See [2] for a detailed description of the IXI handset application and device.
- *Messaging terminal* – Small and light terminal that provides Messaging services, such as ICQ, AOL, SMS, Teletex, Internet chat, etc. See [3] for a detailed description of the IXI Messaging application and device.
- *Game terminal* - color LCD, graphics, good sound etc. Games can be downloaded via a web portal and also played online against friends. Support for GameBoy TBD.
- *Folding Web Browser* - small form factor browser (maybe fold to four using four separate screens?) touch screen, relatively large screen space with real HTML browsing. Will require 56Kbps to be useful (HSCSD at a minimum).
- *Digital Camera* - Shots are sent directly to a photo album on the web, online. No limit on the number of photos, no storage needed in the camera which can make it cheaper and lighter. Potentially support for a removable storage media.
- *GPS Terminal* - Terminal can be a location-only device, e.g. person tracker. Another application is a location device with a large screen with maps, locations of interests and other services can be downloaded as needed from the web. Touch screen most viable input method. The location information must be stored in the PMG and be shared with other devices.
- *Voice Only* – This device can be made extremely small and fit, as an example, in a pen. It will only have voice capability and an "activate" button, used for initiating a voice command or answer an incoming call. Dialing will be performed using voice and processed in the PMG.
- *Incoming Message Only* – This device will only be capable of displaying incoming messages, either from the PMG or another device. Such messages may be SMS, appointment reminders, time of day, select emails,

etc. This device could be housed in a wristwatch form-factor. The user would need a different device to respond to a message.

- *Electronic Wallet* – Input banking information. Download cash. Use at point-of-sale for payment.
- *Banking Terminal* – Ability to perform banking and other financial transactions (check account status, pay bills, etc.). Mid-sized touch-screen. Voice not required.
- *Web Pad* – Large display with keyboard, typically a touch screen, which a user can browse the web with. It may also be used for taking notes in a manner similar to a paper notepad.
- *Internet Radio* – Ability to stream internet radio stations to listening device. Device would have display and browser button and ability to collect radio stations (e.g. support for RealAudio browser)

4 Product Requirements

The system is comprised of the following main building blocks;

1. **PMG** – Interface to the mobile and PAN networks, including radio, protocol and authentication services. Provides services to the applications and devices.

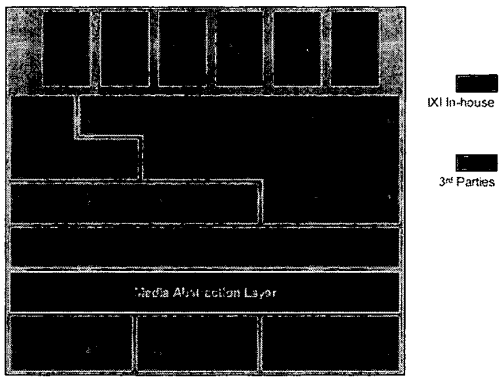


Figure 1 PMG Software Architecture

2. **Device(s)** - Is the display for the desired functionality, such as a handset or PIM device. Contains the required input/output functions and a Bluetooth system. In many devices, the Bluetooth baseband processor is sufficient for providing the necessary software and control functions. The application software will be running on the PMG.
3. **Remote Management System** – Supplies the remote maintenance, upgrade and configuration functionality. This will be Internet based and utilize the cellular network for information transfer. This system provides the ability to load applications, perform data backups, cache

information, modify configurations, run diagnostics and other background tasks *(what else ???)*. It shall also have the capability for users to have their personal web pages, where they can purchase additional features, upgrade programs, modify configurations, view relevant statistics, etc.

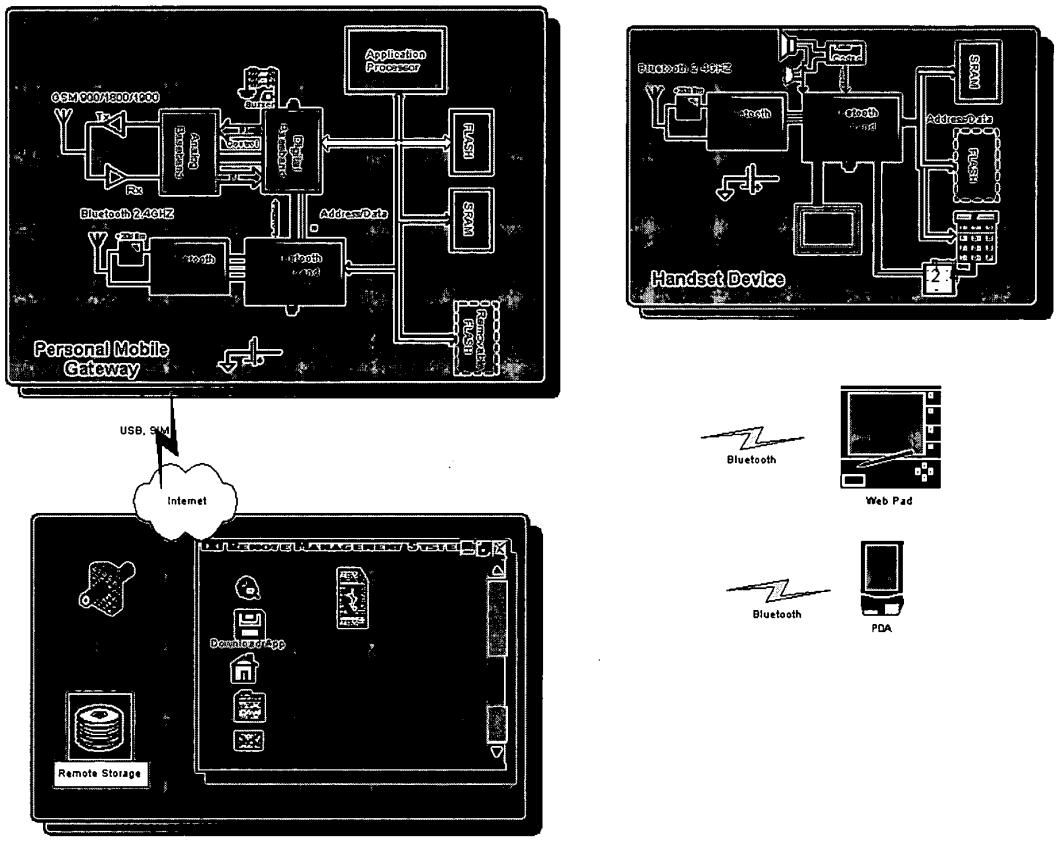


Figure 2 IXIware System Block Diagram

4.1 Application Capabilities

Since one main competitive advantage of this system is the openness and ability for third parties to develop new applications, it is not possible to accurately access what applications the PMG will need to run. However, some basic applications are required in order to support the concept. The applications listed below will not necessarily come bundled with the product, but must have been verified that the system is capable of running such applications with acceptable performance.

1. Internet capabilities: Access websites, both with and without graphics, and be able to load plug-ins commonly used by desktop Internet browsers (e.g. Flash).
2. Read and write emails: using either POP3, MAPI, (does Exchange use MAPI?) Must be able to select if the email should be retrieved and/or deleted from the server. Also should be able to select if attachments are to be included. Ability to store an address book and import existing ones from Exchange, Netscape,
3. WAP (version TBD).
4. Secure connection: Business users must be able to access their corporate intranet. Since the connection method is not direct dial-up (but rather through the wireless carrier), Virtual Private Network (VPN) or other secure methods must be available. It must also be able to run 3rd party Firewall programs.
5. PIM: Support for calendar, contact book and alarm clock. The calendar and contact book should be syncronizable with popular desktop PIM programs (e.g. Microsoft Exchange/Outlook, Meeting Maker, etc.). Support for SyncML is desirable. The PMG shall come standard with a PIM. It shall be possible for users to load 3rd party PIMs.

   It shall be possible to run the PIM applications via a client-server model, i.e. if using Exchange the program should be able to utilize the Exchange database in an online mode running on a server.

   The user shall be able to select whether s/he wants to store the contact information on the SIM card or to local memory. Addresses and other contact information do not need to be stored on the SIM card, only the name and phone number.
6. General applications: Some of the anticipated general applications are;
   - Ability to read, edit and store Word, Excel and PowerPoint files. The user should have the ability to, if connected to a shared driver via the Internet, retrieve and store the documents to/from the drive.
   - Speaker dependent voice recognition engine, with the ability for voice commands as well as voice tags (i.e. use voice to dial a number). It should also be capable of speaker independent voice recognition, but the functionality can be network based.
   - Hand recognition software. Application that interprets hand writing and converts it to text.
   - Abbreviated text input, such as Tegic's T9.
7. Games: The PMG should have the capability of running basic games and multi-user games adapted for a portable device (e.g. Gameboy-like games with simple graphics and sound). Running of complex games with intense graphics, e.g. Sony's gamestation games, are TBD.

8. Audio: The PMG should be able to play MP3, .WAV and streaming audio (e.g. RealAudio) files. Transmission of MP3 files to a device may have to use a reduced quality mode, due to the limitation of the BT link. It must have the ability to upload MP3 files to a device that has an MP3 decoder built-in, e.g. a dedicated MP3 headset. The audio files can be retrieved from the external memory card, downloaded from the Internet or streamed from the Internet.
9. Video: The PMG must support streaming video, e.g. MP4, and other streaming video standard commonly used on the Internet. It should also be able to play video clips stored locally on the device, e.g. via the external memory card.
10. Ring Signals: The PMG shall have both tone and melody based ring signals. It shall come standard with a minimum of 15 different ring signals, whereas 10 shall be melodies. It shall also be possible by the end-user to create custom ring signals. This shall be done either via a keyboard, whereas certain keys are mapped to tones, or via a PC or Web based application that can be downloaded to the PMG. Users shall also be able to use MP3, .WAV and other common audio formats for the ring signal.
11. Animation: Able to support playing short animations during the power-up of a device. Ability for users to load or create their own animations by supporting a standard interface, such as MPEG-2.

4.2 PMG Requirements

The PMG is an application that can either be stand-alone without a significant LCD or a keyboard. To the end-user, it would be a "black box" that they carry with them, without being aware of its functionality or operations. The PMG application can also be integrated into existing devices, such as cellphones, computers and PDAs.

The PMG should be able to switch over to a landline connection, either a LAN or broadband modem. This connection should be via Bluetooth *(performance need further investigation)*. The user should be able to use either data or voice services over the landline.

4.3 IXI Device Requirements Overview

4.3.1 Handset Device Requirements

The handset device is a very light handset that is simply to use. It shall have the functionality of a "low-end", but modern, GSM handset (e.g. Nokia 61xx, Ericsson T28). The main purpose of the handset is for voice communications, but should also have the ability to receive and send standard SMS messages.

The handset user interface will run on the PMG, communicating with the GSM protocol stack via a procedural interface. The GSM protocol stack will provide the necessary services to implement the various features (e.g. call barring, call forwarding, SMS delivery and receipt, reading and writing to the SIM card, network selection, etc.).

Data, fax and browser (e.g. WAP) services will not be supported by the handset. Users that whish to access data services will purchase a Bluetooth module for their laptop computer, or an email or web terminal.

The hardware of the handset will be comprised of a BT transceiver, LCD display with driver chip, keyboard and mechanicals such as battery, antenna, enclosure, etc.

See [2] for further information.

4.3.2 Messaging Device Requirement

See [3] for further information.

4.3.3 Email Terminal Device Requirements

See [4] for further information.

4.3.4 Other IXI Accessories

4.3.4.1 Cigarette Lighter Adapter

A Cigarette Lighter Adapter (CLA) will use a barrel style connector and use the standard charging connector,

Both the PMG and the Devices must support the same CLA, but not all devices have to support a CLA.

4.3.4.2 Headset

Since it is anticipated that there will be many Bluetooth enabled headsets on the market when IXIware is released, a headset will not be specifically supported. Compatibility testing with a select number of headsets must be performed before product release.

4.3.4.3 Car Mount

IXIware must support a car mounted system. This should be done though a 3rd party relationship and ideally use Bluetooth. External antenna connection TBD.

4.4 Remote Management System Requirement

5 Test/QA Requirements

5.1 Interoperability Testing

5.2 Carrier Testing

5.3 Regressions Testing

IXI will need to perform regression testing throughout the development cycle. A Test Plan will be developed to detail the specific requirements. In general, a test setup needs to be created in order to automatically verify software builds, both on a virtual platform and on sample target hardware. The test setup will need to verify user interaction. User interaction consists of both actual inputs by an end-user, such as key presses, and interaction across the API by user or third-party software.

The API regression test tool needs to ensure that the functions and parameters defined in the API specification are correctly implemented, consistent with the last baseline and have appropriate error correction and fault conditions.

5.4 Integration Testing

Integration testing will be performed throughout the development cycle, typically when sample hardware becomes available. A test specification will detail what tests will be performed and when.

6 Documentation Requirements

6.1 User Manuals

6.2 Web Manuals

All user documentation should be available on the Web. The documents should be in a searchable format and also be downloadable to a PC and the PMG. As relevant, the manuals shall have links to other manuals that, when selected, will bring up the correct document automatically. This can also be used as a sales tool to inform users of additional functionality in other devices, or additional software that can be downloaded.

6.3 Interactive Training

The PMG and each device must have an interactive training tool for the end-user. This could be step-by-step instructions on a web site, where the user can interact with the unit in a virtual environment and get prompted regarding the units use and capabilities. For Devices with screens, this functionality could also reside on the Device itself or be automatically downloaded from the net.

7 Usability Requirements

7.1 Out-of-the-box Experience

The initial experience with the PMG and Handset device from the user perspective should be easy to use. The user should not have to read a manual in order to make the unit operational (initiate and terminate a call).

7.2 User Scenarios

7.2.1 Powering up/down

7.2.2 Initiating and terminating a phone call

7.2.3 Setting up email

7.2.4 Browsing the Web

7.2.5 Adding a New Device

Adding a new device must be simple. It should be automatically recognized by the PMG, ala plug-and-play. The device will provide the PMG with its id number, device name, manufacturer and capabilities. The PMG will then search its device register for existing drivers, or load new drivers via the Internet. Authentication can be performed using one of the following procedures;

1) The carrier/re-seller registers/authenticates the device during the sales process. The point-of-sales system will send a message to the PMG, either via the Internet or SMS, containing the device's id number. The PMG will then load the required software for the device. This is the preferred method, since the user does not have to be aware of the authentication process. However, it assumes that the user is purchasing the device from a carrier or authorized reseller (with the correct point-of-sales tools). The message sent to the PMG must be encrypted in order to deter fraud or illegal registration.
2) Call a toll-free number. The user will be prompted for their user id (perhaps phone number?), the device's id number and the PMG's pin. The system will then send the PMG a message either via the Internet or SMS.
3) If the device has a display and an input mechanism, the user can be prompted to accept the pairing and enter the PMG's pin number.
4) A user can do it via the web using their personal IXI website. The user would enter the id number of the device. The system will then send the PMG a message either via the Internet or SMS.
5) In the case of pairing/authenticating a device without i/o capabilities (such as a headset or watch), the PMG could look for a device with i/o capabilities,

such as a handset, and make it beep (or something similar) and the user would be asked for the PMG's pin. This method would be used only if the authentication has not already occured via one of the other methods.

In such cases that user interaction is required before the device can be used (e.g. setting up a web browser), the device must have clear and concise startup menus requesting the information in a successive manner (a configuration Wizard).

7.2.6 Configuring the PMG Application

7.2.7 Configuring a Device

7.2.8 Loading a New Application for an Existing Device

7.3 User Interface Requirements

Each device will have its own user interface requirements and will be documented in the application specification.

8 3rd Party Support Requirements

8.1 Reference Designs

IXI will provide reference designs for certain strategic devices and the PMG. These will be provided as device classes, see paragraph 3, with the intent of the 3rd party developer to use the standard device classes as toolkit, from which to re-use features. A simple device, such as a voice pen, should require very little development effort, besides form-fitting the electronics. A device requiring significant user interaction, such as a web pad, will require a significant development effort.

8.2 Software Development Kit

IXI will provide two levels of software development kits (SDK). The first level will provide required code in object format, instructions on how to add new applications, recommended development environment and tools, suggestions on how to test the unit, guidelines for interoperability testing, etc. Changes to the IXI provided software is not permitted.

The second SDK is for organizations with significant development experience and that are deemed strategic partners by IXI. Since the developer can modify the functionality of the PMG, there will only be a few select partners allowed due to the anticipated significant support effort. The SDK will provide source code for IXI developed software, as necessary, in order for the 3rd party developer to enhance the PMG.

3rd party developers will be responsible for obtaining licensed software, such as Linux, from an official source, e.g. RedHat.

Access to the mobile or Bluetooth protocol stacks will not be provided to \ 3rd party developer.

8.3 Documentation

Documentation for 3rd party developers will be critical. Since there will be two classes of developers; non-strategic with potentially little experience (level 1) and strategic with significant experience (level 2), two sets of documentation will be required.

- Level 1: Ease-of-use will be the primary focus. There must be step-by-step how-to guides with many samples.
- Level 2: Technically very detailed documentation. May include internal specifications.

8.4 Training

There will be two training programs, one for Level 1 and one for Level 2 developers;

- Level 1: On-line self study classes with labs and how-to guides. The class can be access after having registered on the IXI website. The class will cost $x, but can be provided free to select partners. A more detailed instructor-lead class is also required. The instructor-lead class will be provided on a regular basis in multiple cities.
- Level 2: This class is instructor lead on an as-needed basis. It will most likely be provided at IXI's facilities, to have the ability to get access to key engineering resources during the class. Several labs should be provided that could be customized to the developer's particular application before the class.

8.5 Interoperability Testing

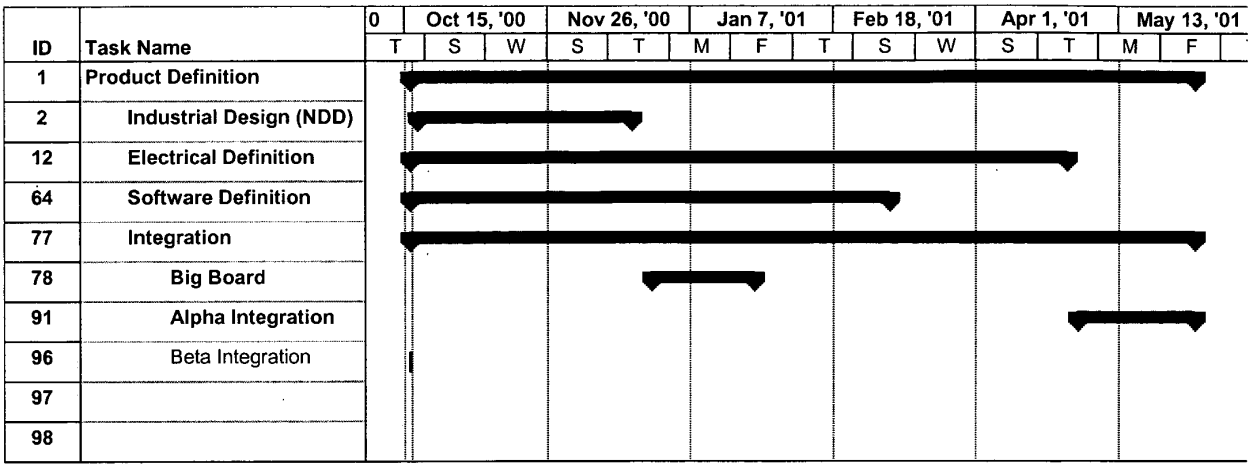
IXI will have to provide an interoperability testing lab with interoperability test suites. An outside partner could manage this lab. Passing the interoperability testing will earn an interoperability certificate and IXI will provide the developer a configuration code and links on the IXI website. Developers will be required to provide IXI with TBD devices to be used for future interoperability testing with other developers.

9 Schedule Requirements

The major milestones are:

Milestone	Target Date
• Technology provider selection	Year-end 2000
• "Table size" development and demonstration platform for software teams	Q1 2001

- Form factor prototype for field tests, sales teams and product launch — Q4 2001
- Complete testing and production readiness — Q2 2002



Appendix A: Glossary

Abbreviation	Definition	Explanation
PMG	Personal Mobile Gateway	See paragraph 3
GSM	Global System for Mobile Communications.	
GPRS	General Packet Radio Services	Packet based data for GSM and TDMA. Class A is capable of simultaneous voice and data.
EDGE	Enhanced Data rates for Global Evolution	Modulation scheme to increase data speeds and use of adaptive modulation
PAN	Personal Area Network	Short-range radio network that allows devices to communicate using a standard protocol
BT	Bluetooth	Standard that is PAN capable
GPS	Global Position System	Satellite-based system that allows for computing a location
HSCSD	High Speed Circuit Switched Data	Multi-slot mode in GSM to achieve higher data rates
MMI	Man Machine Interface	Also called user interface. How the user interacts with a product.
WAP	Wireless Application Protocol	Standard protocol defining how wireless devices access web information
BGA	Ball Grid Array	Packaging technology of integrated circuits using balls instead of leads.

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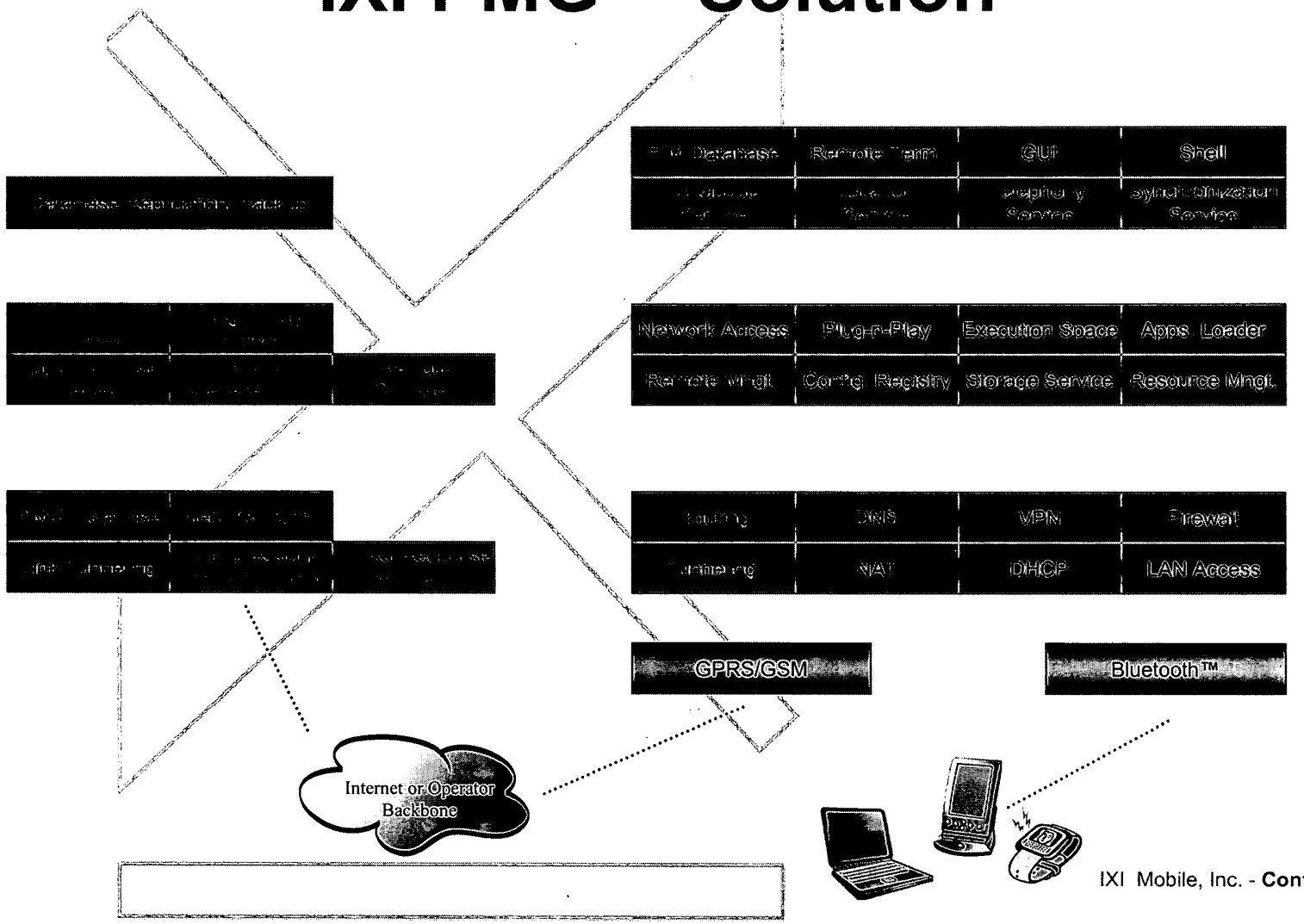
Exhibit C

IXI PMG™ Solution



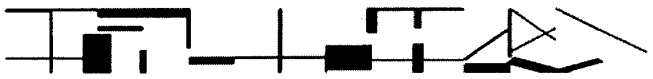


Exhibit D

IXI mobile

IXI Mobile:
The Personal Mobile Gateway™ Software Solution

Executive Summary,
February 2001

IXI mobile

Founders

- Amit Haller - CEO
  - Director of Texas Instruments Short Distance Wireless (Bluetooth) business unit, Butterfly VLSI Founder and CEO (acquired by TI in 1999) - Butterfly was the world pioneer HomeRF & Bluetooth, Israel Defense Force R&D unit
- Gideon Barak - Chairman
  - Butterfly VLSI Chairman, VDOnet co-founder & chairman , DSP Communication co-founder & CEO (acquired by Intel for $1.6B), DSP Group (DSPG) CFO
  - Serves as Chairman of hLAN, Director at Widcomm
- Ziv Haparnas - CTO
  - Expand Networks VP R&D, Butterfly VLSI Chief SW Architect, Israel Defense Force R&D unit

Management Team

- Avi Yitzchak – VP R&D - Israel
  - VP R&D of Comverse Infosys Telecom Networks Division, Defense Force R&D unit, Over 10 Years of Real Time, Communications and Telecomm SW Development & Management
- David Bialer – VP Alliances
  - GM & SVP BSQUARE (BSQR), Founder & Director Business Development MobileSoft, Sr. Product Manager Philips – Windows CE Software
- Jinny Jeong – Director Business Development SEA
  - Product Marketing Manager SEA Intel Wireless, Business Manager SEA DSP Communications, Regional Marketing/Technical Support Manager Korea Qualcomm,
- Peter Fornell – Senior Director Product
  - Business Manager TDMA/CDMA Handset Design at Cadence, Director Engineering Meridian Wireless - GSM, TDMA and AMPS, Engineering Manager Mentor Graphic, Digital Designer at Ericsson

IXI Mission

"To be the Leading Provider of the Personal Mobile Gateway Software Solution"

IXI mobile

Mobile Computing Industry

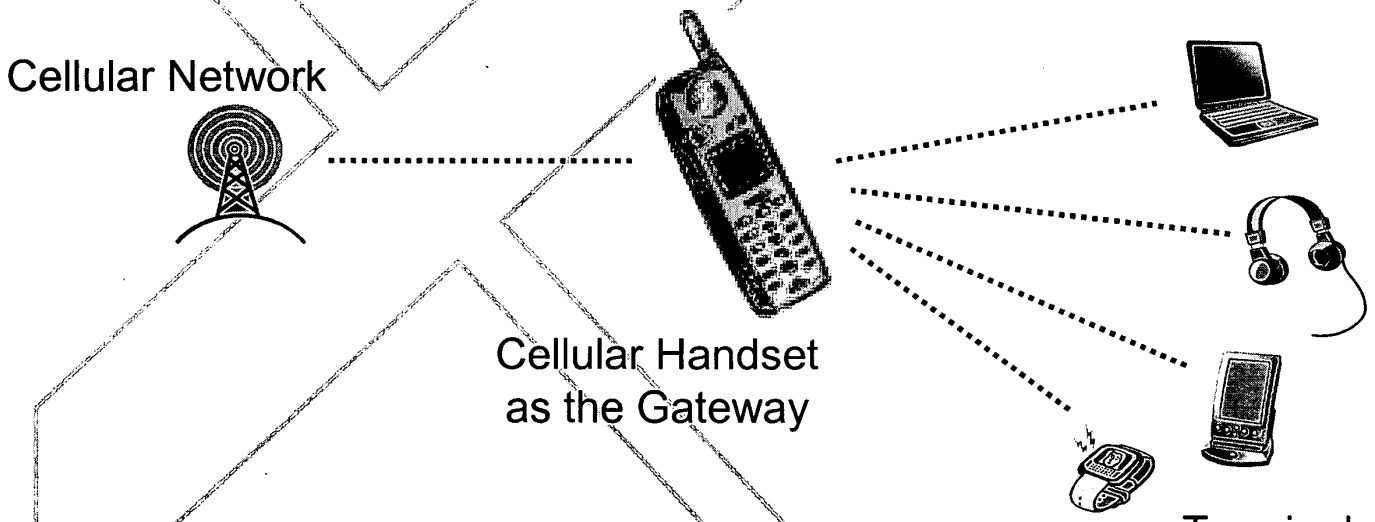
- By 2003 **One Billion** mobile phones
- By 2003 **400M to** as many as **900M** mobile devices will be Internet-enabled
- By 2003 there will be **500M** Internet users
- Increased bandwidth via **2.5 & 3G** networks

Source: Nokia, DLJ, Ericsson

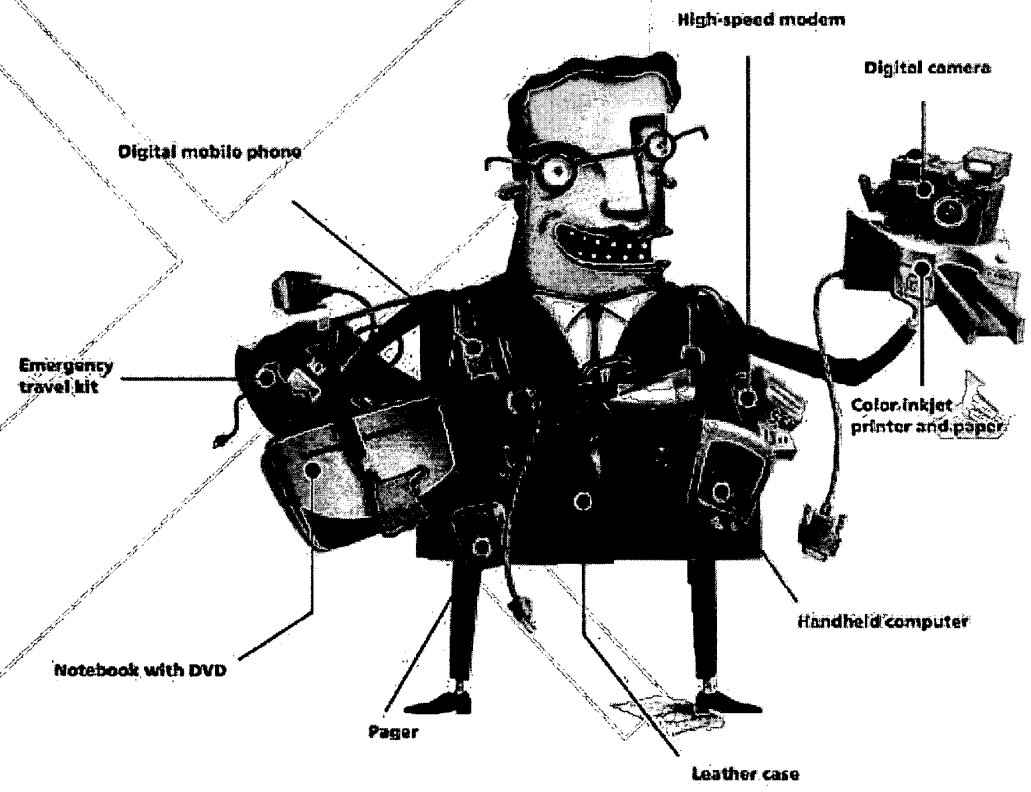
IXI mobile

The Mobile Computing Vision

"Being Connected & Accessing Information Anywhere, Anytime"



This is not the Vision …



Source: Business Week

IXI mobile

The Reality

- There is no Support for an IP Network which being Required by most Mobile Devices
  … the Enterprise solution is the Router
- A New Bluetooth Terminal will not Just "Plug-n-Play" due to the Lack of Application Interoperability
  … in the Enterprise the solution is an NT Server
- No Support for the "Thin Terminals Vision" of Bluetooth
  … in the Enterprise there is an Application Server

IXI mobile

The Network Problem

- Bluetooth-Cellular Network Bridge, Provides a Simplistic Point-to-Point IP Solution
  - Only one terminal at a time can connect to the Internet
  - Terminal must originate the connection – network initiated connections not possible
  - IP addresses are held while connected, which can cost money and uses scarce IP address resources
  - Security management is tough in an enterprise (each device must have its own VPN and Firewall)
  - No ability to remotely manage network devices
  - No IP connectivity between devices

IXI Solution: PAN Router (Like a Cisco Router)

IXI mobile

The Interoperability Myths…

- Bluetooth Supports Physical Interoperability
  - No Real Plug-n-Play at the application level
  - Lack of application resource and information sharing
  - PAN has very limited expansion capabilities – no easy way to add new devices to the PAN with the associated applications

IXI Solution: PAN Server (Like an NT Server)

IXI mobile

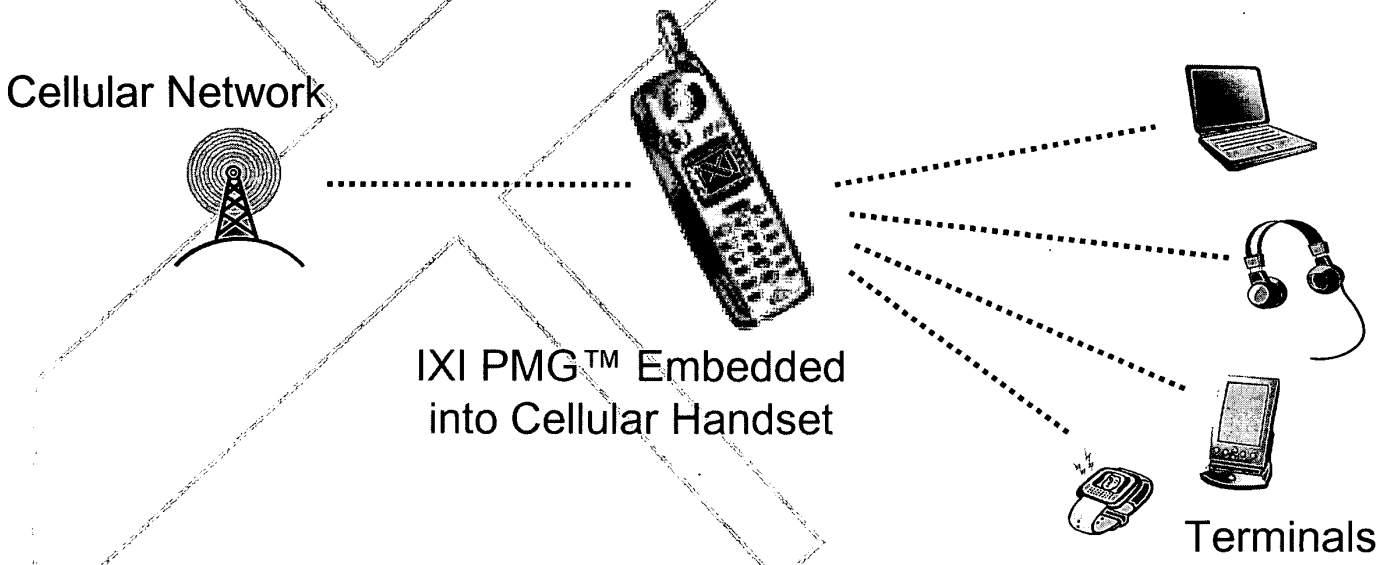
The Thin Terminal Vision Problem

- No way to take advantage of the thin terminal architecture that Bluetooth enables
  - Adding thin terminals means drivers and applications must be loaded to operate with thin terminals
  - Other devices must "know" how to interoperate with thin terminals
  - A common execution space for the applications is required

IXI Solution: PAN Application Server
(Like a Network Application Server)

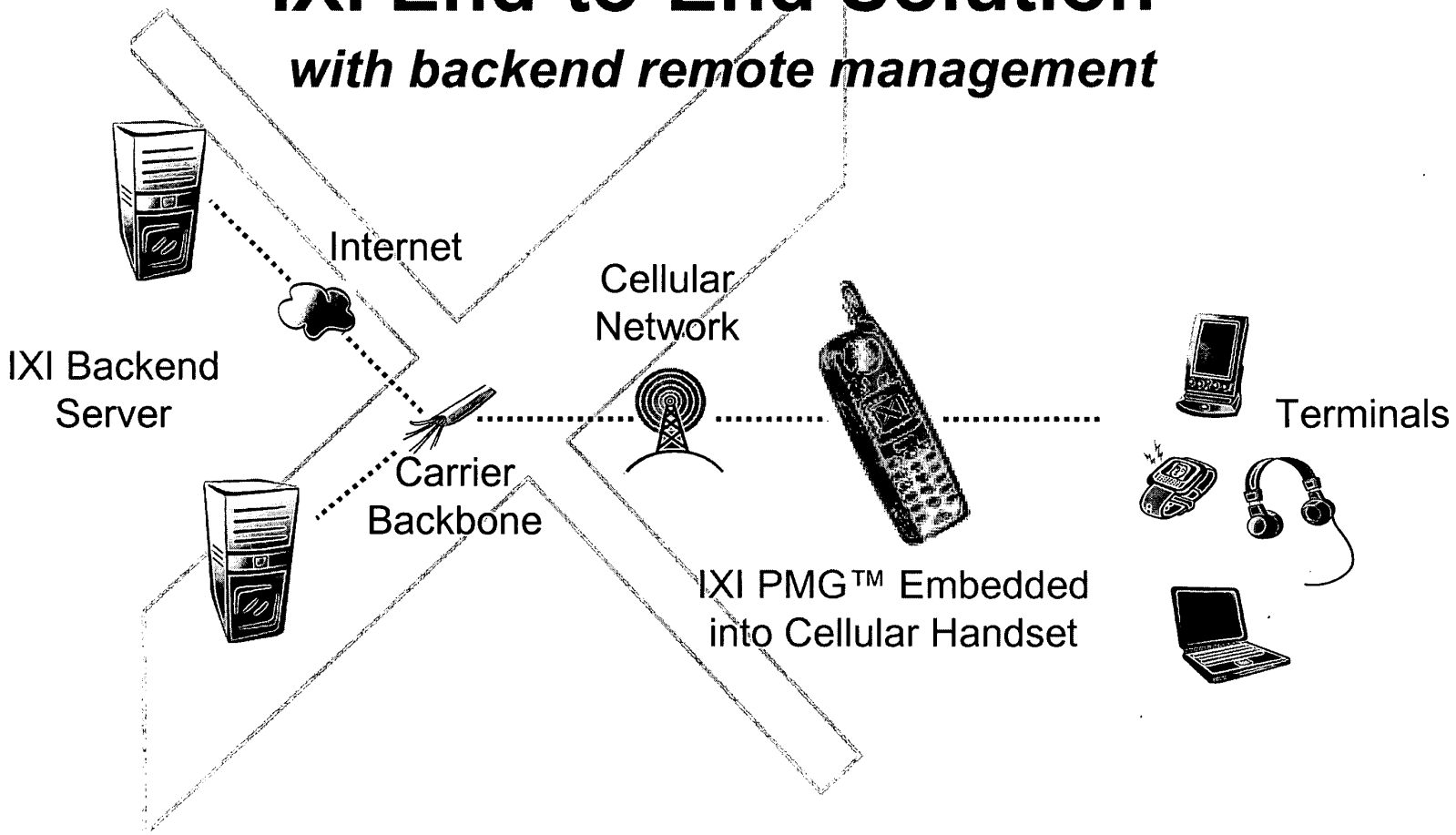
IXI PMG™ Software Solution

will make this Vision Happen



IXI End-to-End Solution

with backend remote management



Industry Comments

What people are saying...

"The functions of the phone could migrate to a cordless Bluetooth earpiece... the rest of the handset is just a radio on your belt..."

IDC

"With Bluetooth, a mobile phone can be a wearable radio around your neck..."

Ericsson

"The digital user of today spends too much time coordinating information between various devices..."

EE Times

" The goal for many is to get rid of one of the devices they are carrying around..."

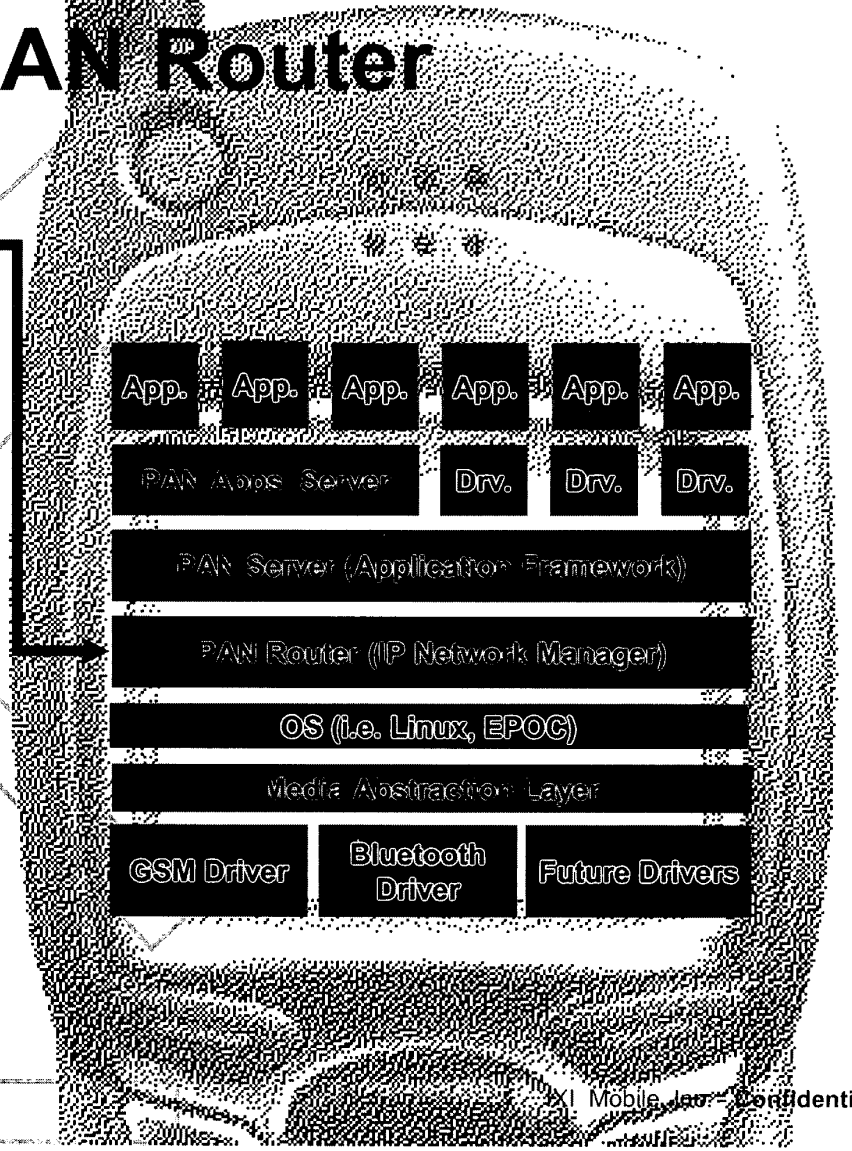
Gartner Group

"Instead of Internet services being delivered primarily to mobile phones, an array of secondary Internet devices will connect users to the Internet using mobile phones as "gateways.""

Herschel Shosteck Associates

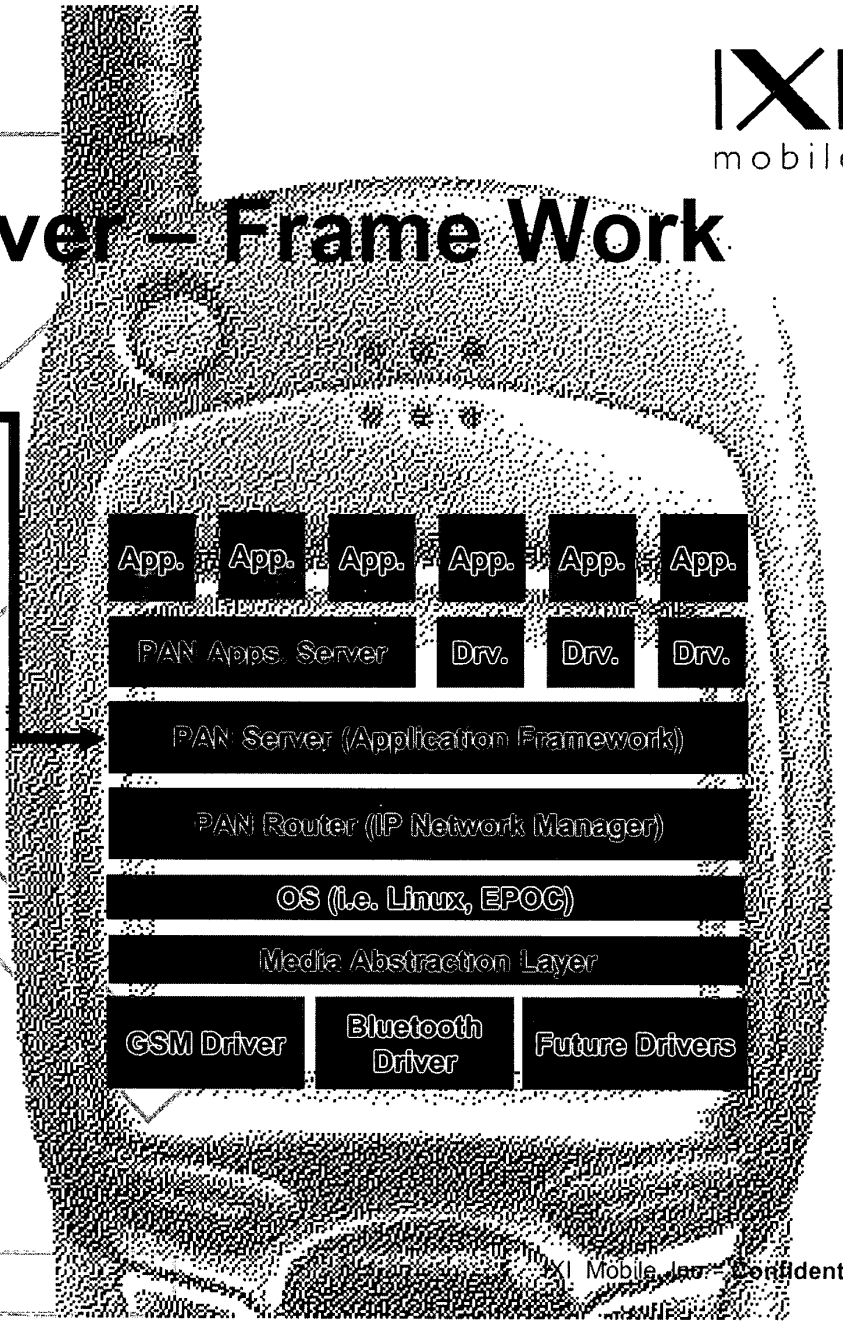
The IXI PAN Router

- GPRS Tunneling
- Bluetooth LAN Access
- DHCP
- DNS
- NAT
- Routing
- VPN
- Firewall
- Remote Management & Network Configuration



The IXI PAN Server – Frame Work

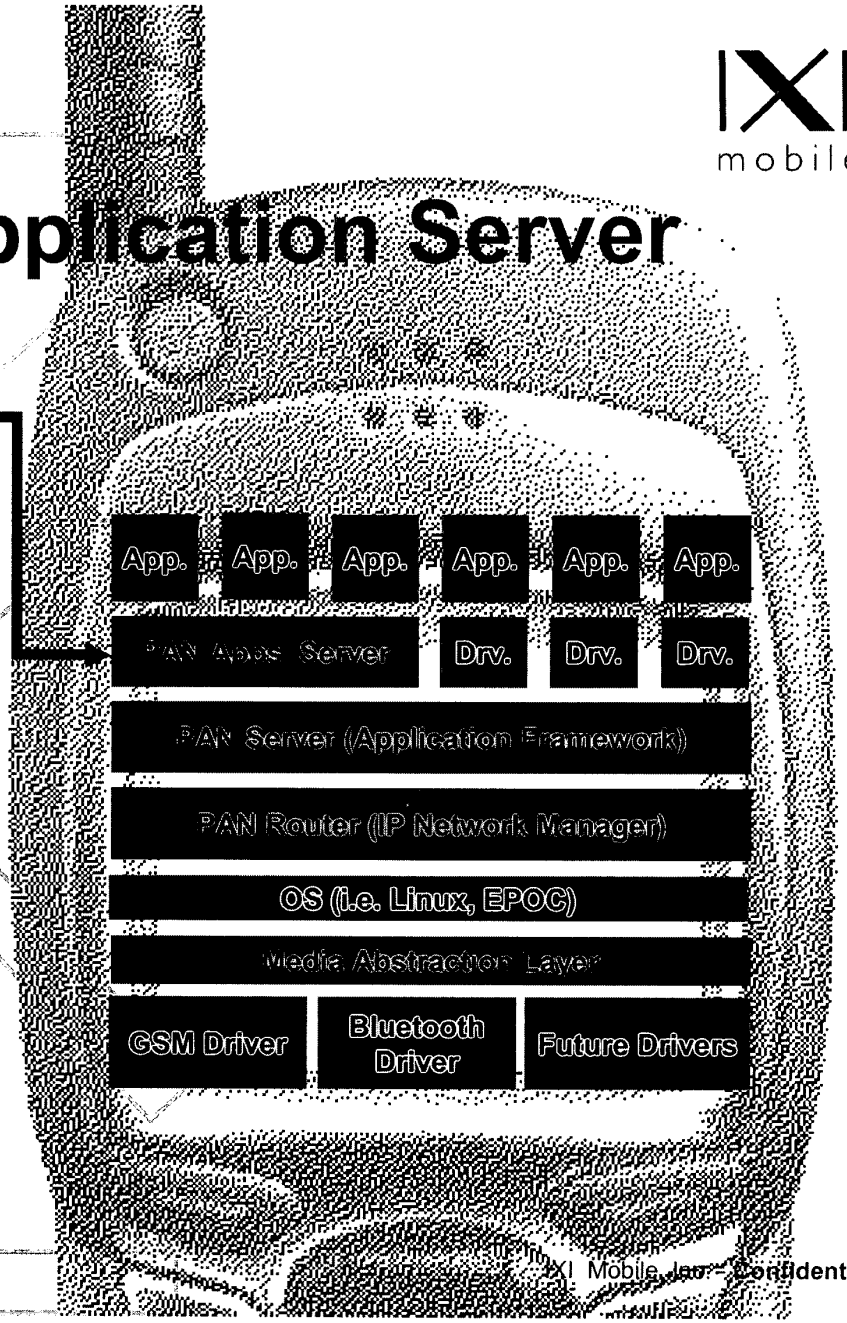
- Plug-n-Play
- Applications/Drivers Loader
- Resource Management
- File System – Local/Remote
- Enumeration Service
- Remote Management
- Execution Space
- Inter Application Comm.



The IXI PAN Application Server

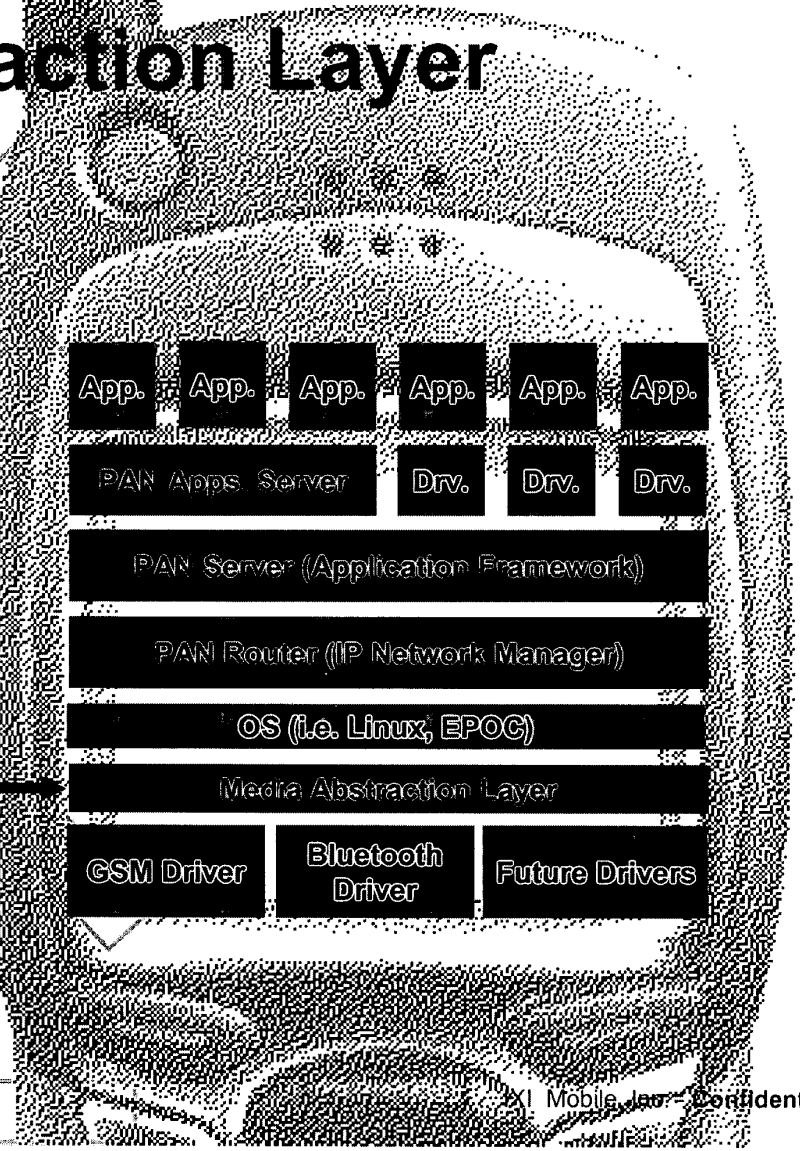
- Remote Terminals Drivers
- GUI Service
- Database Service
- Telephony Service
- PIM Database
- Synchronization Service
- Location Service

** The PAN Apps. Server Module will not be Included in the 1st Release



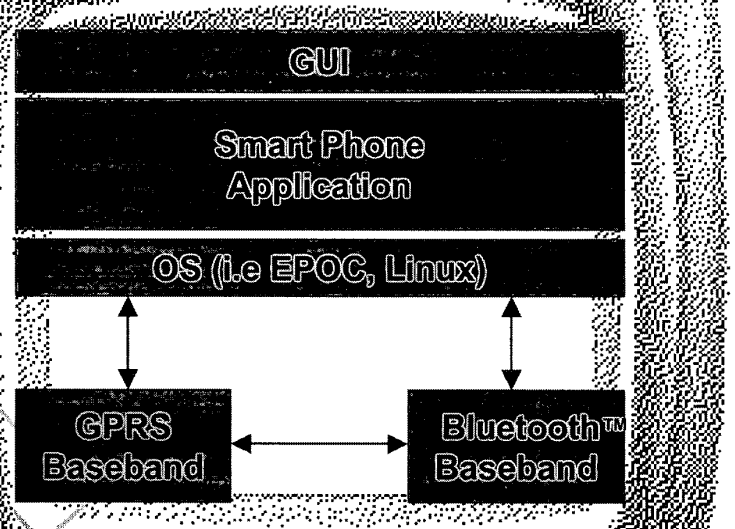
Media Abstraction Layer

- Transparent Layer Between the Physical Layers to the Overall Platform
- Enables an Easy Support for Future PHY (CDMA, UMTS, Bluetooth-2, etc.)



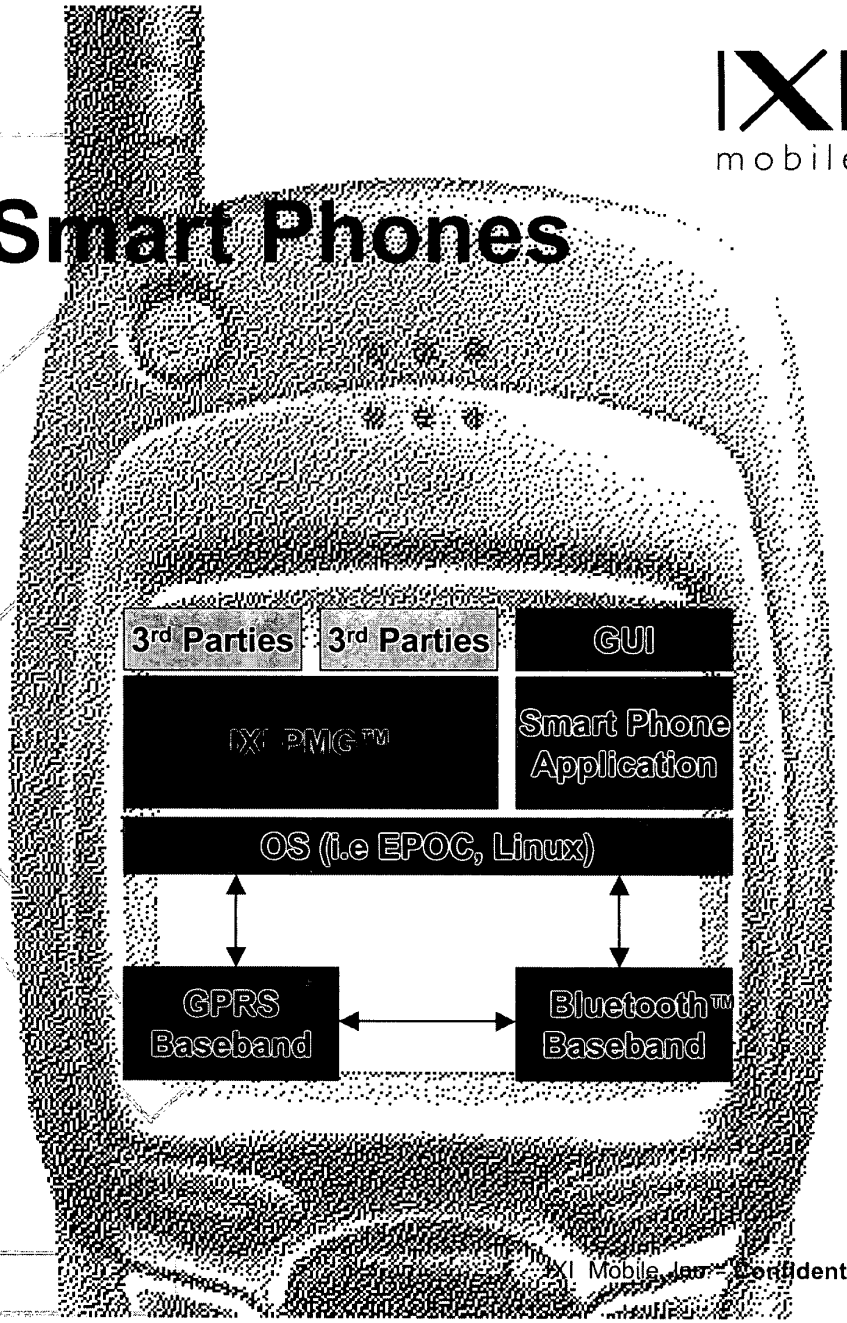
Present Smart Phones

- Present Smart Phones or Smart Phones under Design includes:
  - Application uP (i.e. OMAP™, XScale™)
  - Standard OS Platforms
  - GPRS & Bluetooth integrated
  - Relatively Large Memory for the Application uP
  - Potentially Removable Memory (i.e. MMC, SD)



IXI Enabled Smart Phones

- The IXI PMG™ will co-exist with the Smart Phone Application
- C++ Code
- OS Agnostic
- Supports a Variety of 32bit micro-Processors



IXI mobile

The IXI PMG™ - Summary

- Provides Scalable, Expandable, Maintainable, Secure Bridge and Routing between the WAN and the PAN
- Creates a Framework that:
  - Provides real Plug-n-Play capability
  - Provides ability to load new functionality, enable new terminals and new terminal classes
  - Provides remote management capabilities
  - Enables consolidation of overhead functions into single device (memory, processing, modem, etc.)
  - Provides an open environment enabling customizable third party solutions
  - Is an End-to-End Solution

Value Proposition

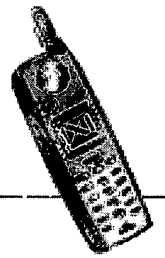
End Users
Better experience!
PnP – easy of use
Friendly Usability

Enterprise
Cost of ownership
Tailored Platform
Remote management

Service Providers
Value added services
Customized services
Remote management & support

Terminal Manufacturers
Interoperability – increase sales
PnP – easy to support

Cellular Manufacturers
Cost effective PMG™ solution
PnP – easy to support
Customizable value added



IXI mobile

Schedule

- ✓ September 2000 - Kick-off 1st generation
- ✓ January 01 – High level architecture & product definition
- March 01 – Final Architecture, top level design
- June 01– First hardware cut, SW integration
- September 01 – Alpha, SW QA
- **January 02 – Product launch**
- **July 02 – First shipment**

IXI mobile

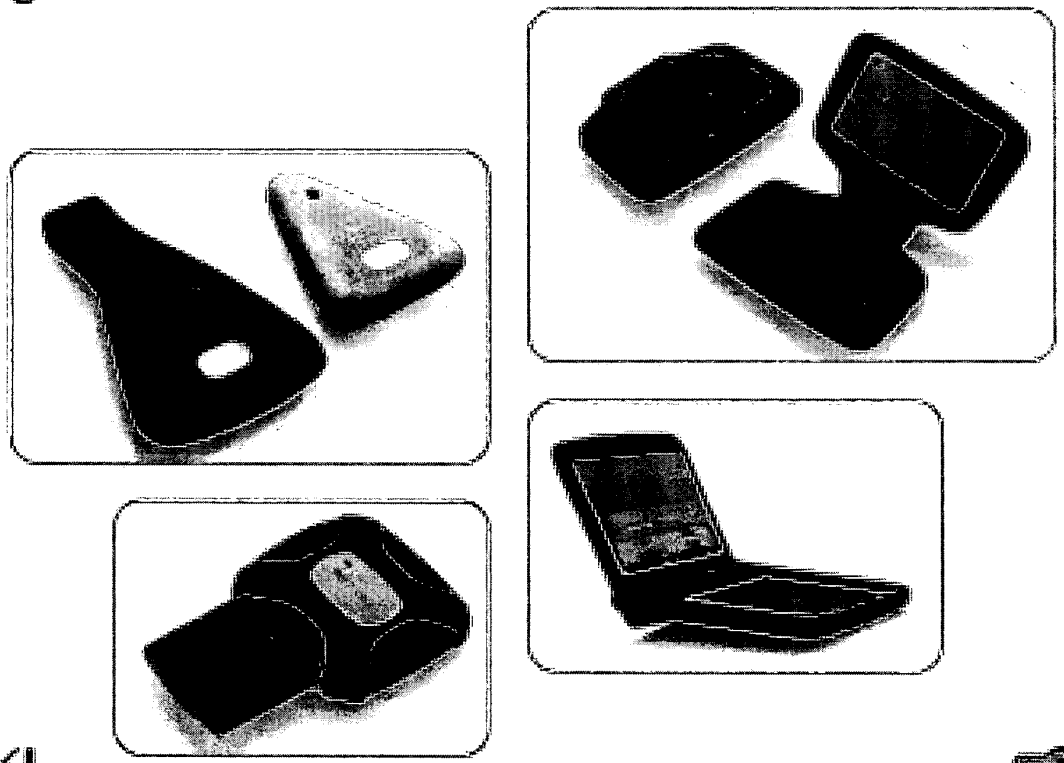
Summary

- IXI is executing on the wireless gateway vision – enabling access to information anytime and anywhere (…and within the right form factor)
- IXI will partner with device manufacturers to bring technology to market
- IXI provides a truly open platform with SDKs and reference designs that enable 3rd party and independent developers to create or port applications
- IXI is realizing the Personal Area Network, allowing true thin terminals to be developed

IXI mobile

How Could it Look ?

ingredients



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/850,399	05/07/2001	Amit Haller	IXIM-01000US0	2705

28554 7590 02/02/2004

VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 MARKET STREET, SUITE 540
SAN FRANCISCO, CA 94105

EXAMINER
DUONG, FRANK

ART UNIT	PAPER NUMBER
2666	

DATE MAILED: 02/02/2004

12

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

PTO-90C (Rev. 10/03)

Interview Summary	Application No. 09/850,399	Applicant(s) HALLER ET AL.	
	Examiner Frank Duong	Art Unit 2666	

All participants (applicant, applicant's representative, PTO personnel):

(1) *Frank Duong*. (3)_____.

(2) *Mr. Kirk DeNiro*. (4)_____.

Date of Interview: *28 January 2004*.

Type: a)☒ Telephonic b)☐ Video Conference
c)☐ Personal [copy given to: 1)☐ applicant 2)☐ applicant's representative]

Exhibit shown or demonstration conducted: d)☐ Yes e)☐ No.
If Yes, brief description: _____.

Claim(s) discussed: *1*.

Identification of prior art discussed: _____.

Agreement with respect to the claims f)☐ was reached. g)☒ was not reached. h)☐ N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: *See Continuation Sheet*.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

Examiner's signature, if required

Summary of Record of Interview Requirements

Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

1) A brief description of the nature of any exhibit shown or any demonstration conducted,
2) an identification of the claims discussed,
3) an identification of the specific prior art discussed,
4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
5) a brief identification of the general thrust of the principal arguments presented to the examiner,
   (The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
6) a general indication of any other pertinent matters discussed, and
7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Mr. DeNiro pointed out that claims 16-17 should not be under 35 U.S.C 112, first paragraph rejection because they do not have the limitation of "wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range signal concurrently". In addition, Mr. DeNiro attempted to pointed out several places in the specification, i.e. page 15, last paragraph, page 18, fourth paragraph, for the 112, first paragraph rejected limitation. Examiner disagrees with Mr. DeNiro because none of those places pointed out by Mr. Deniro has the disputed limitation. Moreover, Mr. DeNiro proposes to file 35 CFR 1.131 to invalid the prior art as well as confirm, skilled artisan's point of view, that the cited passages in the specification do indeed correspond to the disputed limitation. Examiner advices Mr. DeNiro to file a response. Upon receiving the response, every thing will be reconsidered. No agreement was reached! .

5✓

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/850,399	05/07/2001	Amit Haller	IXIM-01000US0	2705

28554 7590 01/05/2004

VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 MARKET STREET, SUITE 540
SAN FRANCISCO, CA 94105

EXAMINER	
DUONG, FRANK	
ART UNIT	**PAPER NUMBER**
2666	

DATE MAILED: 01/05/2004 10

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

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 09/850,399	Applicant(s) HALLER ET AL.	
	Examiner Frank Duong	Art Unit 2666	

-- 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) 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 the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- 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 *14 October 2003*.

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) *1-57* 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) *1-57* 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 _____ 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 and 120

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.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

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-1449) Paper No(s) *6-7*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. This Office Action is a response to the amendment dated 10/14/03. Claims 1-57 are pending in the application.

Information Disclosure Statement

2. The information disclosure statements filed 04/21/03 and 07/30/03 comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. They have been considered and placed in the application file.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no evidence of support for the newly added limitation of "*wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range radio signal concurrently*" in the original specification. Moreover, Applicants fails to explicitly show where the original specification support the disputed,

newly added limitation. Applicants are challenged to either clearly pointed out where the original specification disclosed the disputed limitation or further amend the claims to omit the above limitation in a response to this Office Action.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 45-48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As per **claims 45-48**, "the wireless handheld device" is indefinite. It is unclear whether "the wireless handheld device" referred to "the first", "the second" or "the third" handheld device as recited in the base claim 44.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-18, 23-50 and 55-57 are rejected under 35 U.S.C. 102(e) as being

anticipated by Dorenbosch et al (Pub No. US 2002/0118663) (hereinafter "Dorenbosch").

Regarding **claim 1**, in accordance with Dorenbosch reference entirety, Dorenbosch discloses a system (*Figures 1-3*) for providing access to the Internet (*216*), comprising:

a first wireless device (*100*), coupled to (206) the cellular network (*220*), having a software component (*114*) (page 2, left column, lines 4-13) capable of accessing information from the internet (216) (page 2, right column, second paragraph), wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range radio signal concurrently (page 1, right column, first to second paragraphs);

a second wireless device (202), coupled to (204) the first wireless device (*100*) capable of providing the first short-range radio signal (*page 1, right column, lines 1-7*).

Regarding **claim 2**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the second wireless device (202) is selected from a group consisting of desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof (*page 2, right column, second paragraph*).

Regarding **claim 3**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device is a cellular telephone using a Global System for

Mobile Communication ("GSM") protocol (*page 1, left column, last paragraph and right column, last paragraph and page 3, left column, third paragraph*).

Regarding **claim 4**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol (*page 1, right column, last paragraph and page 3, left column, third paragraph).*

Regarding **claim 5**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device is a cellular telephone using a CDMA2000 protocol (*page 1, right column, last paragraph).*

Regarding **claim 6**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol (*page 1, right column, last paragraph and page 3, left column, third paragraph; GPRS/GSM is TDMA based).*

Regarding **claim 7**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the second wireless device (202) is a thin terminal (page 2, right column, second paragraph; laptop computer is equated to correspond to "thin terminal")

Regarding **claim 8**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses

wherein the second wireless device (202) includes a Bluetooth Processor and a 2.4 Ghz transmitter (not shown; inherent as discloses on page 1, right column, first paragraph).

Regarding **claim 9**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device (100) includes a Bluetooth Processor and a 2.4 Ghz transmitter (*page 1, right column, first paragraph).*

Regarding **claim 10**, in addition to features recited in base claim 1 (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the second wireless device includes a 5.7 Ghz transmitter (not shown; inherent as discloses on page 1, right column, first paragraph).

Regarding **claim 11**, in addition to features recited in base claim 1 (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the first wireless device includes a 5.7 Ghz transmitter *page 1, right column, first paragraph; HyperLan2 transceiver is a 5.7 Ghz transceiver).*

Regarding **claim 12**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (*110)* includes a plug and play software component (116) capable of loading and executing software for the second wireless terminal (202) (page 2, left column, third paragraph).

Regarding **claim 13**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (110) includes a PIN number management

software component (not shown; inherent*)* capable of obtaining and providing PIN numbers *(not shown; inherent in a GSM system in order for mobile register with base station; page 1, right column, last paragraph*).

Regarding **claim 14**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (*110)* includes a service repository software component (116) capable of obtaining an availability of service from the wireless terminal *(page 2, left column, third paragraph).*

Regarding **claim 15**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the second wireless device includes an application software component capable of providing a service; and, wherein the software component (110) includes a management software component (116) capable of accessing the service *(page 2, left column, third paragraph).*

Regarding **claim 16**, in accordance with Dorenbosch reference entirety, Dorenbosch discloses a system (*Figures 1-3*) for providing access to the Internet (*216*), comprising:

a first wireless device (*100*), coupled to (206) the cellular network (*220*), having a software component (*114*) (page 2, left column, lines 4-13) capable of accessing information from the internet (216) by communicating with the cellular network (220) responsive to a first short-range radio signal (204) (page 2, right column, second paragraph);

a second wireless device (202), coupled to (204) the first wireless device (*100*) capable of providing the first short-range radio signal (*page 1, right column, lines 1-7*); and,

a third wireless device (100'), coupled to (310) the first wireless device (100) capable of providing a second short-range signal (page 1, right column, first paragraph, lines (14-17), wherein the second wireless device (202) communicating with the third wireless devices (100') through the first wireless device (100) (page 2, left column, second paragraph).

Regarding **claim 17** in accordance with Dorenbosch reference entirety, Dorenbosch discloses a system (*Figures 1-3*) for providing access to the Internet (*216*), comprising:

a first wireless device (*100*), coupled to (206) the cellular network (*220*), having a software component (*114*) (page 2, left column, lines 4-13) capable of accessing information from the internet (216) by communicating with the cellular network (220) responsive to a first short-range radio signal (204) (page 2, right column, last paragraph to page 3, left column, first paragraph);

a second wireless device (202), coupled to (204) the first wireless device (*100*) capable of providing the first short-range radio signal (*page 1, right column, lines 1-7*); and,

a third wireless device (100'), coupled to (310) the first wireless device (100) capable of providing a second short-range signal (page 1, right column, first paragraph, lines (14-17), wherein the first wireless device (100) provides access to the Internet

(216) for the second (202) and third wireless devices (100') (page 2, left column, second and third paragraphs).

Regarding **claim 18**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (110) operates with an operating system software component (112) (page 1, right column, second paragraph).

Regarding **claims 23-25**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses a memory 110 coupled to the processor 104 which contains software for programming the processor 104 and a communications program 112 for programming the processor 104 to cooperate with the first and second wireless transceivers 102, 108 and with the network interface 106 to control communications therewith. The communications program 112 also preferably programs the processor 104 to activate a packet data protocol (PDP) context using an access point identifier to connect with a corresponding gateway (page 1, right column, second paragraph). Also on the same page, right column, last paragraph, Dorenbosch further discloses the wireless router using the GPRS PDP context activation or CDMA 2000 PPP session establishment to establish a connection with a desired router. In doing so, the wireless router must include a firewall software component or a virtual private software component. Thus, it is inherent that Dorenbosch discloses the claimed limitations in a manner set forth as claimed.

Regarding **claim 26** in accordance with Dorenbosch reference entirety, Dorenbosch discloses a system (*Figures 1-3*) for providing access information on a cellular network (*220*), comprising:

a first wireless device (202) capable of providing the first short-range radio signal (*page 1, right column, lines 1-7*); and,

a second wireless device (100), coupled to (204) the first wireless device (220) and the cellular network (220), capable of selectively transferring information between the first wireless device and the cellular network responsive to the short-range radio signal (page 2, left column, third paragraph).

Regarding **claim 27**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the cellular network includes a corporate network (Figure 2, element 220).

Regarding **claim 28**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the cellular network includes a private IP network (Figure 2, element 216).

Regarding **claim 29**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the first signal short-range radio signal is an 802.11 signal (page 1, right column, first paragraph).

Regarding **claim 30**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the first signal short-range radio signal is a Home RF signal (page 1, right column, first paragraph).

Regarding **claim 31**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the information is provided in the form of data packets (page 1, right column, last paragraph, "packet data protocol context").

Regarding **claim 32**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the information is provided in the form of IP packets (page 1, right column, last paragraph, "packet data protocol context to activate IP address").

Regarding **claim 33**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the second wireless device is coupled to the cellular network by either an Ethernet connection, DSL connection or a cable modem (page 1, right column, first paragraph).

Regarding **claim 34**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the second wireless device is coupled to the cellular network by a landline network ((page 1, right column, first paragraph).

Regarding **claim 35**, in addition to features recited in base claim 26 (see rationales discussed above), Dorenbosch further discloses wherein the first wireless device provides execution space for executable software from the second wireless device (page 2, left column, second paragraph).

Regarding **claim 36**, in accordance with Dorenbosch reference entirety, Dorenbosch discloses a handheld device (100) for providing a personal network (*FIG. 2*), comprising:

a storage device (110);

a processor (*104*), coupled to the storage device (see connection depicted in FIG. 1);

the storage device (110) storing a software component (*112, 114, 116, 118 and 120*) for controlling the processor (104); and, the processor (104) operative with the software component to:

provide an Internet Protocol data packet (page 2, left column, second paragraph; IP program router 114) from a first handheld wireless device (202) to a second handheld wireless device (100') using short-range radio signals (page 2, left column).

Regarding **claim 37**, in addition to features recited in base claim 36 (see rationales discussed above), Dorenbosch further discloses a Bluetooth transmitter, coupled to the processor capable of producing short-range radio signals (page 1, right column, first paragraph).

Regarding **claim 38,** in addition to features recited in base claim 36 (see rationales discussed above), Dorenbosch further discloses a GSM transmitter (102), coupled to the processor (page 1, left column, last paragraph).

Regarding **claim 39**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further

discloses wherein the software component (*110)* includes a network software component (114) (page 2, left column, second and third paragraphs).

Regarding **claim 40**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (110) includes a plug and play software component (114 with DHCP capability) (page 2, left column, second and third paragraphs).

Regarding **claim 41**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (110) includes a PIN number management software component *(not shown; inherent in a GSM system in order for mobile register with base station; page 1, right column, last paragraph*).

Regarding **claim 42**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (*110)* includes a service repository software component (116) capable of obtaining an availability of service from the wireless terminal *(page 2, left column, third paragraph).*

Regarding **claim 43**, in addition to features recited in base claim 36, (*see rationales applied in the rejection of base claim 1 discussed above*), Dorenbosch further discloses wherein the software component (110) includes a management software component (116) *(page 2, left column, third paragraph).*

Regarding **claim 44**, in accordance with Dorenbosch reference entirety, Dorenbosch discloses a first handheld device (100) (*FIG. 2*), comprising:

a storage device (110);

a processor (*104*), coupled to the storage device (see connection depicted in FIG. 1);

the storage device (110) storing a software component (*112, 114, 116, 118 and 120*) for controlling the processor (104); and, the processor (104) operative with the software component to:

provide a first short range (page 1, right column, second paragraph) to a second handheld wireless device (202) capable of accessing the Internet (216) and a second short-range radio signal (FIG. 3; connection between 100 to 310 to 100') to a second handheld wireless device (100') for communicating with a third wireless handheld device (not shown; inherent) (page 2, left column).

Regarding **claim 45**, in addition to features recited in base claim 44 (see rationales discussed above), Dorenbosch further discloses wherein the first wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal, a digital camera and an equivalent thereof (*page 2, right column, second paragraph*).

Regarding **claim 46**, in addition to features recited in base claim 44 (see rationales discussed above), Dorenbosch further discloses wherein the wireless device is a thin terminal (*page 2, right column, second paragraph*).

Regarding **claims 47**, in addition to features recited in base claim 44 (see rationales discussed above), Dorenbosch further discloses wherein the wireless device includes a 2.4 Ghz transmitter (106) (*page 1, right column, first paragraph; Bluetooth transceiver*) coupled to the processor (104).

Regarding **claims 48**, in addition to features recited in base claim 44 (see rationales discussed above), Dorenbosch further discloses wherein the wireless device includes a 5.7 Ghz transmitter (106) (*page 1, right column, first paragraph; HyperLan 2 transceiver*).

Regarding **claims 49**, in addition to features recited in base claim 44 (see rationales discussed above), Dorenbosch further discloses wherein the software component includes an application software (114) component capable of providing a service (DHCP) to the second wireless handheld device (202) (page 2, left column, second paragraph).

Regarding **claim 50**, in accordance with Dorenbosch reference entirety, Dorenbosch discloses an article of manufacture (100), including a computer readable medium, comprising:

a short-range radio software component (106) for communicating with a device (202) in a short distance wireless network (204) by using a short-range radio signal (Bluetooth) (page 1, right column, first paragraph);

a cellular software component (102) for communicating with a cellular network (220) by using a cellular signal (206) (page 1, left column, last paragraph); and,

a network software component (114) for selectively transferring a data packet between the device (202) and the cellular network (202) (page 2, left column).

Regarding **claim 55**, in addition to features recited in base claim 50 (*see rationales discussed above*), Dorenbosch further discloses wherein the article of manufacture is a memory storage device (110) in a cellular telephone (*FIG. 1)*).

Regarding **claim 56**, in addition to features recited in base claim 50 (*see rationales discussed above*), Dorenbosch further discloses wherein the short-range radio software component is a Bluetooth component (*page 1, right column, first paragraph*).

Regarding **claim 57**, in addition to features recited in base claim 50 (*see rationales discussed above*), Dorenbosch further discloses wherein the cellular software component is a GSM component (*page 1, left column, last paragraph or page 3, left column, third paragraph*).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 19-22 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable

Dorenbosch in view of Parekh (OPERATING SYSTEMS ON WIRELESS HANDHELD DEVICES, pages 1-8, September 28, 2000).

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Dorenbosch fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Dorenbosch reference is well known and disclosed by Parekh.

In accordance with Parekh reference entirety, Parekh discloses the operating system such as Linux, EPOC, PocketPC and Stinger is the primary user interface that serves as the software intermediary between the applications and the handheld devices (see Parekh reference, page 3 and thereinafter). The operating systems differ in features such as size distribution, homogeneity, asset specificity and demand stability (*see Parekh reference, page 5*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Dorenbosch's operating system with Linux, EPOC, PocketPC or Stinger disclosed by Parekh to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Parekh reference, page 5*).

Regarding **claims 51-54**, in addition to features recited in base claim 50 (*see rationales pertaining the rejection of base claim 50 discussed above*), Dorenbosch fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or

Stinger. However, the limitation lacks thereof from Dorenbosch reference is well known and disclosed by Parekh.

In accordance with Parekh reference entirety, Parekh discloses the operating system such as Linux, EPOC, PocketPC and Stinger is the primary user interface that serves as the software intermediary between the applications and the handheld devices (see Parekh reference, page 3 and thereinafter). The operating systems differ in features such as size distribution, homogeneity, asset specificity and demand stability (*see Parekh reference, page 5*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Dorenbosch's operating system with Linux, EPOC, PocketPC or Stinger disclosed by Parekh to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Parekh reference, page 5*).

7. Claims 19-22 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dorenbosch in view of DELL (WHITE PAPER, HANDHELD DEVICES: COMPARING THE MAJOR PLATFOMRS, pages 1-7) (hereinafter "DELL").

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Dorenbosch fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Dorenbosch reference is well known and disclosed by DELL.

In accordance with Dell reference entirety, Dell compares the four major handheld platforms to include Linux, EPOC, PocketPC and Stinger. The platforms differ in features such as size, weight, functionality and applications, battery life, display characteristics, cost, and expansion and connectivity (*see Dell, page 1, left column, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Dorenbosch's operating system with Linux, EPOC, PocketPC or Stinger disclosed by DELL to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Dell, page 1, left column, first paragraph*).

Regarding **claims 51-54**, in addition to features recited in base claim 50 (*see rationales pertaining the rejection of base claim 50 discussed above*), Dorenbosch fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Dorenbosch reference is well known and disclosed by DELL.

In accordance with Dell reference entirety, Dell compares the four major handheld platforms to include Linux, EPOC, PocketPC and Stinger. The platforms differ in features such as size, weight, functionality and applications, battery life, display characteristics, cost, and expansion and connectivity (*see Dell, page 1, left column, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Dorenbosch's operating system with Linux, EPOC, PocketPC or

Stinger disclosed by DELL to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Dell, page 1, left column, first paragraph*).

Response to Arguments

8. Applicant's arguments with respect to claims 1-57 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haartsen (USP 6,519,460).

Schuster et al (USP 6,446,127).

Haartsen, BLUETHOOTH-The universal radio interface for ad hoc, wireless connectivity, Ericsson Review N. 3, pages 110-117, 1998.

Lee et al, Integrating Bluetooth with Wireless and Richocheting, IEEE, pages 1310-1314, 2000.

Johansson et al, Short Range Radio Based Ad-hoc Networking: Performance and Properties, IEEE, pages 1414-1420, 1999.

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Frank Duong
December 24, 2003

Notice of References Cited	Application/Control No. 09/850,399	Applicant(s)/Patent Under Reexamination HALLER ET AL.	
	Examiner Frank Duong	Art Unit 2666	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2002/0118663	08-2002	Dorenbosch et al.	370/338
	B	US-6,519,460	02-2003	Haartsen, Jacobus Cornelis	455/452.1
	C	US-6,446,127	09-2002	Schuster et al.	709/227
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Johansson et al, Short Range Radio Based Ad-hoc Networking: Performance and Properties, IEEE, pages 1414-1420, 1999.
	V	Haartsen, BLUETHOOTH-The universal radio interface for ad hoc, wireless connectivity, Ericsson Review N. 3, pages 110-117, 1998.
	W	Lee et al, Integrating Bluetooth with Wireless and Richocheting, IEEE, pages 1310-1314, 2000.
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Please type a plus sign (+) inside this box → [+]

PTO/SB/08A (08-00)
Approved for use through 10/31/2002. OMB 0651-0031
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 2

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	2666
Examiner Name	~~Unknown~~ DUONG, T
Attorney Docket Number	IXIM-01000US0

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
TD		5,572,528		Shuen	11-05-1996	
		5,771,438		Palermo et al.	06-23-1998	
		5,774,791		Strohallen et al.	06-30-1998	
		5,793,763		Mayes et al.	08-11-1998	
		5,838,252		Kikinis	11-17-1998	
		5,896,369		Warsta et al.	04-20-1999	
		5,978,386		Hamalainen et al.	11-02-1999	
		5,987,011		Toh	11-16-1999	
		5,987,033		Boer et al.	11-16-1999	
		6,067,291		Kamerman et al.	05-23-2000	
		6,069,896		Borgstahl et al.	05-30-2000	
		6,085,098		Moon et al.	07-04-2000	
		6,218,958	B1	Eichstaedt et al.	04-17-2001	
		6,223,029	B1	Stenman et al.	04-24-2001	
		6,243,581	B1	Jawanda	06-05-2001	
		6,265,788	B1	Davidson et al.	07-24-2001	
		6,282,183	B1	Harris et al.	08-28-2001	
		6,343,276	B1	Barnett	01-29-2002	
		6,459,882	B1	Palermo et al.	10-01-2002	
TD		6,487,180	B1	Borgstahl et al.	11-26-2002	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office[3]	Number[4]	Kind Code[5] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	12/24/03

*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] Unique citation designation number. [2] See attached Kinds of U.S. Patent Documents. [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.

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 2

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	2666
Examiner Name	~~Unknown~~ DUONG, T
Attorney Docket Number	IXIM-01000US0

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AH		6,487,180	B1	Borgstahl et al.	11-26-2002	—
AH		2002/0086718	A1	Bigwood et al	07-04-2002	—
AH		2002/0160764	A1	Gorsuch	10-31-2002	—
AH		2002/0037700	A1	Dooley et al.	03-28-2002	—

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office[3]	Number[4]	Kind Code[5] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	12/28/03

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[1] Unique citation designation number. [2] See attached Kinds of U.S. Patent Documents. [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.

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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 1 of 1

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	2666
Examiner Name	Duong, Frank
Attorney Docket Number	IXIM-01000USD

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
AD		5,442,680		Schellinger et al.	08-15-1995	—
AD		6,333,973	B1	Smith et al.	12-25-2001	—

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Foreign Patent Document Office[3]	Number[4]	Kind Code[5] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T[6]

Examiner Signature		Date Considered	12/23/03

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[1] Unique citation designation number. [2] See attached Kinds of U.S. Patent Documents. [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.

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Electronic Filing System (EFS) Data

Electronic Patent Application Submission

USPTO Use Only

EFS ID:	52832
Application ID:	09850399
Title of Invention:	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS
First Named Inventor:	Amit Haller
Domestic/Foreign Application:	Domestic Application
Filing Date:	2001-05-07
Effective Receipt Date:	2003-12-24
Submission Type:	Information Disclosure Statement
Filing Type:	
Confirmation number:	2705
Attorney Docket Number:	IXIM-01000US0
Total Fees Authorized:	180.0
Payment Category:	Deposit Account
Deposit Account Number:	501826
Deposit Account Name:	Kirk J. DeNiro
Access Code:	****
RAM Payment Status:	RAM success
RAM User ID:	EFSPROD
RAM Accounting Date:	2003-12-24
RAM Sequence Number:	38

Digital Certificate Holder: cn=Kirk James DeNiro,ou=Registered Attorneys,ou=Patent and Trademark Office,ou=Department of Commerce,o=U.S. Government,c=US
Certificate Message Digest: 65ae632682343097b2690ca94ad3050c7099e0b3

TRANSMITTAL

Electronic Version v1.1
Stylesheet Version v1.1.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Confirmation Number: 2705
Attorney Docket Number: IXIM-01000US0

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I, the undersigned, certify that I have viewed a display of document(s) being electronically submitted to the United States Patent and Trademark Office, using either the USPTO provided style sheet or software, and that this is the document(s) I intend for initiation or further prosecution of a patent application noted in the submission. This document(s) will become part of the official electronic record at the USPTO.

Submitted by:	Elec. Sign.	Sign. Capacity
Kirk J. DeNiro Registered Number: 35854	/Kirk J. DeNiro/	Attorney

Documents being submitted	Files
us-fee-sheet	IXIM-01000US0.IDS-usfees.xml
	us-fee-sheet.xsl
	us-fee-sheet.dtd
us-ids	IXIM-01000US0.IDS-usidst.xml
	us-ids.dtd
	us-ids.xsl

Comments

FEE TRANSMITTAL

Electronic Version v08
Stylesheet Version v08.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong

TOTAL FEE AUTHORIZED $180

Patent fees are subject to annual revisions on or about October 1st of each year.

BASIC FILING FEE

Fee Description	Fee Code	Amount $	Fee Paid $
Submission Of Information Disclosure Stmt Fee	1806	180	180

AUTHORIZED BILLING INFORMATION

The commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit account number: 501826
Access Code ****
Deposit name: VIERRA MAGEN MARCUS HARMON DENIRO
Deposit authorized name: Kirk J. DeNiro
Signature: /Kirk J. DeNiro/
Date (YYYYMMDD): 2003-12-24

Charge Any Additional Fee Required Under 37 C.F.R. Sections 1.16 and 1.17.

FEE TRANSMITTAL

Electronic Version v08
Stylesheet Version v08.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Date: 2001-05-07
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong

TOTAL FEE AUTHORIZED $180

Patent fees are subject to annual revisions on or about October 1st of each year.

BASIC FILING FEE

Fee Description	Fee Code	Amount $	Fee Paid $
Submission Of Information Disclosure Stmt Fee	1806	180	180

AUTHORIZED BILLING INFORMATION

The commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit account number: 501826
Access Code ****
Deposit name: VIERRA MAGEN MARCUS HARMON DENIRO
Deposit authorized name: Kirk J. DeNiro
Signature: /Kirk J. DeNiro/
Date (YYYYMMDD): 2003-12-24

Charge Any Additional Fee Required Under 37 C.F.R. Sections 1.16 and 1.17.

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18
Stylesheet Version v18.0

Title of Invention	SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Application Number: 09/850399
Confirmation Number: 2705
First Named Applicant: Amit Haller
Attorney Docket Number: IXIM-01000US0
Art Unit: 2666
Examiner: Frank Duong
Search string: (05929848 or 06078789 or 06130602 or 05742237 or 05457737 or 06151628 or 06600428 or 06532366 or 6633759 or 20030050058 or 20020128051 or 20020058502 or 20030032417 or 20030060189 or 20030013438 or 20030060188 or 20020142762 or 20020082054).pn.

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	05929848	1999-07-27	Albukerk et al.			
	2	06078789	2000-06-20	Bodenmann et al.			
	3	06130602	2000-10-10	O'Toole et al.			
	4	05742237	1998-04-21	Bledsoe			
	5	05457737	1995-10-10	Wen			
	6	06151628	2000-11-21	Xu et al.			
	7	06600428	2003-07-29	O'Toole et al.			
	8	06532366	2003-03-11	Chung et al.			
	9	6633759	2003-10-14	Kobayashi			

US Published Applications

Note: Applicant is not required to submit a paper copy of cited US Published Applications

init	Cite.No.	Pub. No.	Date	Applicant	Kind	Class	Subclass
	1	20030050058	2003-03-13	Walsh et al.			
	2	20020128051	2002-09-12	Liebenow			
	3	20020058502	2002-05-16	Stanforth			
	4	20030032417	2003-02-13	Minear et al.			
	5	20030060189	2003-03-27	Minear et al.			
	6	20030013438	2003-01-16	Darby			
	7	20030060188	2003-03-27	Gidron			
	8	20020142762	2002-10-03	Chmaytelli et al.			
	9	20020082054	2002-06-27	Keinonen et al.			

Signature

Examiner Name	Date

2666

PTO/SB/21 (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Art Unit	2666
Examiner Name	Duong, Frank
Attorney Docket Number	IXIM-01000US0

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Total Number of Pages in This Submission

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
- [x] Fee Attached
- [ ] Amendment/Reply
  - [ ] After Final
  - [ ] Affidavits/declaration(s)
- [ ] Extension of Time Request
- [ ] Express Abandonment Request
- [x] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
  - [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

Copies of Citations
Notice of Co-Pending Applications
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Remarks

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TC 2600

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Kirk J. DeNiro, Esq., Vierra Magen Marcus Harmon & DeNiro LLP
Signature	
Date	12/19/03

CERTIFICATE OF TRANSMISSION/MAILING

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Signature		Date	12/19/03

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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 180

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Examiner Name	Duong, F.
Art Unit	2666
Attorney Docket No.	IXIM-01000US0

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 501826

Deposit Account Name: Vierra Magen Marcus Harmon & DeNiro LLP

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =	X	= 0
Independent Claims	/	- 3** =	X	= 0
Multiple Dependent				= 0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 0

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	180.00 CP
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	180
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 180

SUBMITTED BY				(Complete *(if applicable)*)
Name (Print/Type)	Kirk J. DeNiro	*Registration No. (Attorney/Agent)*	35,854	*Telephone* (415) 369-9660
Signature				*Date* 12/19/03

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		) PATENT APPLICATION	
Inventors:	Amit Haller, et al.	)	
		) Art Unit:	2666
Appl. No.:	09/850,399	)	
		) Examiner:	Duong,F.
Filed:	May 7, 2001	)	
Title:	A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	) **Customer No. 28554**	

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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12/19/03

Kirk J. DeNiro, Reg. No. 35,854
Signature Date: December 19, 2003

NOTICE OF CO-PENDING APPLICATIONS

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

Sir:

The above-identified patent application may disclose subject matter related to the following U.S. patent applications:

Application No.	Filed	Title
10/165,150	June 6, 2002	A Wireless Device Having A Single Processor In A Short-Range Radio Network
09/932,180	Aug. 17, 2001	A System, Device, and Computer Readable Medium for Providing Networking Services on a Mobile Device

Attorney Docket No.: IXIM-01000US0
ixim/1000/1000.notice

10/435,098	May 9, 2003	A Device, System, Method And Computer Readable Medium For Fast Recovery Of IP Address Change
10/619,857	July 14, 2003	A Device, System, Method And Computer Readable Medium For Selectively Attaching To A Cellular Data Service
10/666,776	Sep. 18, 2003	A Device, System, Method And Computer Readable Medium For Attaching To A Device Identified By An Access Point Name In A Wide Area Network Providing Particular Services
10/014,721	Oct. 26, 2001	A Device, System, Computer Readable Medium and Method for Providing Status Information of Devices in a Short Distance Wireless Network
10/023,525	Dec. 18, 2001	A Method, System And Computer Readable Medium For Making A Business Decision In Response To Information From A Short Distance Wireless Network
10/298,753	Nov. 18, 2002	A Method, System And Computer Readable Medium For Downloading A Software Component To A Device In A Short Distance Wireless Network
09/990,424	Nov. 21, 2001	A Device, System, Method and Computer Readable Medium for Pairing of Devices in a Short Distance Wireless Network
10/224,749	Aug. 20, 2002	Method, System and Computer Readable Medium for Providing an Output Signal Having a Theme to a Device in a Short Distance Wireless Network
10/266,007	Oct. 7, 2002	A System, Method And Processor Readable Medium For Downloading Information Within A Predetermined Period of Time To A Device Responsive To Price Selection
10/358,693	Feb. 5, 2003	A Method, System And Computer Readable Medium For Adjusting Output Signals For A Plurality Of Devices In A Short Distance Wireless Network Responsive To A Selected Environment
10/454,967	June 4, 2003	A Wireless Device Having Dual Bus Architecture For Interfacing With Cellular Signals And Short-Range Radio Signals

10/632,665	Aug. 1, 2003	A Device, System, Method And Computer Readable Medium For Identifying And Authenticating A Cellular Device Using A Short-Range Radio Address

Respectfully submitted,

Date: December 19, 2003 By: _____

Kirk J. DeNiro
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2666/18

PTO/SB/21 (08-03)
Approved for use through 07/31/2006. OMB 0651-0031
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TRANSMITTAL FORM

(to be used for all correspondence after initial filing)

Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Art Unit	2666
Examiner Name	Duong, Frank
Total Number of Pages in This Submission	Attorney Docket Number: IXIM-01000US0

ENCLOSURES *(Check all that apply)*

- [x] Fee Transmittal Form
- [x] Fee Attached
- [x] Amendment/Reply
- [ ] After Final
- [ ] Affidavits/declaration(s)
- [x] Extension of Time Request
- [ ] Express Abandonment Request
- [ ] Information Disclosure Statement
- [ ] Certified Copy of Priority Document(s)
- [ ] Response to Missing Parts/ Incomplete Application
- [ ] Response to Missing Parts under 37 CFR 1.52 or 1.53
- [ ] Drawing(s)
- [ ] Licensing-related Papers
- [ ] Petition
- [ ] Petition to Convert to a Provisional Application
- [ ] Power of Attorney, Revocation Change of Correspondence Address
- [ ] Terminal Disclaimer
- [ ] Request for Refund
- [ ] CD, Number of CD(s) _____
- [ ] After Allowance communication to Group
- [ ] Appeal Communication to Board of Appeals and Interferences
- [ ] Appeal Communication to Group **(Appeal Notice, Brief, Reply Brief)**
- [ ] Proprietary Information
- [ ] Status Letter
- [x] Other Enclosure(s) (please Identify below):

Postcard

Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Kirk J. DeNiro, Esq., Vierra Magen Marcus Harmon & DeNiro LLP
Signature	
Date	October 9, 2003 10/9/03

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Typed or printed name	Kirk J. DeNiro 10/9/03		
Signature		Date	October 9, 2003

This collection of information is required by 37 CFR 1.5. 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 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.**

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Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 1,122

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Examiner Name	Duong, F.
Art Unit	2666
Attorney Docket No.	IXIM-01000US0

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 501826

Deposit Account Name: Vierra Magen Marcus Harmon & DeNiro LLP

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, **except for the filing fee** to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	770	2001	385	Utility filing fee	
1002	340	2002	170	Design filing fee	
1003	530	2003	265	Plant filing fee	
1004	770	2004	385	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($) 0

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

		Extra Claims		Fee from below	Fee Paid
Total Claims	-20** =		X		= 0
Independent Claims	-3** =	2	X	86	= 172
Multiple Dependent					= 0

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	86	2201	43	Independent claims in excess of 3
1203	290	2203	145	Multiple dependent claim, if not paid
1204	86	2204	43	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 172

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	
1252	420	2252	210	Extension for reply within second month	
1253	950	2253	475	Extension for reply within third month	950
1254	1,480	2254	740	Extension for reply within fourth month	
1255	2,010	2255	1,005	Extension for reply within fifth month	
1401	330	2401	165	Notice of Appeal	
1402	330	2402	165	Filing a brief in support of an appeal	
1403	290	2403	145	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,330	2453	665	Petition to revive - unintentional	
1501	1,330	2501	665	Utility issue fee (or reissue)	
1502	480	2502	240	Design issue fee	
1503	640	2503	320	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	770	2809	385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	770	2810	385	For each additional invention to be examined (37 CFR 1.129(b))	
1801	770	2801	385	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) ($) 950

SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Kirk J. DeNiro	*Registration No. (Attorney/Agent)*	35,854	*Telephone*	(415) 369-9660
Signature				*Date*	October 9, 2003

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AMDTA #9
10/27/03
WHaack

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application	)	PATENT APPLICATION
Inventors: Amit Haller, et al.	)	
	)	Art Unit: 2666
Appl. No.: 09/850,399	)	
	)	Examiner: Duong E
Filed: May 7, 2001	)	
	)	
Title: A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	)	Customer No. 28554

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

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10/9/03

Kirk J. DeNiro, Reg. No. 35,854
Signature Date: October 9, 2003

RESPONSE A TO OFFICE ACTION UNDER 37 C.F.R. § 1.111

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

Sir:

This RESPONSE A is in reply to the Office Action mailed April 9, 2003.

AMENDMENTS to the SPECIFICATION begin on Page 2 of this paper.

AMENDMENTS to the CLAIMS begin on Page 7 of this paper.

REMARKS begin on Page 16 of this paper.

Attorney Docket No.: IXIM-01000US0
ixim/1000/1000.response-A

AMENDMENTS TO THE SPECIFICATION

Please amend the above-identified application as follows:

At page 9, please delete the paragraph starting at line 3 and ending at line 5, and replace it with the following paragraph:

In alternate embodiments of the present invention, other local wireless technologies such as 802.11 or HomeRF signals are used to communicate between gateway device 106 and terminals 107.

At page 9, please delete the paragraph starting at line 16 and ending at line 23, and replace it with the following paragraph:

Cellular network 105 is coupled to a wireless carrier internal network or carrier backbone 104. In an embodiment of the present invention, server 102 is coupled to carrier backbone 104. In an alternate embodiment of the present invention, carrier backbone 104 is coupled to Internet 103. Server 101 is coupled to Internet 103. In an embodiment of the present invention, ~~server~~ servers 101 and 102 ~~provides~~ provide information, such as web pages or application software components to terminals 107 by way of gateway device 106. In an embodiment of the present invention, terminals 107 share services and communicate by way of gateway device 106.

At page 10, please delete the paragraph starting at line 12 and ending at line 16, and replace it with the following paragraph:

Fig 2 illustrates thin terminals. Voice terminal 204 includes a display 204b and a retractable keypad 204a. Messaging Terminal 203 is illustrated in a closed position with a hinge 203a used to open and close terminal 203. Terminal 203 also includes a miniature QWERTY keyboard and display when opened. Gateway device 201 includes clip 202 for a belt.

At page 10, please delete the paragraph at line 17, and replace it with the following paragraph:

In an embodiment, PMG device 201 is also illustrated in Fig. 2.

At page 14, please delete the paragraph starting at line 1 and ending at line 16, and replace it with the following paragraph:

Fig. 5a illustrates detailed gateway software architecture 500. In an embodiment of the present invention, network management software 404 illustrated in Fig. 4 includes three software components as illustrated in Fig. 5a: 1) PAN router 404c; 2) PAN server 404b; and 3) Application server 404a. GPRS baseband 503 and Bluetooth™ baseband 502 are software components used to generate communication signals to a cellular network 105 and terminals 107 as illustrated in Fig. 1. In an alternate embodiment, other baseband software components 501 are used to generate communication signals. Media abstraction layer 504 allows operating system 403 to communicate with basebands 503, 502, and 501, respectively. Media abstraction layer 504 and other abstraction layers, described herein, translate a particular communication protocol, such as GPRS, into a standard command set used by a gateway device and/or terminal. The purpose of an abstraction layer is to isolate the physical stacks from the rest of the gateway device software components. This enables future usage of different physical stacks without changing any of the upper layer software and allows the gateway device software to work with any communication protocol.

At page 17, please delete the paragraph starting at line 16 and ending at line 19, and replace it with the following paragraph:

Accessing a WAN can typically be done in two ways: unsecured when accessing a public network, such as the Internet, or secured when accessing a private network, such as ~~a~~ an Enterprise network, file system or Exchange server.

At page 20, please delete the paragraph starting at line 8 and ending at line 12, and replace it with the following paragraph:

Fig. 7 illustrates software components of PAN server 404a according to an embodiment of the present invention: 1) plug and play software component 701, 2) PIN number management software component 702, 3) management software component 703, 4) service repository software component 704, and 5) application loader 705. In alternate embodiments, more or less components are used.

At page 20, please delete the paragraph starting at line 15 and ending at line 18, and replace it with the following paragraph:

When a new terminal is introduced to a PAN, the software to support this terminal needs to be located, downloaded and executed. The Plug and Play component is responsible for identifying the introduction of the new terminal and ~~decide~~ deciding on the software needed to be downloaded.

At page 21, please delete the paragraph starting at line 1 and ending at line 9, and replace it with the following paragraph:

Fig. 7 illustrates the operation of Plug & Play component 701. In response to a terminal ID from PAN router 404c, Plug and Play component 701 will access the software package for a selected terminal from backend middleware 485 or locally from gateway device 106 memory. If the selected package is not locally available in gateway device 106 memory, a URL is provided from backend middleware 485 for accessing the package remotely. In an embodiment of the present invention, the selected package will install and run on different modules (typically but not necessarily a shell, service/terminal drivers and applications that can run on the terminal).

At page 21, please delete the paragraph starting at line 12 and ending at line 18, and replace it with the following paragraph:

Adding new capabilities to a PAN involves the loading of executable code to a PAN execution environment. Application loading can be a result of many events; plug and play component 701 can generate an application loading for supporting a new terminal on a PAN, a user can decide to actively load an application to a PAN or an operator on a cellular network can decide to load an application to a PAN. Application loader 705 is responsible for application software code transfer and execution.

At page 24, please delete the paragraph starting at line 5 and ending at line 7, and replace it with the following paragraph:

A/1 The disconnecting functions described above, allow a high priority application to obtain a service from an application using the service. The disabling functions allow for high priority applications to create personal area network restrictions.

At page 25, please delete the paragraph starting at line 11 and ending at line 17, and replace it with the following paragraph:

A/2 Fourth, service repository software component 704 also provides searching of services. This function describes whether listed terminals support listed services. This function enables an application to quickly locate a specific service. A search of a general class of service, such as a search for a printer, may be performed. Likewise, a search for specific attributes associated with that service, for example laser or color, is provided. Further, a search for specific instance of a service, for example a HP LaserJet model GTI, is also provided.

At page 26, please delete the paragraph starting at line 9 and ending at line 13, and replace it with the following paragraph:

A/3 In an embodiment of the present invention, service repository component 704 describes the terminals and the services that are available at a particular time, but service repository software component 704 does not describe the current status of the services. A service might be available in a PAN but not necessarily accessible since another application is exclusively using the service.

At page 26, please delete the paragraph starting at line 21 and ending at line 25, and replace it with the following paragraph:

A/4 Application Server component 404a illustrated in Fig. 5a allows for removing redundant capabilities from terminals and ~~consolidate~~ consolidating them in a centralized application server. This allows significant added value in minimizing the cost and complexity of the terminals in a PAN, as well as making their design intuitive and easy to use.

At page 29, please delete the paragraph starting at line 14 and ending at line 19, and replace it with the following paragraph:

A15

The second service method includes an application querying service repository 704 to provide the registered services that ~~suite~~ suit a requested service class. The application then searches the registered services to determine which capabilities are provided by the registered services. In an embodiment of the present invention, an application sorts the available services in order of preference. The application then queries abstract layer I/O whether the most preferred service is available.

At page 29, please delete the paragraph starting at line 22 and ending at page 30, line 2, and replace it with the following paragraph:

A16

Media abstraction layer 504 obtains ~~a~~ an SDP of a remote terminal application. Media abstraction layer 504 passes the SDP call to service repository 704. Service repository 704 answers media abstraction layer 504, using SDP, according to services that are registered. The abstraction layer 504 then sends the answers to an application on remote terminal.

At page 30, please delete the paragraph starting at line 3 and ending at line 5, and replace it with the following paragraph:

A17

In an alternate embodiment, service repository 704 pushes new services to a Bluetooth™ stack SDP database. The Bluetooth™ stack replies automatically and generates ~~a~~ an SDP request.

AMENDMENTS TO THE CLAIMS

This listing of claim will replace all prior versions and listings of claim in the application.

1) (Presently Amended) A system~~, coupled to a cellular network,~~ for providing access to the Internet ~~internet~~, comprising:

~~(a)~~ a first wireless ~~gateway~~ device, coupled to ~~the~~ a cellular network, having a ~~network manager~~ software component ~~for~~ capable of accessing information from the Internet ~~internet~~ by communicating with the cellular network responsive to a first short-range radio signal, wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range radio signal concurrently ; and,

~~(b)~~ a ~~first~~ second wireless device, coupled to the first wireless ~~gateway~~ device, ~~for~~ capable of providing the first short-range radio signal.

2) (Presently Amended) The system of Claim 1, wherein the second ~~first~~ wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof.

3) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device is a cellular telephone using a Global System for Mobile Communications ("GSM") protocol.

4) (Presently Amended) The system of Claim 1, wherein the ~~wireless~~ first ~~gateway~~ wireless device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol.

5) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device is a cellular telephone using a CDMA 2000 protocol.

6) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol.

7) (Presently Amended) The system of Claim 1, wherein the second ~~first~~ wireless device is a thin terminal.

8) (Presently Amended) The system of Claim 1, wherein the second ~~first~~ wireless device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

9) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

10) (Presently Amended) The system of Claim 1, wherein the second ~~first~~ wireless device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

11) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

12) (Presently Amended) The system of Claim 1, wherein the ~~network manager~~ software component includes a plug and play software component capable of ~~for~~ loading and executing software for the ~~first~~ second wireless device~~terminal~~.

13) (Presently Amended) The system of Claim 1, wherein the ~~network manager~~ software component includes a PIN number management software component capable of ~~for~~ obtaining and providing PIN numbers.

14) (Presently Amended) The system of Claim 1, wherein the ~~network manager~~ software component includes a service repository software component capable of ~~for~~ obtaining an availability of a service from the ~~first~~ second wireless device ~~terminal~~.

15) (Presently Amended) The system of Claim 1, wherein the second ~~first~~ wireless device includes an application software component capable of ~~for~~ providing a service; and, wherein the ~~network manager~~ software component includes a management software component ~~for~~ capable of accessing the service.

16) (Presently Amended) ~~The system of Claim 1, further comprising:~~ A system for providing access to the Internet, comprising:

a first wireless device, coupled to a cellular network, having a software component capable of accessing information from the Internet by communicating with the cellular network responsive to a first short-range radio signal;

a second wireless device, coupled to the first wireless device, capable of providing the first short-range radio signal; and,

~~(c)~~ a ~~second~~ third wireless device, coupled to the first wireless ~~gateway~~ device, capable of ~~for~~ providing a second short-range signal, wherein the second ~~first~~ wireless device communicates with the third ~~second~~ wireless device through the first wireless ~~gateway~~ device.

17) (Presently Amended) ~~The system of Claim 1, further comprising:~~ A system for providing access to the Internet, comprising:

a first wireless device, coupled to a cellular network, having a software component capable of accessing information from the Internet by communicating with the cellular network responsive to a first short-range radio signal;

a second wireless device, coupled to the first wireless device, capable of providing the first short-range radio signal; and,

~~(c)~~ a ~~second~~ third wireless device, coupled to the first wireless ~~gateway~~ device, capable of ~~for~~ providing a second short-range signal, wherein the first wireless ~~gateway~~ device~~,~~ provides access to the Internet for the second ~~first~~ and ~~second~~ third wireless devices.

18) (Presently Amended) The system of Claim 1, wherein the ~~network~~ software component operates with an operating system software component.

19) (Original) The system of Claim 18, wherein the operating system software component is a Linux operating system.

20) (Original) The system of Claim 18, wherein the operating system software component is a EPOC operating system.

21) (Original) The system of Claim 18, wherein the operating system software component is a PocketPCoperating system.

22) (Original) The system of Claim 18, wherein the operating system software component is a Stinger operating system.

23) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device further includes 1) an application software component capable of ~~for~~ providing a service and 2) a server software component~~,~~ coupled to the ~~network management~~ software component.

A19

24) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device further includes a firewall software component.

25) (Presently Amended) The system of Claim 1, wherein the first wireless ~~gateway~~ device further includes a virtual private network ("VPN") software component.

26) (Presently Amended) A system for providing access to information on a cellular network, comprising:

~~(a) a wireless gateway device, coupled to the network, having a network manager software component for accessing the information from the network responsive to a first signal; and,~~

~~(b)~~ a first wireless device~~, coupled the wireless gateway device, for~~ capable of providing ~~the first~~ a first short-range radio signal~~.~~; and,

a second wireless device, coupled to the first wireless device and the cellular network, capable of selectively transferring information between the first wireless device and the cellular network responsive to the short-range radio signal.

27) (Presently Amended) The system of claim 26, wherein the cellular network ~~is~~ includes a corporate network.

28) (Presently Amended) The system of claim 26, wherein the cellular network ~~is~~ includes a private IP network.

29) (Presently Amended) The system of claim 26, wherein the first short-range radio ~~first~~ signal is ~~a~~ an 802.11 signal.

30) (Presently Amended) The system of claim 26, wherein the first short-range radio ~~first~~ signal is a HomeRF signal.

31) (Presently Amended) The system of claim 26, wherein the information is provided in the form of data packets.~~wireless gateway device is coupled to the network by an Ethernet connection.~~

32) (Presently Amended) The system of claim 26, wherein the information is provided in the form of IP packets. ~~wireless gateway device is coupled to the network by a DSL connection.~~

33) (Presently Amended) The system of claim 26, wherein the second wireless ~~gateway~~ device is coupled to the cellular network by either an Ethernet connection, DSL connection or a cable modem.

34) (Presently Amended) The system of claim 26, wherein the second wireless ~~gateway~~ device is coupled to the cellular network by ~~a cellular network and~~ a landline network.

35) (Presently Amended) The system of claim 26, wherein the first wireless device provides execution space for executable software from the second wireless ~~gateway~~ device.

36) (Presently Amended) A handheld device for providing a personal network, comprising:

~~(a)~~ a storage device;

~~(b)~~ a processor, coupled to the storage device; and,

~~(c)~~ the storage device storing a software component for controlling the processor; and, the

processor operative with the software component to:

~~(d)~~ provide ~~a short-range radio~~ an Internet Protocol ~~protocol~~ data packet ~~communication~~

~~between~~ from a first handheld wireless device ~~and~~ to a second handheld wireless device using short-range radio signals.

37) (Presently Amended) The device of Claim 36, further comprising:

~~(e)~~ a Bluetooth™ transmitter, coupled to the processor, capable of generating the short-range radio signals.

38) (Presently Amended) The device of Claim 36, further comprising:

~~(e)~~ a GSM transmitter, coupled to the processor.

39) (Presently Amended) The device of Claim 36, wherein the software component includes a network software component.

40) (Presently Amended) The device of Claim 36, wherein the ~~network~~ software component includes a plug and play software component.

41) (Presently Amended) The device of Claim 36, wherein the ~~network~~ software component includes a PIN number management software component.

42) (Presently Amended) The device of Claim 36, wherein the ~~network~~ software component includes a service repository software component.

43) (Presently Amended) The device of Claim 36, wherein the ~~network~~ software component includes a management software component.

44) (Presently Amended) A first wireless handheld device ~~for accessing a router in a personal area network~~, comprising:

~~(a)~~ a storage device;

~~(b)~~ a processor, coupled to the storage device; and,

~~(c)~~ the storage device storing a software component for controlling the processor; and, the

processor operative with the software component to:

provide a first short-range radio signal to a second wireless handheld device ~~the router for~~ capable of accessing the Internet ~~internet~~ and a second short-range radio signal to the second wireless handheld device for communicating with a third wireless handheld device ~~the router for accessing another wireless handheld device~~.

45) (Presently Amended) The wireless handheld device of Claim 44, wherein the ~~first~~ wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal a digital camera and an equivalent thereof.

46) (Presently Amended) The wireless handheld device of Claim 44, wherein the ~~first~~ wireless handheld device is a thin terminal.

47) (Presently Amended) The wireless handheld device of Claim 44, wherein the ~~first~~ wireless handheld device includes a 2.4 GHZ transmitter coupled to the processor.

48) (Presently Amended) The wireless handheld device of Claim 44, wherein the ~~first~~ wireless handheld device includes a 5.7 GHZ transmitter coupled to the processor.

49) (Presently Amended) The wireless handheld device of Claim 44, wherein the software component includes an application software component capable of ~~for~~ providing a service to the second wireless handheld device~~in the personal area network~~.

50) (Presently Amended) An article of manufacture, including a computer readable medium, comprising:

~~(a) an application software component for providing a service;~~

~~(b) an application server software component for providing the application software component;~~

~~(c) an Internet~~ Protocol ~~protocol network manager software component;~~

~~(d) an operating system software component;~~

~~(e)~~ a short-range radio software component for ~~providing~~ communicating with a device in a short distance wireless network by using a short-range radio signal; ~~and,~~

~~(f)~~ a cellular software component for communicating with ~~providing a communication signal to~~ a cellular network by using a cellular signal; and,

a network software component for selectively transferring a data packet between the device and the cellular network.

51) (Presently Amended) The article of manufacture of Claim 50, ~~wherein the~~ further comprising ~~operating system software component is~~ a Linux operating system.

52) (Presently Amended) The article of manufacture of Claim 50, ~~wherein the~~ further comprising ~~operating system software component is a~~ an EPOC operating system.

53)(Presently Amended) The article of manufacture of Claim 50~~, wherein the~~ further comprising ~~operating system software component is~~ a PocketPC operating system.

54) (Presently Amended) The article of manufacture of Claim 50, ~~wherein the~~ further comprising ~~operating system software component is~~ a Stinger operating system.

55) (Original) The article of manufacture of Claim 50, wherein the article of manufacture is a memory storage device in a cellular telephone.

56) (Original) The article of manufacture of Claim 50, wherein the short-range radio software component is a Bluetooth™ component.

57) (Original) The article of manufacture of Claim 50, wherein the cellular software component is a GSM component.

REMARKS

The above Amendments and these Remarks are in reply to the Office action mailed April 9, 2003. Claims 1-57 are presented herewith for consideration. Claims 1-18 and 23-54 have been amended.

I. Rejection of Claims 1-18, 23-50 and 55-57 Under 35 U.S.C. §103(a)

Claims 1-18, 23-50 and 55-57 are rejected under 35 U.S.C. §103(a) as being unpatentable over International Publication No. WO 99/48315 to Rautiola et al. ("*Rautiola et al.*") in view of Project P946-GI Smart Devices "When Things Start to Think" ("*Hardwick*").

Rautiola teaches "A Dual Mode Terminal For Accessing A Cellular Network Or Directly Via A Wireless Intranet."(Emphasis Added.) *Rautiola* teaches mobile stations 21, 120 and 131 that operate in two distinct modes. "MUX 127" directs mobile stations 120 and 131 to use either GSM or Bluetooth depending upon the location of mobile station 120:

> In this embodiment the MUX 127 connects to a second branch of layer 3, to the Bluetooth radio resource management 126b, to demand services of the Bluetooth radio resource management 126b, data link (DL and CTRL 128b, 128d) and physical layer 129b, when the mobile station is within the wireless intranet office environment. Pages 20, 21; last and first paragraphs. (Emphasis added.)

> When the handset 131 is outside the wireless intranet office environment, the handset 131 operates as a normal GSM phone. That is, MUX 127 connects to the GSM radio resource management 126a and the GSM lower layers 121 and 122 to obtain connection to the public GSM BTS. Page 22, second paragraph. (Emphasis added.)

Hardwick teaches "the future potential of smart devices." Executive Summary page ii. *Hardwick* is directed toward predicting the future of smart devices and problems that must be solved. *Hardwick* does not teach a "smart device" with any particularity. On page 2, line 3, *Hardwick* states: "The following are three fictional, but plausible, scenarios involving smart devices." On page 17, section 3.4.5, *Hardwick* describes many problems that first must be solved before "smart devices" can be successful in section 3.4. In particular, *Hardwick* describes at least two specific problems, 3.4.4 Middleware-The Glue between Smart Devices and 3.4.6 Infrastructures for Service Discovery and Description, which are addressed by the present

application. Moreover, *Hardwick* explicitly states a problem solved by the present claims at page 22, fourth paragraph:

> [W]e need to develop concepts for interfacing services in mobile networks with wireless LANs though mobile phones....

A. Claim 1

Amended independent claim 1 calls for "wherein the first wireless device is capable of communicating with the cellular network and receiving the first short-range radio signal concurrently" which is not taught or suggested by *Rautiola* or *Hardwick.* As described above, *Rautiola* operates in two distinct modes, GSM or Bluetooth, defined by MUX 127 which limits there concurrent operation. There is no teaching in *Rautiola* for "communicating with the cellular network and receiving the first short-range radio signal concurrently." Likewise, *Hardwick* does not teach this limitation.

B. Claims 2-11

Claims 2-11 depend from independent claim 1 and are patentable for at least the same reasons stated above in regard to claim 1.

C. Claims 12-15

Claims 12-15 depend from independent claim 1 and are patentable for at least the same reasons stated above in regard to claim 1.

Further, claims 12-15 cite specific "software components" that the Examiner has stated are taught by *Hardwick.* While *Hardwick* might teach the claimed "software components", the Examiner has not provided a suggestion or motivation in the cited art why one of ordinary skill in the art would combine these "software components" with the *Rautiola* mobile stations 120 and 131. *Rautiola* teaches many devices shown in Figures 13 and 14: terminals 137 and 138 as well as PBU 132 and IWU 134. The Examiner cannot improperly pick and choose the elements of the cited art using the present application as a road map without describing a rationale for the combination. In contrast, one of ordinary skill may be motivated to store these "software components" in a PBU 132 or IWU 134, which may have more memory than station or telephone 131.

Further, *Rautiola* teaches away from the present application by requiring two distinct modes of operation. *Rautiola* teaches "a intranet office environment mode" of operation that enables many of these software components to be stored and executed on many of the other devices during this mode of operation.

D. Claims 16-17

Claim 16 calls for "...wherein the second wireless device communicates with the third wireless device through the first wireless device."

In rejecting amended independent claim 16, the Examiner states that the claimed "a first wireless device" corresponds to *Rautiola's* mobile stations (telephone) 120/130. Further, the Examiner stated that *Rautiola's* wireless headset 137 or wristwatch 138 may be replaced with "*Hardwick's* WAP-enabled GSM Handsets."

The applicant's attorney respectfully disagrees. First, *Rautiola* teaches a single handset or telephone 120/130 with a wireless headset 137 or wristwatch 138. *Rautiola* teaches in particular:

> Rather than having to carry the mobile station around the user is provided with a user terminal in the form of a wireless headset 137 or wristwatch user interface 138. Page 21, last paragraph.

Thus, the Examiner's line of reasoning contradicts the intended function of terminals 137/138—not having to carry the mobile station. One of ordinary skill in the art would not have been motivated to replace the headset 137 and wristwatch 138 with a "WAP-enabled GSM Handset" that would then have to be carried rather than worn.

Second, *Rautiola* teaches that mobile stations 120/130 communicate with headset 137 and wristwatch 138 by "Bluetooth" and not "GSM" in a replaced "WAP-enabled GSM Handset." Page 21, last paragraph. Claim 16 calls for "short-range radio" signals and not GSM signals.

Third, one of ordinary skill in the art understands that headsets and wristwatches are relatively simple inexpensive devices with small amounts of memory. *Rautiola*'s teaching of using these types of devices teaches away from the use of a relatively complex expensive device with larger amounts of memory. In essence, the Examiner is arguing that *Rautiola* and *Hardwick* teach that one should carry around three expensive handsets or WAP-enabled telephones.

Claim 17 has similar limitations and is likewise patentable.

E. Claim 18

Claim 18 depends from independent claim 1 and is patentable for at least the same reasons stated above in regard to claim 1.

Further, claim 18 calls for "the software component operates with an operating system software component." In rejecting claim 18, the Examiner cited *Rautiola's* teaching of a "WAP browser." The applicant's attorney respectfully disagrees that a "WAP browser" is "an operating system."

F. Claims 23-25

Claims 23-25 depend from independent claim 1 and are patentable for at least the same reasons stated above in regard to claim 1.

Further, claims 23-25 call for "a server software component", "firewall software component" and "VPN software component", respectively, that are not taught or suggested by *Rautiola.* The Examiner used the "SIM Application Toolkit" taught by *Hardwick* in rejecting these claims.

Applicant's attorney respectfully disagrees that these distinct software components are the "SIM Application Toolkit" taught by *Hardwick.*

Further, the Examiner has not provided reasoning why one of ordinary skill in the art would combine the *Rautiola* teachings, in particular the mobile stations 120/131 with the "SIM Application Toolkit." *Rautiola* teaches a series of complex devices, mobile station 21, personal base unit 22, IWU 24, HLR/VLR 25, MSC 26, etc.; yet, the Examiner has not provided a reasoning why one of ordinary skill in the art would include the claimed software components in a mobile station with limited memory rather than other devices which may have larger memories and execute the software components more efficiently. For example, Fig. 3 teaches a plurality of GSM cells. A single "firewall component" can be used in for example IMC 33 rather than in each GSM cell, thus eliminating duplicate software and cost. The Examiner cannot improperly use the present application as a road map in combining the teachings.

G. Claim 26

Amended claim 26 calls for "a second wireless device, coupled to the first wireless device and the cellular network, capable of selectively transferring information between the first wireless device and the cellular network responsive to the short-range radio signal."

As described above, mobile stations 120 and 131 operate in two distinct modes selected by "MUX 127", either Bluetooth or GSM depending upon whether a user is in an intranet office environment. Thus, there is no "selectively transferring information between the first wireless device and the cellular network responsive to the short-range radio signal."

H. Claims 27-30 and 33-35

Claims 27-30 and 33-35 depend from independent claim 1 and are patentable for at least the same reasons stated above in regard to claim 1.

I. Claims 31-32

Claim 31 calls for "the information is provided in the form of data packets." *Rautiola* clearly does not teach the "transferring of data packets" between headset 137 or wristwatch 138 and "a cellular network"

Claim 32 calls for "IP packets" and is likewise patentable.

J. Claim 36

Claim 36 calls for "the software component to: provide an Internet Protocol data packet from a first handheld wireless device to a second handheld wireless device using short-range radio signals" There is clearly no teaching in *Rautiola* of "provid[ing] an Internet Protocol data packet" between headset 137 and wristwatch 138 "using short-range radio signals."

K. Claims 37-38

Claims 37-38 depend from independent claim 36 and are patentable for at least the same reasons stated above in regard to claim 36.

L. Claims 39-43

Claims 39-43 depend from independent claim 36 and are patentable for at least the same reasons stated above in regard to claim 36.

Further, claims 39-43 claim specific "software components" that are not taught by *Rautiola* and *Hardwick* and, like claims 23-25, are patentable.

M. Claims 44-49

Independent claim 44 calls for "the software component to: provide a first short-range radio signal to a second wireless handheld device capable of accessing the Internet and a second short-range radio signal to the second wireless handheld device for communicating with a third wireless handheld device."

There is no teaching in *Rautiola* and *Hardwick* of the above limitation. As described above, *Rautiola* teaches that wristwatch 138 and headset 137 are used to allow a user to not carry mobile station 120 and 131. There is no teaching of wristwatch 138 or headset 137 communicating by "a second short-range radio signal to the second wireless handheld device" or mobile stations 120/131. *Hardwick* likewise does not claim this particular communication. The Examiner is using the future predictions of *Hardwick* in improperly rejecting the solution provided by the presently claimed invention.

N. Claims 50 and 55-57

Amended claim 50 calls for "a network software component for selectively transferring a data packet between the device and the cellular network."

As described above, *Rautiola* does not teach, "selectively transferring a data packet" between either wristwatch 138 or headset 137 and "a cellular network." A WAP browser taught by *Rautiola* is used to access "IP 135." There is no teaching of using the WAP browser for communicating with "a cellular network" or wristwatch 138 or headset 137.

Claims 55-57 depend from independent claim 50 and are patentable for at least the same reasons stated above in regard to claim 50.

Therefore, it is respectfully requested the Examiner withdraw the rejection of claims 1-18, 23-50 and 55-57 under 35 U.S.C. §103(a).

II. Rejection of Claims 19-22 and 51-54 Under 35 U.S.C. §103(a)

Claims 19-22 and 51-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Rautiola et al.* in view of *Hardwick* in view of "Operating Systems On Wireless Handheld Devices" ("*Parekh*").

A. Claims 19-22 and 51-54

Claims 19-22 and 51-54 depend from independent claims 1 and 50, respectively, and are patentable for at least the same reasons stated above in regard to claims 1 and 50.

Therefore, it is respectfully requested the Examiner withdraw the rejection of claims 19-22 and 51-54 under 35 U.S.C. §103(a).

III. Rejection of Claims 19-22 and 51-54 Under 35 U.S.C. §103(a)

Claims 19-22 and 51-54 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Rautiola et al.* in view of *Hardwick* further in view of "White Paper, Handheld Devices: Comparing the Major Platforms" ("*Dell*").

A. Claims 19-22 and 51-54

Claims 19-22 and 51-54 depend from independent claims 1 and 50, respectively, and are patentable for at least the same reasons stated above in regard to claims 1 and 50.

Therefore, it is respectfully requested the Examiner withdraw the rejection of claims 19-22 and 51-54 under 35 U.S.C. §103(a).

IV. Art Made of Record and Not Relied Upon

Applicant's attorney has reviewed the art made of record and not relied upon, Guthery et al., The WebSIM-Clever Smartcards Listen to Port 80, pages 1-16, December 1999, and believes it is no more relevant than the relied upon art.

V. Conclusion

Based on the above amendments and these remarks, reconsideration of Claims 1-57 is respectfully requested.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 501826 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: October 9, 2003

By: _____

Kirk J. DeNiro
Reg. No. 35,854

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685 Market Street, Suite 540
San Francisco, CA 94105-4206
Telephone: (415) 369-9660
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#8 10/29/03

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PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)	Docket Number (Optional) IXIM-01000US0

In re Application of	Amit Haller		
Application Number	09/850,399	Filed	May 7, 2001
For	A System, Device And Computer Readable Medium...		
Art Unit	2666	Examiner	Duong, Frank

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above identified application.

The requested extension and appropriate non-small-entity fee are as follows (check time period desired):

- ☐ One month (37 CFR 1.17(a)(1)) $_____
- ☐ Two months (37 CFR 1.17(a)(2)) $_____
- ☑ Three months (37 CFR 1.17(a)(3)) $ 950
- ☐ Four months (37 CFR 1.17(a)(4)) $_____
- ☐ Five months (37 CFR 1.17(a)(5)) $_____

☐ Applicant claims small entity status. See 37 CFR 1.27. Therefore, the fee amount shown above is reduced by one-half, and the resulting fee is: $_____.

☑ A check in the amount of the fee is enclosed.

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

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 501826.

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10/17/2003 SSESHE1 00000090 09850399
02 FC:1253 950.00 OP

I am the ☐ applicant/inventor.

☐ assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed (Form PTO/SB/96).

☑ attorney or agent of record. Registration Number 35,854

☐ attorney or agent under 37 CFR 1.34(a).
Registration number if acting under 37 CFR 1.34(a) _____.

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October 9, 2003	[signature]
Date	Signature
415-369-9660	Kirk J. DeNiro
Telephone Number	Typed or printed name

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 _____ forms are submitted.

This collection of information is required by 37 CFR 1.136(a). 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 6 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.**

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TRANSMITTAL FORM

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Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	2661
Examiner Name	Duong, Frank
Total Number of Pages in This Submission	39
Attorney Docket Number	IXIM-01000US0

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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Kirk J. DeNiro, Reg. No. 35,854 Vierra Magen Marcus Harmon & DeNiro LLP
Signature	
Date	7/28/03

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FEE TRANSMITTAL for FY 2003

Effective 01/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT ($) 180.00

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Examiner Name	Duong, Frank
Art Unit	2661
Attorney Docket No.	IXIM-01000US0

METHOD OF PAYMENT *(check all that apply)*

☑ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☑ Deposit Account:

Deposit Account Number: 501826

Deposit Account Name: Vierra Magen Marcus Harmon & DeNiro LLP

The Director is authorized to: *(check all that apply)*

☐ Charge fee(s) indicated below ☑ Credit any overpayments

☑ Charge any additional fee(s) during the pendency of this application

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
1001	750	2001	375	Utility filing fee	
1002	330	2002	165	Design filing fee	
1003	520	2003	260	Plant filing fee	
1004	750	2004	375	Reissue filing fee	
1005	160	2005	80	Provisional filing fee	

SUBTOTAL (1) ($)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims		Fee from below	Fee Paid
Total Claims		-20** =		x =
Independent Claims		- 3** =		x =
Multiple Dependent				=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
1202	18	2202	9	Claims in excess of 20
1201	84	2201	42	Independent claims in excess of 3
1203	280	2203	140	Multiple dependent claim, if not paid
1204	84	2204	42	** Reissue independent claims over original patent
1205	18	2205	9	** Reissue claims in excess of 20 and over original patent

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FEE CALCULATION (continued)

3. ADDITIONAL FEES

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1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for *ex parte* reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	110	2251	55	Extension for reply within first month	180.00 OP
1252	410	2252	205	Extension for reply within second month	
1253	930	2253	465	Extension for reply within third month	
1254	1,450	2254	725	Extension for reply within fourth month	
1255	1,970	2255	985	Extension for reply within fifth month	
1401	320	2401	160	Notice of Appeal	
1402	320	2402	160	Filing a brief in support of an appeal	
1403	280	2403	140	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	110	2452	55	Petition to revive - unavoidable	
1453	1,300	2453	650	Petition to revive - unintentional	
1501	1,300	2501	650	Utility issue fee (or reissue)	
1502	470	2502	235	Design issue fee	
1503	630	2503	315	Plant issue fee	
1460	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee under 37 CFR 1.17(q)	
1806	180	1806	180	Submission of Information Disclosure Stmt	180.00
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	750	2809	375	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	750	2810	375	For each additional invention to be examined (37 CFR 1.129(b))	
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SUBMITTED BY				(Complete *(if applicable)*)	
Name (Print/Type)	Kirk J. DeNiro	*Registration No. (Attorney/Agent)*	35,854	*Telephone*	415-369-9660
Signature				*Date*	7/28/03

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2661 RS # 6

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Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	2661
Examiner Name	Unknown
Total Number of Pages in This Submission: 39	Attorney Docket Number: IXIM-01000US0

ENCLOSURES *(check all that apply)*

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SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Firm or Individual name	Kirk J. DeNiro, Reg. No. 35,854 Vierra Magen Marcus Harmon & DeNiro LLP
Signature	
Date	April 16, 2003

CERTIFICATE OF MAILING

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Typed or printed name	Kirk J. DeNiro, Reg. No. 35,854		4/16/03
Signature		Date	April 16, 2003

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/850,399	05/07/2001	Amit Haller	IXIM-01000US0	2705

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EXAMINER	
DUONG, FRANK	

ART UNIT	PAPER NUMBER
2666	5

DATE MAILED: 04/09/2003

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

PTO-90C (Rev. 07-01)

Office Action Summary	Application No.	Applicant(s)
	09/850,399	HALLER ET AL.
	Examiner	Art Unit
	Frank Duong	2666

-- 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) 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 the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- 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 *07 May 2001* .

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) *1-57* 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) *1-57* 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 _____ 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).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ 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.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

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-1449) Paper No(s) *4* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. This Office Action is a response to the communication dated 05/07/2001. Claims 1-57 are pending in the application.

Information Disclosure Statement

2. The information disclosure statement filed 10/07/2002 complies with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609. It has been considered and placed in the application file.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18, 23-50 and 55-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rautiola et al (WO 99/48315) (hereinafter "Rautiola") in view of Hardwick et al (*Project P946-GI Smart Devices "When Things Start to Think", pages 1-30, January 2000*) (hereinafter "Hardwick").

Regarding **claim 1**, in accordance with Rautiola reference entirety, Rautiola discloses a system (*Figures 12-13*), coupled to a cellular network (136), for providing access to the Internet (*135*), comprising:

(a) a wireless gateway device (*120/131*), coupled to the cellular network (*page 21, fourth paragraph, line 6; mobile communication network 136*), having a network manager software component (*see Figure 12; blocks 123-124 and page 20, last paragraph*) for accessing information (WAP browser) from the internet (see *page 4, fourth paragraph, Rautiola also discloses mobile station may further comprise a browser, such as a Wireless Application Protocol (WAP) browser.* In addition, on *page 21, last paragraph, Rautiola discloses a mobile station 131 is connected to an IP LAN 135 and a mobile communications network 136 by virtual of an Interworking Unit (IWU 134). The IWU 134 may comprise several entities such as a GSM/IP gateway previously shown in Figure 2. Rather having to carry the mobile station around, the user is provided with a user terminal in the form of wireless headset 137 and wristwatch user interface 138 connected to the mobile station 131 using Bluetooth protocol*);

(b) a first wireless device (137 or 138), coupled to the wireless gateway device (*120/131*), for providing the first short-range radio signal (*Bluetooth signal from 137 or 138*).

There is no doubt that the wireless gateway device (120/131) can access the information from the internet because of WAP browser. However, Rautiola fails to explicitly disclose the wireless device (137 or 138) is a smart device that can cause the wireless gateway device to access the information from the Internet responsive to the short-range radio signal. However, such limitation lacks thereof from Rautiola reference is well known and disclosed by Hardwick.

In accordance with Hardwick reference entirety, Hardwick discloses Smart Devices (*page 10; last two paragraphs, videophone, video e-mail, WAP-enabled GSM handsets or web-enabled PDAs*) that can cause the wireless gateway device to access the information from the Internet responsive to the short-range radio signal to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to implement Hardwick's smart device into Rautiola's system to arrive the claimed invention with a motivation to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

Regarding **claim 2**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the first wireless device (137 or 138) is selected from a group consisting of desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof (*see Rautiola reference, page 21, fourth paragraph to page 22, fourth paragraph; elements 137-138 are equated to correspond to "equivalent thereof" of the listed device*).

Regarding **claim 3**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is a cellular telephone using a

Global System for Mobile Communication ("GSM") protocol (*see Rautiola reference, page 22, second paragraph regarding element 120/131*).

Regarding **claim 4**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol (*see Rautiola reference, page 20, first paragraph).*

Regarding **claim 5**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is a cellular telephone using a CDMA2000 (*W-CDMA*) protocol (*see Rautiola reference, page 20, first paragraph; W-CDMA is equated to be equivalent to CDMA2000).*

Regarding **claim 6**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol (*see Rautiola reference, page 20, first paragraph).*

Regarding **claim 7**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless device is a thin terminal (*see Rautiola reference, page 21, last paragraph regarding user terminal 137 or 138 or Hardwick reference,*

page 10, smart device. Terminal 137, 138 or smart device is equated to correspond to claimed "thin terminal").

Regarding **claim 8**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless device includes a Bluetooth Processor and a 2.4 Ghz transmitter (*see Rautiola reference, page 21, fourth paragraph regarding LPRF of element 137 or 138 and page 13, third paragraph regarding 2.4 Ghz band of Bluetooth transmitter*).

Regarding **claim 9**, in addition to features recited in base claim 1 (*see rationales pertaining the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the wireless gateway device includes a Bluetooth Processor and a 2.4 Ghz transmitter (*see Rautiola reference, page 21, fourth paragraph regarding LPRF of mobile station 120/131 and page 13, third paragraph regarding 2.4 Ghz band of Bluetooth transmitter).*

Regarding **claim 10**, in addition to features recited in base claim 1 (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick fails to explicitly discloses wherein the first wireless device includes a 5.7 Ghz transmitter.

However, such limitation lacks thereof is an obvious variation and well known in the transmitter design to take advantage of the unused or higher frequency than the ISM band.

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola in view of Hardwick 's 2.4 GHZ transmitter in the first wireless device with a 5.7 GHZ transmitter to arrive the claimed invention with a motivation to take advantage of the use or higher frequency than the ISM band.

Regarding **claim 11**, in addition to features recited in base claim 1 (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick fails to explicitly discloses wherein the wireless gateway device includes a 5.7 Ghz transmitter.

However, such limitation lacks thereof is an obvious variation and well known in the transmitter design to take advantage of the unused or higher frequency than the ISM band.

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola in view of Hardwick 's 2.4 GHZ transmitter in the wireless gateway device with a 5.7 GHZ transmitter to arrive the claimed invention with a motivation to take advantage of the use or higher frequency than the ISM band.

Regarding **claim 12**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the network manager software component (*see Rautiola reference, Figure 12; blocks 123-124 and page 20, last paragraph)* includes a plug and play software component (*see Hardwick reference, page 18, first paragraph; Universal Plug and Play or page 15, last paragraph to page 16, first paragraph; SIM*

Application Toolkit) for loading and executing software for the first wireless terminal (see Rautiola reference; element 137, 138 or Hardwick reference; smart device).

Regarding **claim 13**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the network manager software component (*see Rautiola reference, Figure 12; blocks 123-124 and page 20, last paragraph)* includes a PIN number management software component for obtaining and providing PIN numbers *(see Hardwick reference, page 15, last paragraph to page 16, first paragraph; SIM Application Toolkit*).

Regarding **claim 14**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the network manager software component (*see Rautiola reference, Figure 12; blocks 123-124 and page 20, last paragraph)* includes a service repository software component for obtaining an availability of service from the wireless terminal *(see Hardwick reference, page 15, last paragraph to page 16, first paragraph; SIM Application Toolkit*).

Regarding **claim 15**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the first wireless device includes an application software component for providing a service (*see Hardwick reference, page 10, last paragraph; WAP-enable GSM handsets or web-enabled PDA*); and, wherein the network manager software component includes a management software component

(*see Rautiola reference, Figure 12; blocks 123-124 and page 20, last paragraph.* Moreover, on *page 4, fourth paragraph, Rautiola also discloses the mobile station may further comprise a browser, such as a Wireless Application Protocol (WAP) browser)* for accessing the service.

Regarding **claim 16**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses a second device, coupled to the wireless gateway device (*see Rautiola reference, Figures 12-13; element 120/131*), for providing a second short-range signal (*see Rautiola reference, page 22, first paragraph; elements 137 and 138*). Hardwick's smart devices are WAP-enabled GSM handsets. Having replace Rautiola's elements 137-138 with Hardwick's WAP-enabled GSM handsets, it is inherent the first wireless device communicates with the second wireless device through the wireless gateway device because of their functionalities (*WAP-enabled GSM handsets*).

Regarding **claim 17**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses a second device, coupled to the wireless gateway device (*see Rautiola reference, Figures 12-13; element 120/131*), for providing a second short-range signal (*see Rautiola reference, page 22, first paragraph; elements 137 and 138*). Hardwick's smart devices are WAP-enabled PDAs. Having replace Rautiola's elements 137-138 with Hardwick's WAP-enabled PDAs, it is inherent the first wireless device and the second wireless device can access the internet through the wireless gateway device because of their functionalities (*WAP-enabled PDAs*).

Regarding **claim 18**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses wherein the network software component operates with an operating system software component (*see Rautiola reference, page 4, fourth paragraph; WAP browser*).

Regarding **claims 23-25**, in addition to features recited in base claim 1, (*see rationales applied in the rejection of base claim 1 discussed above*), Rautiola in view of Hardwick further discloses SIM Application Toolkit, a security module introduced in GSM mobile networks for authenticating subscribers (see Hardwick reference, section 3.42 from pages 15-16). Thus, SIM Application Toolkit is equated to correspond to claimed limitation of "server software component", "firewall software component", or "a virtual private network ("VPN") software component".

Regarding **claim 26**, in accordance with Rautiola reference entirety, Rautiola discloses a system (*Figures 12-13*) for provide access (*WAP browser*) to information on a network (*132, 134 and 135 or 136, 134 and 135*), comprising:

(a) a wireless gateway device (*120/131*), coupled to the network (*132, 134 and 135 or 136, 134 and 135*), having a network manager software component (*see Figure 12; blocks 123-124 and page 20, last paragraph*) for accessing information (*WAP browser*) from the network (see *page 4, fourth paragraph, Rautiola also discloses mobile station may further comprise a browser, such as a Wireless Application Protocol (WAP) browser.* In addition, on *page 21, last paragraph, Rautiola discloses a mobile station 131 is connected to an IP LAN 135 and a mobile communications network 136*

by virtual of an Interworking Unit (IWU 134). The IWU 134 may comprise several entities such as a GSM/IP gateway previously shown in Figure 2. Rather having to carry the mobile station around, the user is provided with a user terminal in the form of wireless headset 137 and wristwatch user interface 138 connected to the mobile station 131 using Bluetooth protocol);

(b) a first wireless device (137 or 138), coupled to the wireless gateway device (*120/131*), for providing the first signal (*Bluetooth signal from 137 or 138*).

There is no doubt that the wireless gateway device (120/131) can access the information from the internet because of WAP browser. However, Rautiola fails to explicitly disclose the wireless device (137 or 138) is a smart device that can cause the wireless gateway device to access the information from the Internet responsive to the short-range radio signal. However, such limitation lacks thereof from Rautiola reference is well known and disclosed by Hardwick.

In accordance with Hardwick reference entirety, Hardwick discloses Smart Devices (*page 10; last two paragraphs, videophone, video e-mail, WAP-enabled GSM handsets or web-enabled PDAs*) that can cause the wireless gateway device to access the information from the Internet responsive to the short-range radio signal to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to implement Hardwick's smart device into Rautiola's system to arrive the claimed invention with a motivation to enhance human interfaces for services such as

web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

Regarding **claim 27**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the network is a corporate network (see Rautiola reference, Figures 13-14; element 132).

Regarding **claim 28**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the network is a private IP network (see Rautiola reference, Figures 13-14; elements 132 and 134).

Regarding **claim 29**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the first signal is a 802.11 signal (*see Rautiola reference, page 7, first paragraph*).

Regarding **claim 30**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the first signal is a HomeRF signal (*see Rautiola reference, page 7, first paragraph*).

Regarding **claim 31**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is coupled to the network by an Ethernet connection (*see Rautiola reference, page 7, first paragraph*).

Regarding **claim 32**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the

wireless gateway device is coupled to the network by a DSL connection (*see Rautiola reference, page 7, first paragraph*).

Regarding **claim 33**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is coupled to the network by a cable modem (*see Rautiola reference, page 7, first paragraph*).

Regarding **claim 34**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless gateway device is coupled to the network by a cellular network and a landline network (*see Rautiola reference, page 7, first paragraph and Figures 13-14*).

Regarding **claim 35**, in addition to features recited in base claim 26 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless device provides execution space for executable software from the wireless gateway device (*see Hardwick reference, page 10; Smart device including WAP-enabled GSM handsets and pages 15-15, section 3.4.2, SIM Application Toolkit*).

Regarding **claim 36**, in accordance with Rautiola reference entirety, Rautiola discloses a handheld device (Figure 12) for providing a personal network (*137, 138 and 131*), comprising:

(a) a storage device (*not shown; inherent because element 12 is a WAP-enable GSM mobile device*);

(b) a processor (*GSM processor*), coupled to the storage device (not shown; inherent because of the description on page 20, third paragraph, lines 2-3);

(c) the storage device (not shown) storing a software component (*see Figure 12; blocks 123-124 and page 20, last paragraph*) for controlling the processor (see *page 4, fourth paragraph, Rautiola also discloses mobile station may further comprise a browser, such as a Wireless Application Protocol (WAP) browser.* In addition, on *page 21, last paragraph, Rautiola discloses a mobile station 131 is connected to an IP LAN 135 and a mobile communications network 136 by virtual of an Interworking Unit (IWU 134). The IWU 134 may comprise several entities such as a GSM/IP gateway previously shown in Figure 2. Rather having to carry the mobile station around, the user is provided with a user terminal in the form of wireless headset 137 and wristwatch user interface 138 connected to the mobile station 131 using Bluetooth protocol*); and

(d) handheld wireless devices (137 or 138), coupled to the wireless gateway device (*120/131*), for providing the short-range radio signals (*Bluetooth signal from 137 or 138*).

There is no doubt that the wireless gateway device (120/131) can access the information from the Internet because of WAP browser. However, Rautiola fails to explicitly disclose the handheld wireless devices (137 and 138) are the smart devices that can communicate with each other over the handheld device providing the short-range radio signal. However, such limitation lacks thereof from Rautiola reference is well known and disclosed by Hardwick.

In accordance with Hardwick reference entirety, Hardwick discloses Smart Devices (*page 10; last two paragraphs, videophone, video e-mail, WAP-enabled GSM handsets or web-enabled PDAs*) that can communicate with each other over the

handheld device providing the short-range radio signal to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's handheld wireless devices (*137-138*) with Hardwick's smart devices to arrive the claimed invention with a motivation to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

Regarding **claim 37**, in addition to features recited in base claim 36 (see rationales discussed above), Rautiola in view of Hardwick further discloses a Bluetooth transmitter, coupled to the processor (see Rautiola reference, page 20, third paragraph, line 3; Bluetooth processor and Fig. 12; element 129b).

Regarding **claim 38,** in addition to features recited in base claim 36 (see rationales discussed above), Rautiola in view of Hardwick further discloses a GSM transmitter, coupled to the processor (see Rautiola reference, page 20, third paragraph, line 3; GSM processor and Fig. 12; element 129a).

Regarding **claims 39-43**, in addition to features recited in base claim 36 (see rationales discussed above), Rautiola in view of Hardwick further discloses SIM Application Toolkit (*see Hardwick reference, pages 15-16, section 3.42*). The SIM is equated to correspond to the claimed limitation of "a network software component", "PIN number management software component", "service repository software component"

and "management software component". On page 18, section 3.4.6, Rautiola discloses UPnP equated to correspond to "a plug and play software component".

Regarding **claim 44**, in accordance with Rautiola reference entirety, Rautiola discloses a wireless intranet office (Figure 13) comprising mobile station 131 connected to an IP LAN 135 and mobile communications network 136 and IWU 134. Rather than having to carry the mobile station around the user is provided with a user terminal in the form of wireless headset 137 and wristwatch user interface 138. The wireless headset 137 connected to the mobile station 131 using Bluetooth protocol, and the wristwatch 138 is similarly connected. The mobile station 131 has both GSM and Bluetooth parts and having capability to access the internet (WAP browser); thus, the mobile 131 acts as a router in a personal area network. However, Rautiola fails to explicitly discloses the user terminal 138 or 138 is a smart device comprising a storage, a processor, software component for controlling the processor to provide a first short-range radio signal to the router for accessing the internet and a second short-range radio signal to the router for accessing another wireless handheld device. However, such limitation lacks thereof is well known and disclosed by Hardwick.

In accordance with Hardwick reference entirety, Hardwick discloses a smart device (see Hardwick reference, pages 9-11) comprising:

(a) a storage device (page 10; external memory);

(b) a processor (Processor), coupled to the storage device (*see picture on page 10 for connection*); and

(c) the storage device storing a software component (*not shown; inherent because on page 10, last paragraph, Hardwick discloses the smart device is a WAP-enabled GSM handset or PDA*) for controlling the processor; and, the processor operate with the component to:

provide a first short-range radio signal to the router for accessing the internet and a second short-range radio signal to the router for accessing another wireless handheld device (see page 9, last paragraph to page 10, first paragraph, Hardwick discloses the smart device provides enhanced human interfaces for such services as web-browsing, and remote control of other devices.

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's handheld wireless device (*137 or 138*) with Hardwick's smart device to arrive the claimed invention with a motivation to enhance human interfaces for services such as web-browsing, e-commerce, location-based or location-aware (*see Hardwick, page 10, last paragraph to page 11, first paragraph*).

Regarding **claim 45**, in addition to features recited in base claim 44 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the first wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal, a digital camera and an equivalent thereof (*see Hardwick reference, page 10*).

Regarding **claim 46**, in addition to features recited in base claim 44 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless device is a thin terminal (*see Hardwick reference, page 10*).

Regarding **claims 47**, in addition to features recited in base claim 44 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless device includes a 2.4 Ghz transmitter (*see Rautiola reference, page 13, third paragraph regarding 2.4 Ghz band of Bluetooth transmitter).*

Regarding **claims 48**, in addition to features recited in base claim 44 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the wireless device includes a 5.7 Ghz transmitter (*see Rautiola reference, page 13, third paragraph regarding 2.4 Ghz band of Bluetooth transmitter. A 5.7 GHZ transmitter is an obvious variation of a 2.4 GHZ transmitter because both frequencies are ISM bands).*

Regarding **claims 49**, in addition to features recited in base claim 44 (see rationales discussed above), Rautiola in view of Hardwick further discloses wherein the software component includes an application software component (WAP) for providing a service (web-browsing) in the personal area network (*see Hardwick reference, page 10, last paragraph*).

Regarding **claim 50**, in accordance with Rautiola reference entirety, Rautiola discloses an apparatus (Figure 12-13; mobile) comprising:

an application software component (not shown; inherent, see *page 4, fourth paragraph, Rautiola also discloses mobile station may comprise a browser, such as a Wireless Application Protocol (WAP) browser*) for providing a service (*internet access*

or web browsing); an internet protocol network manager software component (not shown; WAP); an operating system software component (not shown; WAP);

a short-range radio software component for providing a short-range radio signal (Fig. 12; element 129b); and a cellular software component for providing a communication signal to a cellular network (Fig. 12; element 129a). Rautiola fails to explicitly disclose an application server software component for providing the application software component. However, such limitation lacks thereof from Rautiola reference is well known and disclosed by Hardwick.

In accordance with Hardwick reference entirety, Hardwick discloses an application server software component (SIM module) for providing the application software component (*see Hardwick reference, pages 15-16, section 3.4.2, Hardwick discloses SIM is a security module introduced in GSM mobile networks for authenticating subscribers. SIM contains an operating system, a file system, and application programs to provide enhancements on hardware level*).

It would have been obvious to those skilled in the art at the time of the invention was made to implement Hardwick's SIM module into Rautiola's mobile to arrive the claimed invention with a motivation to provide enhancements on a hardware level (*see Hardwick reference, page 16, section 3.4.2*).

Regarding **claim 55**, in addition to features recited in base claim 50 (*see rationales discussed above*), Rautiola in view of Hardwick further discloses wherein the apparatus is a memory storage device in a cellular telephone (*see Rautiola reference, Figure 12; element 120*).

Regarding **claim 56**, in addition to features recited in base claim 50 (*see rationales discussed above*), Rautiola in view of Hardwick further discloses wherein the short-range radio software component is a Bluetooth component (*see Rautiola reference, Figure 12; element 129b*).

Regarding **claim 57**, in addition to features recited in base claim 50 (*see rationales discussed above*), Rautiola in view of Hardwick further discloses wherein the cellular software component is a GSM component (*see Rautiola reference, Figure 12; element 129a*).

4. Claims 19-22 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rautiola in view of Hardwick further in view of Parekh (OPERATING SYSTEMS ON WIRELESS HANDHELD DEVICES, pages 1-8, September 28, 2000).

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Rautiola in view of Hardwick fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Rautiola reference is well known and disclosed by Parekh.

In accordance with Parekh reference entirety, Parekh discloses the operating system such as Linux, EPOC, PocketPC and Stinger is the primary user interface that serves as the software intermediary between the applications and the handheld devices (see Parekh reference, page 3 and thereinafter). The operating systems differ in

features such as size distribution, homogeneity, asset specificity and demand stability (*see Parekh reference, page 5*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's WAP operating system with Linux, EPOC, PocketPC or Stinger disclosed by Parekh to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Parekh reference, page 5*).

Regarding **claims 51-54**, in addition to features recited in base claim 50 (*see rationales pertaining the rejection of base claim 50 discussed above*), Rautiola in view of Hardwick fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Rautiola reference is well known and disclosed by Parekh.

In accordance with Parekh reference entirety, Parekh discloses the operating system such as Linux, EPOC, PocketPC and Stinger is the primary user interface that serves as the software intermediary between the applications and the handheld devices (see Parekh reference, page 3 and thereinafter). The operating systems differ in features such as size distribution, homogeneity, asset specificity and demand stability (*see Parekh reference, page 5*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's WAP operating system with Linux, EPOC, PocketPC or Stinger disclosed by Parekh to arrive the claimed invention with a

motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Parekh reference, page 5*).

5. Claims 19-22 and 51-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rautiola in view of Hardwick further in view of DELL (WHITE PAPER, HANDHELD DEVICES: COMPARING THE MAJOR PLATFOMRS, pages 1-7) (hereinafter "DELL").

Regarding **claims 19-22**, in addition to features recited in base claim 18 (*see rationales pertaining the rejection of base claim 18 discussed above*), Rautiola in view of Hardwick fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Rautiola reference is well known and disclosed by DELL.

In accordance with Dell reference entirety, Dell compares the four major handheld platforms to include Linux, EPOC, PocketPC and Stinger. The platforms differ in features such as size, weight, functionality and applications, battery life, display characteristics, cost, and expansion and connectivity (*see Dell, page 1, left column, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's WAP operating system with Linux, EPOC, PocketPC or Stinger disclosed by DELL to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Dell, page 1, left column, first paragraph*).

Regarding **claims 51-54**, in addition to features recited in base claim 50 (*see rationales pertaining the rejection of base claim 50 discussed above*), Rautiola in view of Hardwick fails to explicitly further disclose the operating system is a Linux, EPOC, PocketPC or Stinger. However, the limitation lacks thereof from Rautiola reference is well known and disclosed by DELL.

In accordance with Dell reference entirety, Dell compares the four major handheld platforms to include Linux, EPOC, PocketPC and Stinger. The platforms differ in features such as size, weight, functionality and applications, battery life, display characteristics, cost, and expansion and connectivity (*see Dell, page 1, left column, first paragraph*).

It would have been obvious to those skilled in the art at the time of the invention was made to replace Rautiola's WAP operating system with Linux, EPOC, PocketPC or Stinger disclosed by DELL to arrive the claimed invention with a motivation to provide the end user with variable capabilities or to take advantage of different operating system (*see Dell, page 1, left column, first paragraph*).

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Guthery et al, The WebSIM- Clever Smartcards Listen to Port 80, pages 1-16, December 1999.

7. Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Frank Duong whose telephone number is (703) 308-5428. The examiner can normally be reached on 7:00AM-3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema Rao can be reached on (703) 308-5463. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Frank Duong
March 28, 2003

Notice of References Cited	Application/Control No. 09/850,399	Applicant(s)/Patent Under Reexamination HALLER ET AL.	
	Examiner Frank Duong	Art Unit 2666	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
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	D	US-			
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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Hardwick et al, Project P946-GI Smart Devices "When Things Start to Think", pages 1-30, January 2000.
	V	Guthery et al, The WebSIM- Clever Smartcards Listen to Port 80, pages 1-16, December 1999.
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 2

Complete if Known	
Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	~~2661~~ 2666
Examiner Name	
Attorney Docket Number	IXIM-01000US0

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	U.S. Patent Document Number	Kind Code[2] (if known)	Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
FD		6,326,926		Shoobridge et al.	12/4/2001	

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FD			WO 99/48315		Nokia Mobile Phones Ltd.	09-23-1999		
FD			JP 3153213		Takayama, Inc.	04-03-2001		✓

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Sheet 2 of 2

Complete if Known	
Application Number	09/850,399
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First Named Inventor	Amit Haller
Group Art Unit	2661
Examiner Name	
Attorney Docket Number	IXIM-01000US0

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
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		Parekh, Operating Systems on Wireless Handheld Devices, A Strategic Market Analysis, Massachusettes Institute of Technology, September 28, 2000	
		Johansson, et al., Short Range Radio Based Ad-hoc Netowrking: Performance and Properties, IEEE, 1999	

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Firm or Individual name	Kirk J. DeNiro, Reg. No. 35,854 Vierra Magen Marcus Harmon & DeNiro LLP
Signature	10/3/02
Date	October 3, 2002

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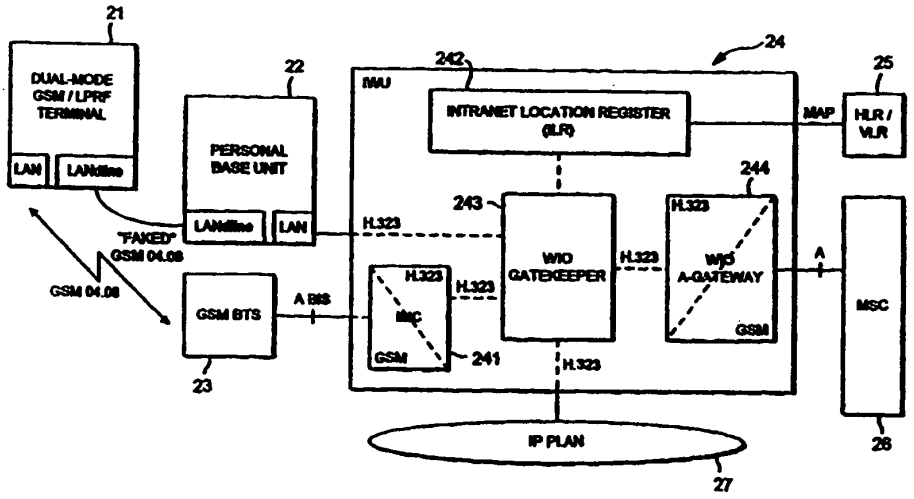

(57) Abstract

A wireless intranet office (WIO) concept is disclosed, which integrates an IP based intranet environment (27) and GSM network providing mobile telephones (21) with access to GSM through the GSM network or via the intranet. Access through the intranet to the GSM MSC (26) is provided by a WIO interworking unit (24) which may comprise several network entities (e.g. intranet mobile cluster (241), intranet location register (242), WIO gatekeeper (243), WIO gateway (244) and H.323 gateway). A dual mode terminal for such a system is also disclosed.

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A DUAL MODE TERMINAL FOR ACCESSING A CELLULAR NETWORK DIRECTLY OR VIA A WIRELESS INTRANET

The present invention relates to a dual mode mobile station operable, for example in a public mobile communication network and a private network. The invention also relates to the system in which such a dual mode terminal may operate, and further components of that system.

In modern office work it is necessary to provide the employees with versatile information transfer connections which can transfer speech, facsimile messages, electronic mail and other data - usually in digital form. Transfer of information is needed inside an office or corresponding working environment for communication between employees, for transfer of information between branch offices of an enterprise, which offices can be in other towns or even in other countries, and for communication between the office and "outside world". In this text and all of the following text "office" stands for an environment with several users, which users "belong together", and which office physically covers a reasonably limited area. There has been a trend in the telecommunication branch toward integrated systems in which various forms of telecommunication can be controlled as one entity.

A conventional realization of an above mentioned type of office communication system comprises a company telephone exchange for providing telephone services and telephones connected to it over twisted-pair connections and a separate local area network (LAN) in which applications for advanced telecommunication services have been implemented and which has the intelligence to run them. The local network is connected to the telephone exchange using a telecommunication server (Telephony Server) which supports the traditional subscriber server architecture in which subscribers are subscribers' computers connected to the local network. For example call-, data-, facsimile-, electronic mail- and speech mail services are connected within an office utilizing the telecommunication server. In an integrated system users can also e.g. control telephone services using their computer terminals connected to the local network. The whole integrated office communication system is connected to public telephone network through the telephone exchange.

Figure 1 presents an example of a prior known office communication system in which users' telephones TP (TelePhone) have been connected by wire connections and a local area network (LAN) has been connected over a telecommunication server TS (Tele Server) into a telephone exchange PBX (Private Branch Exchange) which is connected to a public telephone network PSTN/ISDN (PSTN, Public Switched Telephone Network, ISDN, Integrated Services Digital Network). To the local area network (LAN) have been connected on one hand servers executing various services such as data base server DBS (Data Base Server), voice server VS (Voice Server) and electrical mail server EMS (Electrical Mail Server) and on the other hand the users' computers PC (Personal Computer). It can be regarded as a problem with this kind of realization that even if a user's telephone TP and computer PC usually are on the same table next to each other separate wire connections must be laid to the user's working room for them, on one hand from the telephone exchange PBX and on the other hand from the telecommunication server TS of the LAN. Building and maintenance of two overlapping telecommunication networks naturally causes cost.

The problem of overlapping telecommunication networks is increased by portable mobile stations utilizing radio connection coming rapidly more popular. Many persons working in an office need, because of their mobile work, a mobile station and often also a portable facsimile device and/or a combined portable computer/mobile station. In order to be able to use the devices based on radio connection also inside buildings, the constructions of which attenuate radio signals, it has been suggested that mobile radio networks should be supplemented with small base stations individual for offices or even for rooms, which base stations would be connected either directly or over wired telephone network to the central systems of mobile communication network. The network of small base stations would be already a third overlapping telecommunication network within the same office, and accordingly it is clear that in a preferable solution, which the present invention is aiming at, also the arrangement supporting radio communication stations should be realized using essentially the same means and telecommunication networks than the rest of the transfer of information in the office.

A challenge of its own to telecommunication systems is issued by the fact that work is done more and more in small office or domestic environment, which is described by the concept SOHO (Small Office, Home Office). Even here advanced office communication services are often needed and it is particularly preferable if such a flexible system is available which can be utilized even both in the office and at home. The present systems which require overlapping connections for the utilization of mobile communication services, conventional telephone services and fast data transfer services are very inflexible for working in a small- or home office. In addition to above, the following kinds of solutions connected with integrated telecommunication systems are known from prior art.

If an integrated office communication system is realized utilizing traditional technique, separate wired connections must be laid into a user's working room on one hand from telephone exchange PBX (Figure 1) and on the other hand from telecommunication server TS of local area network (LAN). Constructing and maintaining two overlapping networks naturally brings extra cost. In said solutions according to prior art a solution to this problem has not actually been striven for.

A target of the present invention is to present a system which reduces the problems caused by overlapping networks. Additionally, the purpose of the invention is to reduce problems caused by wireless information transfer inside an office and extra cost. A further target of the invention is to present an arrangement, in which said system, integrating information transfer, can also serve home office- and small office users. A further target of the invention is to present an arrangement of said kind, in which the same devices can be used as terminal devices (e.g. mobile stations) in the telecommunication system both in the office and outside it.

According to an aspect of the present invention, there is provided a dual mode mobile station comprising means for managing network information independently of the mode of operation of the mobile station; first linking means for linking to the interface of a mobile communication network so as to transfer control and mobility information between the mobile station and the mobile communication network; second linking means for providing a link to the interface of a further communication network so as to transfer control and mobility information between the mobile station

and the further communication network; and means for coupling the managing means to the first linking means when the mobile station is in a first mode and to the second linking means when the mobile station is in the second mode.

This mobile station has common network layer information for both modes (i.e. when the mobile station is within and outside the wireless intranet office environment). Consequently, as there is no dual stack at this level, less code is required to implement the dual mode mobile station, hence making it simpler, faster and cheaper. It is also easy to implement the second mode into existing mobile stations as this may be provided by virtue of a software enhancement to the conventional mobile station.

The network information is preferably at least mobile communication call control and mobility information. It may also further comprise mobile communication radio resources information. However, alternatively, the first linking means may comprise a radio resource manager for the mobile communication network, and the second linking means may comprise a radio resource manager for the further communication network. This may enable the mobile station to communicate with an interface on the further communication network by means of simple signalling. For example, the second linking means may comprise a radio resource of an unlicensed band such as a low power RF radio resource like Bluetooth.

In a preferred embodiment, the mobile station is further provided with a radio resource manager for a user terminal, and linking means for linking to the interface of the terminal device so as to transfer radio resource information between the mobile station and the user terminal. Furthermore, a mobile station may further comprise a browser, such as a WAP browser.

According to another aspect of the invention, there is provided a base station transceiver emulator for interfacing a mobile station of a mobile communication network and a further communication network, the base station transceiver emulator comprising means for determining the presence of a mobile station within its cell;

transceiving means for receiving call transfer information from the mobile station when the mobile station is within the cell and for transmitting call transfer information to the mobile station as it prepares to leave the cell.

According to a further aspect of the invention, there is provided a mobile station emulator for interfacing a mobile station of a mobile communication network and a base transceiver station emulator of a further communication network, the mobile station emulator comprising means for receiving call transfer information from the mobile station and for forwarding it to the base transceiver station emulator, when the mobile station enters the cell of the base transceiver station emulator; means for maintaining the call transfer information while the mobile station is within the cell; and means for transmitting the call transfer information to the mobile station as it prepares to leave the cell.

Such an emulator enables simple signalling between the mobile station and base station transceiver emulator. Furthermore, it enables call forwarding. Moreover, it eliminates the need for a mobile station to be used once it has entered the wireless intranet office environment. For example, instead of using a mobile station when in the office environment, a user could use a lightweight terminal such as a wristwatch and headset instead, or indeed a PC with headset.

A device for coupling a mobile station of a mobile communication network to a further communication network may comprise a base transceiver emulator and/or a mobile station emulator. Preferably, the device is a personal base unit and comprises both of these emulators. Such a personal base unit may be implemented in a PC.

According to another aspect of the present invention, there is provided a system for transferring information between a mobile station and a further communication device, the system comprising he mobile station, a communication network to which the further communication device is coupled, and a base transceiver station emulator for interfacing the mobile station and the communication network, wherein the system transfers information over the communication network when the mobile station is within the cell of the base transceiver station emulator, and transfers

information over a mobile communication network when the mobile station is outside the cell of the base transceiver station emulator.

A base transceiver station emulator and mobile station are also provided for such a system.

Such a system allows users to utilise communication networks, such as private intranets to carry cellular services (eg speech, data, SMS, facsimile etc) when within a coverage area. In addition, the WIO concept provides a good platform for local multi-media extensions because it potentially offers higher bandwidth to the user. Access to the public cellular network (eg GSM) is offered by introducing a transparent location management method, which allows mobile stations connected to the communication network, such as the intranet, to be reached from the public cellular network in the normal way. Hence, the concept can be utilised to provide extra capacity in hot-spot areas, such as airports and malls.

The base transceiver station (BTS) emulator may be an actual base transceiver station or a virtual base transceiver station. In any event, it is an interface between the mobile station and the communication network over which the information (eg, speech, data) is to be transmitted.

The BTS emulator may be the BTS of a mobile cluster. In this event, it is an actual base transceiver station. Whilst a mobile station is within this BTS cell, the information to/from the mobile station is transmitted over the communication network, even if there is an overlap with the cell of another public GSM BTS.

Alternatively, the BTS emulator may form part of a personal base unit for a mobile station, in which case it is a virtual BTS. That is, it looks like a BTS to the mobile communication network, but does not handover to another BTS.

In one embodiment, where the communication network is an IP network, the system takes care of the binding of GSM and IP numbers, so that only one number is required. Such E.164 = IP# mapping may be performed in the IWU (e.g. by the gatekeeper or ILR, or alternatively in the personal base unit.

The communication system may be one of several kinds, such as a data communication network, internet, intranet, LAN, WAN, ATM packet network, Ethernet (TM), or Token Ring (TM). Also, the further communication device may be one of several kinds, including a PBU, another mobile station, an MSC or an FSC.

The mobile station and PBU may be connected by RS232 cable. Alternatively, they may have an RF (preferably LPRF) or infrared connection. Examples include Bluetooth, Home RF, 802.11 WLAN etc. Also, they may be indirectly connected, for example via a connection device such as a mobile station cradle, deskstand or charger, or even a LAN of some kind.

According to another aspect of the present invention, there is provided a dual mode mobile station comprising control means for controlling transfer of information such that in a first mode transfer of information is between the mobile station and a mobile communication network, and in a second mode transfer of information is between the mobile station and a second communication network, and means for providing radio contact between the mobile station and the mobile communication network in both the first and second modes.

The first mode is, for example, when the mobile station is outside the office environment and the second, when it is within it.

In a preferred embodiment, the control means and means for providing radio contact are realised by virtue of a software enhancement to conventional mobile terminals. Hence, the terminals are much simpler than existing dual mode terminals, which, for example, require switches to change between the modes. Also, the terminal of the present invention remains connected to the mobile network while the actual data (data/speech etc.) is carried over another interface. Thus it provides the mobile network with what seems to be the same operation specified for the standard mobile communication network entities.

Now a system has been invented for transfer of information, e.g. speech or data, in which the trunk of information transfer is inside the office a local network (e.g. local

area network, LAN), and between office units e.g. a traditional telephone network utilizing wired connections or a fast data packet network utilizing ATM (Asynchronous Transfer Mode) technique, for example

According to one embodiment of the invention the mobile station may be connected to the terminal device by means of a connection device, having a functional connection to the terminal device, and having means for connecting functionally to the mobile station. In response to connecting a mobile station to the connection device, the system will be informed to direct calls to the mobile station via the data communication network. The connection device can be a desktop stand or desktop charger and may be a separate device or integrated into the terminal device.

A subscriber device means a terminal device connected to a telecommunication network, such as a telephone connected to a fixed telephone network, and a mobile station connected to a mobile communication network. A subscriber device also means servers and telephone exchanges connected to telecommunication networks, providing telecommunication services to the users of the telecommunication networks. In other words, a subscriber device means all the parts of a telecommunication network with which a telecommunication terminal device (e.g. a telephone) can communicate over a telecommunication network.

Embodiments of the present invention will now be described, by way of example, with reference to the accompanying drawings, of which :

figure 1 presents traditional communication networks and terminal devices used in an office environment;

figure 2 illustrates a wireless intranet office architecture according to an embodiment of the present invention;

figure 3 illustrates a wireless intranet office architecture according to an embodiment of the present invention;

figure 4 illustrates the architecture of a mobile station and personal base unit of a wireless intranet office, according to an embodiment of the present invention;

figure 5 illustrates a general GSM intranet office concept;

figure 6 to 11 show information flow from terminals of a GSM intranet office according to an embodiment of the present invention;

figure 12 illustrates the architecture of a mobile station according to a further embodiment of the present invention;

figure 13 illustrates a wireless intranet office system according to an embodiment of the invention in which the user is provided with a handsetless user terminal which communicates with his mobile station;

figure 14 illustrates a wireless intranet office system according to a further embodiment of the present invention, in which the user is provided with a handsetless user terminal which communicates directly with the personal base unit; and

figure 15 is a flow chart illustrating the functioning of a virtual terminal in the embodiment of figure 14, and

figure 16 illustrates the handling of an electronic book service within a wireless intranet office.

Figure 2 illustrates a wireless intranet office architecture according to an embodiment of the present invention.

As can be seen, the wireless intranet office integrates an IP based private intranet environment with a public cellular network, in this case the GSM network. This allows cellular users to utilise private intranets to carry the cellular services (ie

speech data SMS facsimile etc.) within the intranet coverage area. In addition, the wireless intranet office architecture provides a good platform for local multimedia extensions because it potentially offers higher bandwidth to the user. Access to public GSM network is offered by introducing a transparent location management method, which allows terminals connected to the intranet to be reached from the public GSM network in the normal manner. Thus, the wireless intranet office arrangement can be utilised to provide extra capacity in hot spot areas, such as airports, malls etc., where this might be needed.

In this wireless intranet office arrangement, the intranet forms a new kind of access network to the GSM network. The communication between the GSM backbone network and the end user access node takes place via internet protocol based networks instead of the GSM air interface, as will be seen below.

Figure 2 shows a mobile station 21 in a wireless intranet office environment. When outside this environment, the mobile station acts as a normal GSM phone connecting to a BTS of a public GSM network. However, when in the wireless intranet office environment, the mobile station may operate in one of two modes. In one mode, it connects to a personal base unit 22 (eg either with a inter-connection cable, a infra-red connection, or with low power RF transmitter and receiver), and in another mode connects to a GSM base transceiver station (BTS) 23. The mobile station 21 is connected to an IP local area network (LAN) and a home location register (HLR) and visitor location register (VLR) 25 and a mobile station controller (MSC) 26 by virtue of an inter-working unit (IWU) 24. This IWU comprises several network entities, including an intranet mobile cluster (IMC) GSM/IP Gateway 241, an intranet location register (ILR) 242, a WIO gatekeeper 243 and a WIO A-gateway 244.

Information such as data and/or speech may be transferred from the mobile station to the IP local area network by 2 routes, each of which includes a BTS emulator. In a first mode, the mobile station 21 is connected to the local area network via a personal base unit 22 (PBU), which itself comprises a virtual BTS. This is further explained with reference to figure 4 below.

In a second mode, the mobile station 21 forms part of a mobile cluster (for example see reference 32 in figure 3). In this case, the information is transmitted to the local area network via a private GSM BTS 23 dedicated to that cluster, and an IMC GSM/IP Gateway 241. The BTS transmits the signal over the A bis interface, and the IMC Gateway 241 performs a protocol transform from GSM to H.323, so that the signal can be transmitted over the IP local area network. (As can be seen from this figure, the wireless intranet office architecture uses the H.323 protocol for the signalling and data connections inside the inter-working unit).

The basic access interfaces to the cellular network are the air interface, the A-interface, the MAP protocol, the ISUP/TUP interface and the DSS.1 interface. The A-interface is an interface to mobile switching centre and the MAP interface is an interface to HLR/VLR. ISUP/TUP interface connects switching centres, while the DSS.1 interface resides in between of the BSX and switching center. The air interface connecting mobile terminals to the network can be any RF interface or infrared link. Candidate RF interfaces include e.g. Low Power RF (LPRF), 802.11, wireless LAN (WLAN) WATM and HIPERLAN. The air interface can also be replaced with a physical connection (e.g. RS-232 serial cable or Universal Serial Bus (USB). The GSM network sees this new access network as a BSS entity. New network entities are added to the access network to modify/de-modify cellular signalling. System design principle is to fulfil ITU-T's recommendation H.323 and enhances it with mobility extensions.

The WIO A-gateway 244 looks like a base station controller to the MSC 26.

A general WIO network architecture is shown in figure 3. A local area network 31 is provided with an intranet mobile cluster IMC 32, an LPRF cell 34 and a landline connection 35. The IMC comprises a plurality of mobile stations, a BTS (private GSM BTS) and a server in the form of an IMC GSM/IP gateway. The BTS interface between the BTS and IMC GSM/IP gateway is a GSM A-bis interface. The IMC GSM/IP gateway is responsible for signalling conversions between the GSM and H.323 protocols. The low power RF cell 34 comprises a personal base unit which has a virtual BTS and a low power transceiver, and associated mobile stations with corresponding low power RF transceivers. The PBU is directly connected to the

WIO network. To provide the mobile stations with access to the GSM network, the PBU provides conversions between the GSM and H.323 protocols. These conversions can be seen as a bridge between cellular phone and H.323 features which support WIO location management and mobility features. The landline connection comprises a landline terminal 351 hardwired to a personal base unit 352, which in turn is hardwired to the local area network.

Also connected to the local area network are a WIO gatekeeper 36, which is responsible for the connection of mobile stations to within and outside the network. For example it might transfer a call from the server to an external system such as PSTN (via gateway 38) or it could provide connection to the IP network 37. The IP network, in turn, is connected to the operators local area network 39. This local area network is provided with an A-intranet gateway 391, an intranet location register 392 and IP telephony gateway 393.

In this embodiment the main function of the Intranet Location Register is to store mobility management information and call statistics of the subscribers configured into the Wireless Intranet Office system. Roaming of visitors are controlled by the mobile switching center. For visitors only temporary information will be stored into the Intranet Location Register.

The ILR has a MAP interface to cellular system network HLR 25.

The IP Telephony Gateway 393 in this embodiment supports interworking between Internet telephony endpoints and mobile stations in the public cellular network. The interworking is based on the H.323 specifications.

The A-Intranet Gateway 391 in this embodiment makes protocol conversion between SCCP/MTP and IP protocols at the A-interface, and makes the cellular and Intranet location area associations. It has an O&M software entity which operates as an administrative server gateway for corresponding agents in intranet Mobile Clusters. The A-Intranet Gateway operates as a firewall between public telecommunication network and private Intranet solutions.

Further explanation of the network entities in Figures 2 and 3 are outlined below.

The Intranet Mobile Station is a generic terminal product portfolio consisting of full-featured cellular phone which support services of GSM and GSM derivatives. It may have specific features such as extended office/home cell selection criterias, and support of office and home area priority. With a serial cable and with a piece of software to a PC, Intranet Mobile Station - so called LANdline version - enables seamless landline communication to cellular system network and between other Internet telephony entities within IP network. It may be a GSM/LPRF dual-mode device enabling high value services within certain service areas.

The Personal Base Unit (PBU) may be a PC Card type of radio card for a desktop PC with a piece of software enabling wireless access to IP network. It provides LPRF cordless and wireless LAN - on 2.4 GHz band - dual-mode access exploiting an unlicensed radio spectrum. In cordless, "unlicensed" mode lower layers will be replaced with new ones, but signalling above them remains the cellular one. It also enables intelligent roaming of terminals between different radio frequency bands, i.e. between cellular and unlicensed bands.

The Intranet Mobile Cluster is simulating BSC in a local environment. It consists of minimum set of BTS functionality with reduced physical construction. Intranet Mobile Cluster is a BTS and a BTS driver software package for Windows NT 5.0 including rate adaptation, an O&M agent software package and a GSM/IP Telephony Gateway entity. Intranet Mobile Cluster provides interworking with data services and facsimile as a direct access to IP network, and it may provide local call routing capability within its radio coverage.

The purpose of the GSM/IP Telephony Gateway is to reflect the characteristics of an Internet telephony endpoint to an Intranet Mobile Station, and the reverse, in a transparent fashion. The GSM/IP Telephony Gateway provides appropriate format translation of signalling and speech, i.e., audio format translations between GSM 06.10, 06.20, 06.60, J-STD-007 and G.711, G.723 and transformation of communications procedures. The Gateway performs call setup and clearing on both the Internet telephony side and the Wireless Intranet Office side.

The MS-IP (WIO) Gatekeeper 36,243 provides mobility and call management services, and certain radio resource management functions.

The MS-IP Gatekeeper provides the following services:

Registration control - The MS-IP Gatekeeper authenticates all the network entities, i.e., Intranet Mobile Stations, Intranet Mobile Clusters, A-Intranet Gateways, IP Telephony Gateways, Intranet Location Registers, H.323 terminals, which have access to the system. In case of Intranet Mobile Station, authentication and registration is based on automatic Gatekeeper discovery procedure. In other cases, it's based on manual Gatekeeper registration procedure.

Connection ciphering - Part of the Gatekeeper's authentication procedure is connection ciphering service. It provides key distribution, identification and encryption/decryption services to the Gatekeeper and other entities in the system. Service has an option to select ciphering, hashing, key distribution and signature algorithms independently. Key distribution is based on public key cryptography and message ciphering is based on secret key cryptography.

Address translation - The MS-IP Gatekeeper performs E.164 to transport address association and translation. This is done using directory service in the Intranet Location Register which is updated during mobility management procedures, ie., during TMSI reallocation, authentication, identification, IMSI detach, abort, and location updating.

Call control signalling - The MS-IP Gatekeeper can be configured to route call control signalling to the cellular system network or to the local call management entity within the Gatekeeper.

Call management - The MS-IP Gatekeeper maintains also list of ongoing calls and collects call statistics. This information is stored into the Intranet Location Register by the Gatekeeper.

Cellular procedures - The MS-IP Gatekeeper must be able to handle signalling and resource management procedures (BSSMAP resources) specified in GSM recommendation 08.08.

Status control - In order for the MS-IP Gatekeeper to determine if the registered intity is turned off, or has otherwise entered a failure mode, the MS-IP Gatekeeper uses status inquiry to poll the entity at a certain interval.

The MS-IP Gatekeeper may, for example comprise software which uses a Windows NT platform together with some dedicated hardware in the IMC and gateways to fulfil the ITUT's H.323 Gatekeeper specifications, extended with certain mobility management capabilities according to GSM 04.08.

Figure 4 shows the architecture of a mobile station 41 and a personal base unit, personal computer 42, according to an embodiment of the present invention.

The mobile station 41 and personal base unit 42 are represented showing layers 1 to 3 of the 7 layer OSI reference model, namely physical layer (layer 1), data link layer (layer 2) and network layer (layer 3). (These are data communication protocols whose purpose is to provide a link between 2 communicating devices).

Network layer 43 of the mobile station 41 provides call control management 431 (including supplementary services 435 and short message services 436). This layer also provides mobile management 432 and radio resource management 433. Further, it comprises a MUX which "switches" to a second branch of layer 2 to demand services of the data link (phone bus FBUS) Ctrl 443) and physical layer (FBUS 452) when the mobile station 41 and the personal base unit 42 are "connected". In any event, the network layer demands the services of the data link layer 44 (data link 441 and control 442) and the physical layer 45 of the first branch,

to allow the mobile station 41 to perform and report its measurements about the surrounding GSM network (neighbouring BTSs) and thus comply with GSM requirements.

Turning now to the personal base unit 42, this PBU comprises a phone driver implementing the physical and data link layers 48 and 47 (FBUS 481 and FBUS Ctrl 471). The network layer 46 of the PBU comprises a PBU control/IMC core control 462 and an H.323 protocol entity 463 which provide protocol conversion between GSM and H.323. The conversions are needed for GSM layer 3 signalling messages while the speech is carried as GSM coded in the whole while this intranet office network. The PBU further comprises TCP/IP entity 422 and a local area network adapter driver for the 23 for interfacing with the local area network. The PBU control 462 comprises a virtual BTS 49 for communicating with the network layer 43 of a mobile station 421.

This figure shows layers 1 and 2 of the second branch of the mobile station and the PBU as a phone bus (FBUS). This is because, in this embodiment an RS 323 serial connection is used. However, it is evident to a person skilled in the art that these layers would be implemented using different technologies if, for example, connection is via IR or RF.

The mobile phone also has a user interface 461.

In the network, the mobile station interfaces the intranet mobile cluster and personal base unit entities. The interface to the personal base unit, as can be seen from figure 4, uses a modified GSM layer 3 (04.08) signalling in this embodiment. (However, in an alternative embodiment, shown in Figure 12, the GSM radio resource is not delivered to the PBU from the mobile station. Instead, Bluetooth radio resourcing replaces it as a consequence of part of the virtual terminal being implemented inside the mobile station control software).

The mobile station 41 and PBU 42 operate as follows.

When the mobile station 41 is outside the wireless intranet office environment, it operates as a normal GSM phone. The MUX 434 does not couple the radio resource management entity 433 with the second branch 443, 452. Voice and signalling is transmitted via the data link layer 44 and physical layer 45 over the first (GSM)branch to the cellular air interface.

Also, if the mobile station 41 is within the wireless intranet office, but forms part of an intranet mobile cluster, this same path is taken to the cellular air interface and the information and signalling is transmitted to the GSM BTS of that cluster.

However, when the mobile station 41 is connected to a PBU 42 (for example by an RF 232 serial cable or RF interface) information such as voice, data, fax, SMS etc., is transmitted over the local area network. In this case, the MUX 434 demands the service of the second (LAN) branch layers 1 and 2, and layer 3 of the mobile station 41 is seen to communicate with the virtual BTS 49 of the PBU 42. That is, the information (eg. speech) and GSM layer 3 signalling messages are redirected to the second branch interface. As the mobile station 41 and the PBU 42 are linked, the field strength of the virtual BTS 49 will be greater than that of other BTSs in the GSM network. Consequently handover is made to the virtual BTS 49. After this, the handover signalling relating to this virtual BTS is handled from the MUX through the second branch. When handover has been made, the MUX handles all messages and forwards them to the new host cell through the RS 232 interface etc and "talks" to the other BTSs (as is conventional in GSM) over the first branch. General broadcast traffic is also seen by the mobile station 41, for example from layers 1 and 2 to the MUX and from there through the mobile station/PBU interface to the virtual BTS 49.

While in this mode, the speech and layer 3 signalling are routed to the personal base unit, and the radio resource management entity at layer 3 remains connected to the GSM layer 2 (441), that is branch 1. As mentioned above, this is so that the mobile station can act as required by GSM (for example by measuring the RSSI for neighbouring BTSs etc.).

The parameters in the virtual BTS 49 within the IMC core are set in such a manner that the terminal is forced to remain clamped to this virtual GSM cell. This avoids possible handovers to any other GSM cells the mobile station might hear.

The operation of the MUX can also be explained as follows. When the mobile station changes to "LANdline" mode (for example when the other interface is connected), the MUX communicates with the new BTS in a similar way to as it does to other BTSs to which it is not connected. In this phase, the mobile station notices that the field strength of the new BTS relating to this new interface is more powerful than the field strength of other BTSs, and hence makes the handover to this BTS. After the handover, signalling relating to the new BTS are handled by the MUX through the new interface, and the mobile station keeps on listening these and sends measurement reports to virtual BTS General broadcast traffic is also sent to the new mobile station, for example from the lower stage to the MUX and from there through the new interface to the virtual BTS.

Figure 5 shows a general GSM intranet office concept, and figures 6 to 11 show information flow between terminals - figures 6 to 9 being within the office environment and figures 10 and 11 extending to outside the environment.

Figure 5 shows the GSM intranet office 57 comprising different terminal arrangements 51 to 54. The intranet office interfaces with an internet protocol network 58, which is partially situated within the office and partially at the operators location. The operator 59 controls transfer of information between the IP network 58 and network switching centres, such as mobile switching centres 55 and fixed line switching centres 56.

Terminal arrangements 51 and 52 comprise a mobile station 51a, 52a and a BTS Emulator 51b, 52b. These mobile stations can be within an intranet mobile cluster or can be coupled to a personal base unit comprising a virtual BTS.

Figure 6 illustrates a call between mobile stations of the same office. In this case, the call might be sent by mobile station 51a to mobile station 52a. The information is transmitted from mobile station 51a to BTS emulator 51b and on to the LAN via the

inter-working unit. The local area network then transfers the information to BTS emulator 52b which in turn forwards it to mobile station 52a.

Figure 7 shows a call between a mobile station 51a and an H.323 terminal 54 within the same office. Information transferred from mobile station 51a will be forwarded to the LAN in the same manner as in figure 6 (ie via BTS Emulator 51b and the WIO inter-working unit). The LAN then transfers the information to the terminal 54.

Figure 8 shows a call between a mobile station 52a and a fixed line extension 53a of a private branch exchange 53b of the same office. Again, information is transferred from mobile station 52a to a local area network via BTS Emulator 52b and the office IWU. The information is then transferred over the local area network via a PSTN gateway to PBX 53b. This PBX then switches the information to the requisite extension 53a.

Figure 9 shows a call between a H.323 terminal and a PBX extension of the same office. In this case, there is no GSM connection. Information is forwarded to the local area network from the terminal 54 where it is transferred to PBX 53b via the local area network on a PSTN gateway. The PBX 53b then switches the information to the requisite extension 53a.

Figure 10 shows a call between a mobile station 51a of the WIO to the mobile network. In this case, information is transferred from mobile station 51a to the local area network via the BTS Emulator 51b and the inter-working unit. It is then transferred across the local area network and to a mobile switching centre 55 via an A-gateway.

Figure 11 shows a call between a mobile station 52a of the WIO and a fixed line network. In this case, information is transferred from mobile station 52a to the local area network via BTS Emulator 52b and the inter-working unit. The information is then transferred over the LAN to a fixed line switching centre 56 via a PSTN gateway.

In the information transfer system according to the invention, information transfer connections based upon ATM and GSM technologies may been utilized. Furthermore, it is fully possible to utilize instead of these techniques other kind of information transfer connections. For example it is possible to arrange, instead of the ATM system, the information transfer connections between terminal devices 40 to 43, teleservers 60, 61 and network server 90 entirely e.g. using systems based upon Ethernet and Token Ring or future wide band networks. Correspondingly it is possible to realize, instead of GSM-system, an information transfer system according to the invention even in connection with other mobile communication systems, such as e.g. TDMA (Time Division Multiple Access), CDMA, W-CDMA AMPS (Advanced Mobile Phone Service) and NMT (Nordic Mobile Telephone) systems.

Moreover, it can be transferred over WATM, 802.11 and mobile IP, which allows the network entities (PBU, IMC, etc.) being mobile. This enables, for example, forming a WIO cluster/IMC into a train or airplane.

Figure 12 shows the architecture of the mobile station 120 according to another embodiment of the present invention. This mobile station is provided with both GSM and LPRF (Bluetooth) parts (processors, RF parts etc), and communicates with the public mobile network using GSM, and the PBU of the WIO network using LPRF (Bluetooth). An example of communication using Bluetooth is described below with reference to a user terminal and PBU in figure 14.

The mobile station 120 of this embodiment is represented showing layers 1 to 3 , namely physical layer (layer 1) 121, data link layer (layer 2) 122 and network layer (layer 3) 123.

Network layer 123 of the mobile station 120 provides call control management 124 (including supplementary services 124a and short message services 124b) and mobile management 125. That is, these layer 3 network management services are common to both GSM and Bluetooth modes of operation. This network layer further comprises a multiplexer, MUX 127, which demands services of the layer 3 radio resource management 126 and also of the lower layers 121, 122. In this embodiment the MUX 127 connects to a second branch of layer 3, to the Bluetooth

radio resource management 126b, to demand services of the Bluetooth radio resource management 126b, data link (DL and CTRL 128b, 128d) and physical layer 129b, when the mobile station 120 is within the wireless intranet office environment. The call control and mobility management functions 124 and 125 of the network layer also demand the services of the GSM radio resource management part 126a, the data link layer (DL CTRL 127a, 128a) and the physical layer 129a of the first branch via the MUX 127. This allows the mobile station 120 to perform and report its measurements about the surrounding GSM network (neighbouring BTSs) and thus comply with GSM requirements and also to communicate with a virtual BTS within the WIO if applicable.

When the mobile station 120 is outside the wireless intranet office, the common network layer functions demand the services of the layer 3 GSM radio resource management 126a and services of the lower layers 128a, 128c, 129a of the first branch (GSM branch).

Figure 13 illustrates a wireless intranet office arrangement according to another embodiment of the invention.

In this arrangement, a mobile station 131 connects to a PBU 132 which may, for example, be a personal computer. The PBU 132 comprises a BTS emulator in the form of a virtual BTS 133. A radio connection is shown (e.g. infrared or LPRF) between the mobile station and PBU, but the connection may be of a different type such as a wired connection. The mobile station 131 is connected to an IP LAN 135 and mobile communications network 136 by virtue of an IWU 134. The IWU may comprise several entities such as a GSM/IP gateway, an intranet location register, a WIO gatekeeper and a WIO A gatekeeper, as mentioned above with reference to figure 2. Rather than having to carry the mobile station around the user is provided with a user terminal in the form of a wireless headset 137 and wristwatch user interface 138. The wireless headset 137 connects to the mobile station 131 over an air interface using LPRF remote audio protocol (e.g. Bluetooth), and the wristwatch UI 138 is similarly connected over the air interface using LPRF remote user interface protocol (e.g. Bluetooth).

The mobile station 131 of this embodiment, like that of figure 12 has both GSM and LPRF (e.g. Bluetooth) parts. However, as explained above, in this embodiment Bluetooth is used for communication between the mobile station 131 and the user terminal 137, 138, as opposed to between the mobile station 131 and PBU 132. Consequently, the mobile station's protocol stack will differ from that shown in figure 12. More specifically, the Bluetooth physical layer 129b will couple to the air interface of the user terminal as opposed to that of the PBU. Moreover, layers 1 and 2 of the GSM protocol stack will be distinguished. That is, this first branch 127a is further divided by the provision of a MUX between layers 2 and 3 as shown in figure 4, depending on whether an interface is required to a GSM BTS or to a virtual BTS within a WIO environment.

When the handset 131 is outside the wireless intranet office environment, the handset 131 operates as a normal GSM phone. That is, MUX 127 connects to the GSM radio resource management 126a and the GSM lower layers 121 and 122 to obtain connection to a public GSM BTS. The other layer 1 and 2 stack linking to the virtual BTS would be disconnected as described above with reference to figure 4.

Optionally, the MUX 127 may also make connection to the Bluetooth radio resource management 126b, for example if the user selects an option to use user terminals 137, 138 within the GSM environment.

When the handset enters the wireless intranet office environment, on the other hand, the MUX 127 may effect a connection so that the call control and mobility management functions may demand services of the Bluetooth radio resource function and layers 1 and 2, 126b, 128b, d, 129b, either automatically or upon user selection. Such connection enables the provision of a communication channel between the mobile station 131 and the user terminal 137, 138. To effect a link between the mobile station and PBU 132, the MUX 127 connects the GSM radio resource function 126a to the common layer 3 functions, namely call control 124 and mobility management 125. The GSM radio resource function 126 will demand service of layers 1 and 2 of the stack for linking with the PBU when in this wireless intranet office environment. Further, the GSM network will require signalling

updates. Hence, layers 1 and 2 linking to both the GSM, BTS air interface and PBU air interface are connected.

Figure 14 shows an alternative embodiment of the invention, in which user terminals 137, 138 communicate directly with a personal base unit, when in the wireless intranet office environment. The system is similar to that shown in figure 13, but with one major difference. When the mobile station 131 is in the wireless intranet office environment, its functionality is transferred to the PBU 132. That is, the PBU 132 then comprises a virtual mobile station 139, as will be explained further below. As a consequence, the user terminal 137, 138 can communicate directly with the PBU 132, thereby eliminating the need for the mobile station to remain turned on.

When the mobile station MS changes over to the WIO mode, the mobile station 131 transfers the dynamic data relating to the state of the mobile station and the calls in progress to a virtual terminal vMS 139, which is established in the PBU 132.

This data is maintained in a state machine, which is located in the virtual terminal. In this context, the state machine means a functional entity that describes the allowed changes in the state relating to the functioning of the mobile station and the related messages according to the protocol. The functionality described by the state machine maintains the data on the possible changes in the state relating to said protocol layer, the instantaneous state, the data structures relating to the change in the state, etc. Thus, a state machine in connection with the GSM means the mobile station's functionality related to the mobile station's GSM Layer 3 protocol (NULL, current switched on, switched to a base station, etc.) In addition, said state machine in the higher level maintains a partial state machine for the mobile station's every connection, whereupon the state of the connection can be, for example, NULL, call initiated, call proceeding, active, etc.

The protocol stack of the virtual terminal vMS in PBU may comprise the GSM functionality described by a state machine 105, which comprises at least a radio resource (RR), mobility management (MM) and call management (CM), i.e. functions related to protocol layer. It may also comprise an additional protocol 106 relating to

communication between the PBU and the user terminal operating in the WIO mode (e.g. the Bluetooth functionality). This will be discussed later in more detail.

When the PBU has the use of the data of the state machine, the PBU starts the virtual terminal vMS, which emulates the functioning of the actual mobile station MS towards the mobile communication system. It receives signals from the mobile communication network and, on the basis of the status data it maintains, it carries out signalling towards the mobile communication system, either independently, or according to the information it requests from the user terminal UT in WIO mode. It should be noted that since the state machine during WIO mode is maintained by the virtual terminal, the signalling to be implemented in different directions is independent, which means that changing of the protocol in either direction does not interrupt the functioning of the virtual terminal.

The flow diagram presented Figure 15 illustrates the functioning of a virtual terminal on the basis of a message arrived from a mobile communication network. In step 110, the virtual terminal vMS receives a message from the mobile communication network MOB. In step 111, the virtual terminal vMS compares the contents of the message to the state machine it maintains and, on the basis of it, defines the message required for changing over to the next state. In step 112, the virtual terminal defines whether a connection to the user terminal UT that operates in the WIO mode is required for generating the next message or whether the required data is available in the inter-working unit. If a connection to the user terminal UT is necessary, the virtual terminal generates the message relating to said function (step 113) and sends it through the IP network to the user terminal UT (step 114). At the same time, it updates the state of the process in question to the signalling state maintained by it (step 115). If no connection the user terminal UT is required and the virtual terminal concludes that the necessary signalling can be managed by itself, the virtual terminal checks whether the subscriber information stored in the PBU is required for the reply or whether the reply message can directly be generated on the basis of the status data (step 116). If additional information is required, the virtual terminal retrieves it from PBU's memory (step 117) and, on the basis of it, generates a message to be transmitted to the mobile communication system (point 118). If no additional information is required, the virtual terminal generates a message in

accordance with the mobile communication system's protocol defined on the basis of the status data (step 118). In step 119, the message generated by the virtual terminal is transmitted to the mobile services switching centre. At the same time, the virtual terminal updates the state of the process in question in the state machine it maintains (step 115).

One way of managing a connection between the virtual terminal vMS and the user terminal UT in WIO mode is to convert the GSM signalling into packets in accordance with the IP and to transfer the signalling to the user terminal UT in the GSM format. Anyhow, information transferred between the mobile communication network and the user terminal UT includes a lot of signalling relating to the use of a radio resource. Such traffic in the arrangement according to the invention is substantially unnecessary. Hence, in this embodiment, a connection is managed by simplifying the protocol during WIO operation. This kind of protocol can be established, for example, by selecting a group of AT commands, which are transported between the vMS and the MS in WIO mode. For the establishment of a connection, a simple, manufacturer-specific protocol can also be defined.

The implementation of said protocol could be illustrated by giving an example of the different functions, which are needed for communication between the vMS and the UT in WIO mode. These include, for example, the functions 1.1. - 1.7. listed in the first column of Table 1. The second column of Table 1 contains a functional description of messages.

Table 1

Reference	Function	Messages
1.1	Making of Call	Request to Call MS->vMS Resetting of Request to Call vMS->MS
1.2	Reception of Call	Indication of Call vMS->MS Resetting of Indication of Call MS->vMS
1.3	Speech	Transport of Coded Speech Over UDP
1.4	Ringing Out	Request for Switching Off/Indication
1.5	SMS	SMS Transmission/Reception

1.6	FAX	Telecopy Transmission/Reception
1.7	Handover	Handover Message Transmission/Reception (State Machine)

When a subscriber wants to make a call (1.1), a user terminal UT makes a request for a call and receives the message of the setup of the call given by an vMS, before the transfer of the data relating to the call begins. When the subscriber receives a call (1.2), the user terminal UT receives the message of the incoming call from the vMS and informs the vMS of the reception of the call before the transfer of the data relating to the call begins. When either the subscriber or the other party wants to cut off the call (1.3), the user terminal UT gives or receives a request to cut off the call. On the basis of the protocol, both the user terminal UT and the vMS should be able to distinguish whether it is a question of the transfer of speech (1.4), a short message (1.5) or telecopied data (1.6). The message 1.7 contains the status data on the calls in progress, which are transported when the virtual terminal is taken into use or when the use of the virtual terminal is terminated as described above.

The above-mentioned command group is only one possible way of implementation. For example, making a call can be arranged so that the user terminal UT identifies, on the basis of the first speech packets, that a call is coming in, in which case not even a separate call phase is required. Correspondingly, the vMS can automatically adapted to cut off the call when the reception of the call packets from the user terminal UT stops. With a simple command group, it is possible to implement adequate functions by means of which the user terminal UT that operates in the WIO mode can utilise the mobile communication network's services, though part of the signalling is managed elsewhere.

Referring back to Figure 14, when a user enters the office carrying his traditional user terminal UT handset, the phone indicates that LPRF LAN access is available. When the subscriber so wishes, he/she can e.g. plug the handset into an intelligent charger such as described in PCT Publication Number WO98/15143, and thus enable "handsetless operation" using merely the wrist UI and wireless headset. In

such an operation, the traditional terminal is inactive and the virtual terminal acts as a mobile station towards the mobile communication network. The traffic between the lightweight terminal and the virtual terminal is carried out through LPRF connection using the specific protocol layer as described earlier. While in office, he/she can walk around the LPRF coverage area and use GSM services without the handset. When leaving the office he/she can enter normal cellular operation by just taking his/her handset along and even continue the ongoing call. The invention thus facilitates a completely wearable communications device in office environment with the user identified as the same mobile subscriber as outside office with handset. The phone numbers, user setting, personalised features etc. will remain in both operating modes.

Figure 16 illustrates the handling of an electronic book service within a wireless intranet office, according to a preferred embodiment of the invention. The system may utilise a dual mode terminal of the invention as is shown for example in Figure 12. Mobile data services are becoming increasingly prevalent from mobile communications operators. One such service may be electronic book (E-book) purchasing. In this embodiment, E-book purchasing 161 is available through the operator of a mobile communications network 162. The user of mobile station 160 can access this service either via the public mobile network 162, or via the WIO. In the latter case, connection to the mobile network 162 is via PBU 166 and IWU 165 as explained with reference to figure 2 above. Similarly, the book required may be downloaded via the public or private networks. In the event that the mobile station 160 is within the public mobile communications area 162 but outside the WIO environment, the book may be stored in the mobile station's memory (or if the mobile station is a portable computer with data card, then it may be stored on the computer's hard disk, for example). Ideally, this is a temporary measure, and the book can subsequently be transferred for storage within the WIO network when the mobile station enters the WIO environment. For example, the user could choose to store the E-book on his PC (PBU 166), or alternatively in an office library 163 of the offices IP LAN 164. Alternatively, if the mobile station is within the WIO environment, the user may request the E-book via the WIO network, and the book may automatically be downloaded to the requested WIO device (e.g. office library 163, or users PC). An advantage of storing an E-book in the office library 163 is that it is

accessible to other users of the office. Consequently, if the user's terminals (mobile station, PC etc.) have a suitable browser, the user can search through books, newspapers etc. for desired information. If the user's terminal is a PC, then a conventional IP browser may be used. Alternatively, if the user's terminal is a mobile station 160, such as a mobile phone, then it is preferably provided with a WAP browser so that it may search the contents of the library 163, over a low power RF interface 167 such as Bluetooth.

The above is a description of the realization of the invention and its embodiments utilizing examples. It is self evident to a person skilled in the art that the invention is not limited to the details of the above presented embodiments and that the invention can be realized also in other embodiments without deviating from the characteristics of the invention. The presented embodiments should be regarded as illustrating but not limiting. Thus the possibilities to realize and use the invention are limited only by the enclosed claims. Thus different embodiments of the invention specified by the claims, also equivalent embodiments, are included in the scope of the invention.

For example, whilst the embodiments refer to intranet offices, it is not restricted to the intranet, but is also applicable to the internet.

CLAIMS

1. A dual mode mobile station comprising:

means for managing network information independently of the mode of operation of the mobile station;

first linking means for linking to the interface of a mobile communication network so as to transfer control and mobility information between the mobile station and the mobile communication network;

second linking means for providing a link to the interface of a further communication network so as to transfer control and mobility information between the mobile station and the further communication network; and

means for coupling the managing means to the first linking means when the mobile station is in a first mode and to the second linking means when the mobile station is in the second mode.

2. A mobile station as claimed in claim 1, wherein the managing means manages call control and mobility information independently of the mode of operation of the mobile station.

3. A mobile station as claimed in claim 1 or 2, wherein the managing means further manages radio resources information independently of the mode of operation of the mobile station.

4. A mobile station as claimed in claim 1 or 2, wherein the first linking means comprises a radio resource manager for the mobile communication network, and the second linking means comprises a radio resource manager for the further communication network.

5. A mobile station as claimed in claim 4, wherein the second linking means comprises a low power RF radio resource.

6. A mobile station as claimed in claim 5, wherein the low power RF is Bluetooth.

7. A mobile station as claimed in claim 3, wherein the radio resource management is that of the mobile communication network.

8. A mobile station as claimed in any of claims 2 to 8, wherein the call control and mobility management is that of the mobile communication network.

9. A mobile station as claimed in any preceding claim, wherein the mobile communication network is GSM.

10. A mobile station as claimed in any preceding claim, further comprising a radio resource manager for a user terminal, and linking means for linking to the interface of the terminal device so as to transfer radio resource information between the mobile station and the user terminal.

11. A mobile station as claimed in any preceding claim, further comprising a browser, such as a WAP browser.

12. A base station transceiver emulator for interfacing a mobile station of a mobile communication network and a further communication network, the base station transceiver emulator comprising:

means for determining the presence of a mobile station within its cell;

transceiving means for receiving call transfer information from the mobile station when the mobile station is within the cell and for transmitting call transfer information to the mobile station as it prepares to leave the cell.

13. A mobile station emulator for interfacing a mobile station of a mobile communication network and a base transceiver station emulator of a further communication network, the mobile station emulator comprising:

means for receiving call transfer information from the mobile station and for forwarding it to the base transceiver station emulator, when the mobile station enters the cell of the base transceiver station emulator;

means for maintaining the call transfer information while the mobile station is within the cell; and

means for transmitting the call transfer information to the mobile station as it prepares to leave the cell.

14. A mobile station emulator as claimed in claim 13, further comprising means for communicating with a user terminal.

15. A device for coupling a mobile station of a mobile communication network to a further communication network, the device comprising a base transceiver emulator as claimed in claim 12 and/or a mobile station emulator as claimed in claim 13 or 14.

16. A device as claimed in claim 15, which is a personal base unit.

17. A personal computer comprising a device as claimed in claim 16.

18. A system for transferring information between a mobile station and a further communication device, the system comprising:

the mobile station;

a communication network to which the further communication device is coupled; and

a base transceiver station emulator for interfacing the mobile station and the communication network;

wherein the system transfers information over the communication network when the mobile station is within the cell of the base transceiver station emulator, and transfers information over a mobile communication network when the mobile station is outside the cell of the base transceiver station emulator.

19. A system as claimed in claim 18, wherein the base transceiver station emulator communicates with the mobile station by RF.

20. A system as claimed in claim 19, wherein the base transceiver station emulator and the mobile station form part of a mobile cluster.

21. A system as claimed in claim 18, wherein the base transceiver station emulator is a virtual base transceiver station.

22. A system as claimed in claim 21, wherein the base transceiver station is dedicated to the mobile station.

23. A base transceiver station emulator for a system as claimed in any of claims 18 to 22.

24. A personal device for a mobile station, the device comprising a base transceiver station emulator as claimed in claim 23.

25. A device as claimed in claim 24, further comprising means for connecting the mobile station and base transceiver station emulator by means of infrared connection, wire connection or low power RF connection.

26. A device as claimed in claim 25, wherein the connecting means further comprises a cradle for the mobile station.

27. A mobile station for a system as claimed in any of claims 18 to 22.

28. A dual mode mobile station comprising:

control means for controlling transfer of information such that in a first mode transfer of information is between the mobile station and a mobile communication network, and in a second mode transfer of information is between the mobile station and a second communication network; and

means for providing radio contact between the mobile station and the mobile communication network in both the first and second modes.

29. A system for transferring information between a mobile station and a further communication device, substantially as hereinbefore described, with reference to, and/or as illustrated in any one or any combination of Figures 2 to 16 of the accompanying drawings.

30. A mobile station, substantially as hereinbefore described, with reference to, and/or as illustrated in any one or any combination of Figures 2 to 16 of the accompanying drawings.

31. A personal device for a mobile station, substantially as hereinbefore described, with reference to, and/or as illustrated in any one or any combination of Figures 2 to 16 of the accompanying drawings.

32. A base transceiver station emulator for interfacing a mobile station of a mobile communication network and a further communication network, substantially as hereinbefore described, with reference to, and/or as illustrated in any one or any combination of Figures 2 to 16 of the accompanying drawings.

33. A mobile station emulator for interfacing a mobile station of a mobile communication network and a further communication network, substantially as hereinbefore described, with reference to, and/or as illustrated in any one or any combination of Figures 2 to 16 of the accompanying drawings.

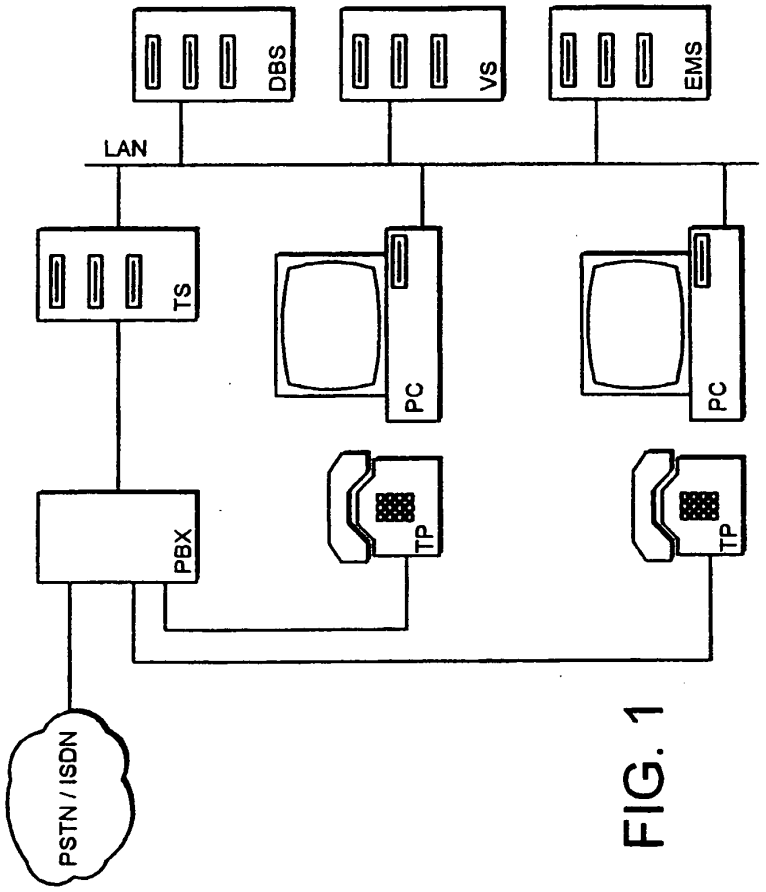
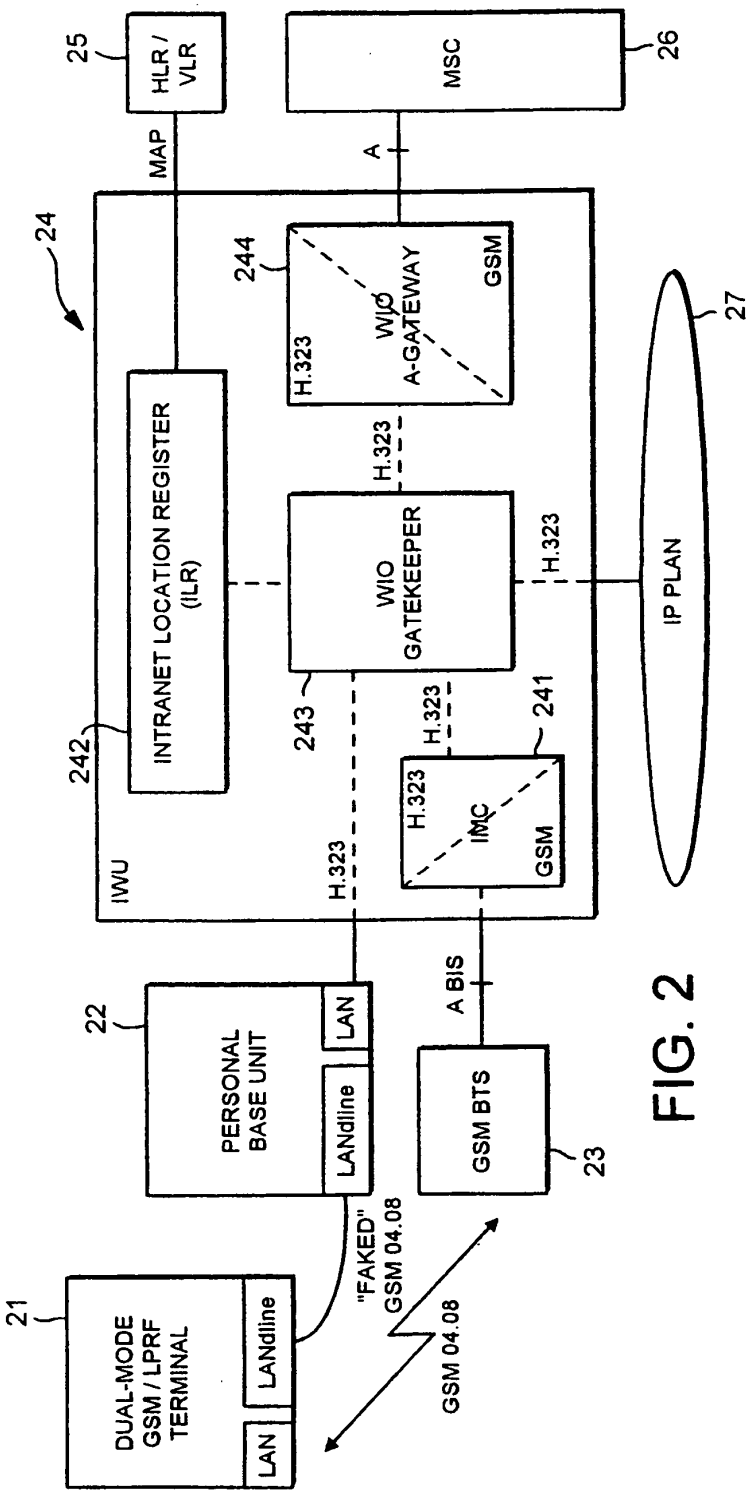


FIG. 1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HLR / VLR
MSC
26
MAP
A
24
244
H.323
WIO A-GATEWAY
GSM
27
INTRANET LOCATION REGISTER (ILR)
H.323
WIO GATEKEEPER
H.323
IP PLAN
242
243
H.323
241
H.323
IMC
GSM
IWU
H.323
A BIS
22
PERSONAL BASE UNIT
LAN
LANdline
GSM BTS
23
"FAKED" GSM 04.08
GSM 04.08
21
DUAL-MODE GSM / LPRF TERMINAL
LANdline
LAN

FIG. 2

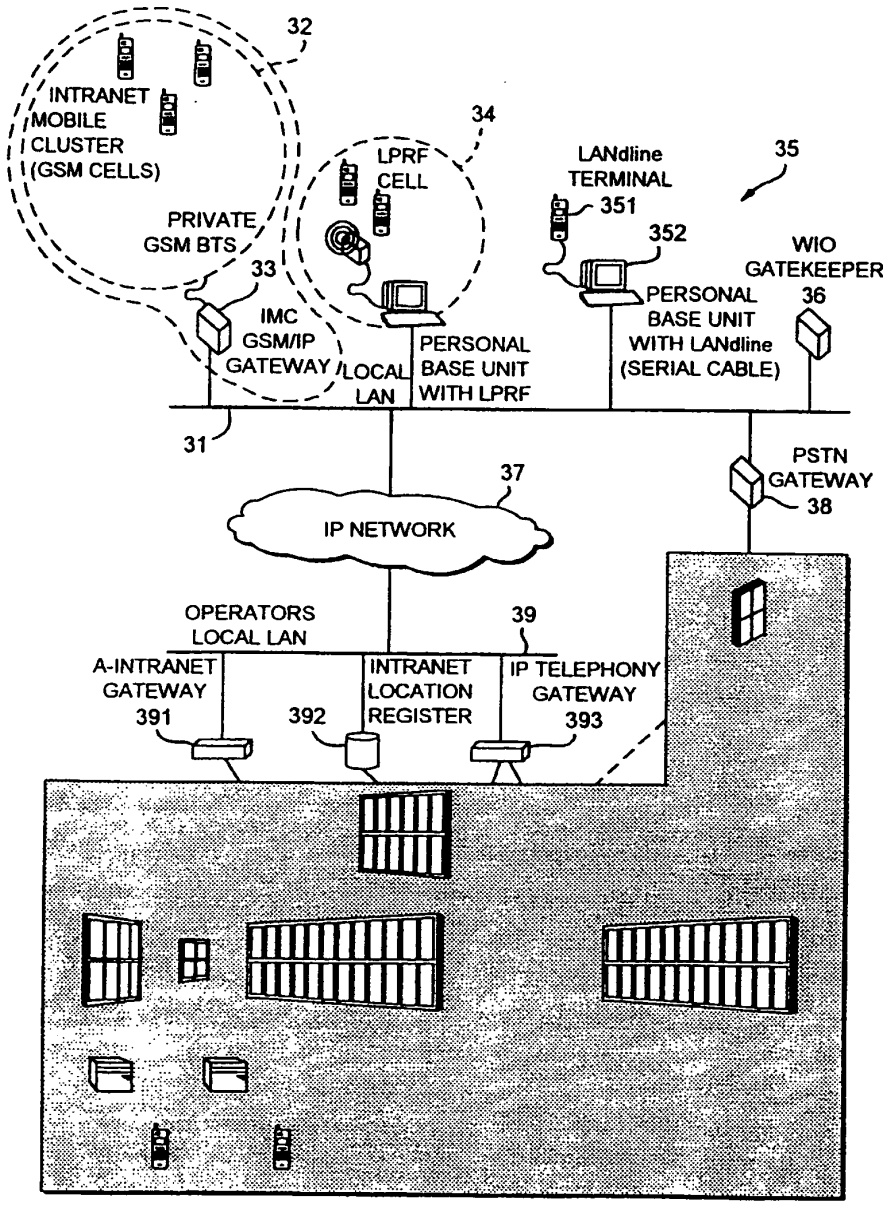

32
INTRANET
MOBILE
CLUSTER
(GSM CELLS)
34
LPRF
CELL
LANdline
TERMINAL
351
35
352
WIO
GATEKEEPER
36
PRIVATE
GSM BTS
33
IMC
GSM/IP
GATEWAY
LOCAL
LAN
PERSONAL
BASE UNIT
WITH LPRF
PERSONAL
BASE UNIT
WITH LANdline
(SERIAL CABLE)
31
37
PSTN
GATEWAY
38
IP NETWORK
OPERATORS
LOCAL LAN
39
A-INTRANET
GATEWAY
391
392
INTRANET
LOCATION
REGISTER
IP TELEPHONY
GATEWAY
393

FIG. 3

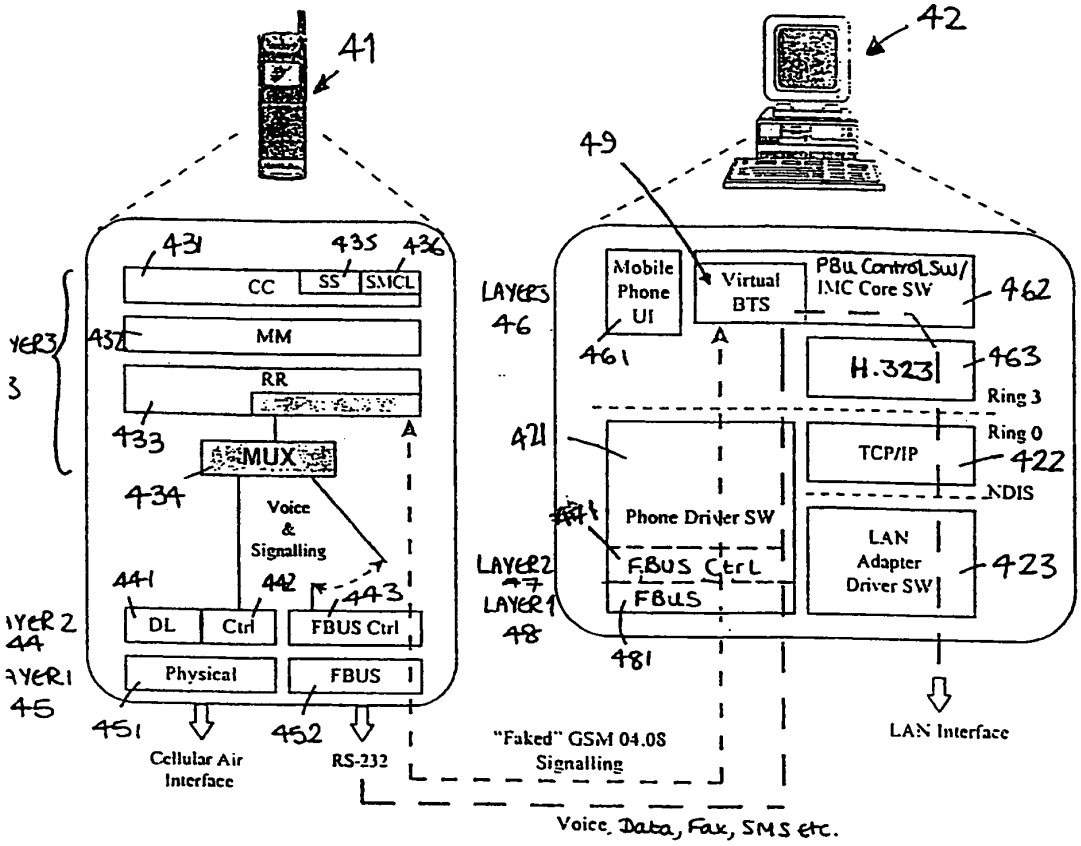

41
42
49
431
435
436
CC
SS
SMCL
MM
RR
433
MUX
434
Voice & Signalling
441
442
443
DL
Ctrl
FBUS Ctrl
Physical
FBUS
451
452
Cellular Air Interface
RS-232
"Faked" GSM 04.08 Signalling
Voice, Data, Fax, SMS etc.
LAYER3
3
LAYER2
44
LAYER1
45
LAYER3
46
Mobile Phone UI
461
Virtual BTS
PBus ControlSw/ IMC Core SW
462
H.323
463
Ring 3
Ring 0
TCP/IP
422
NDIS
421
Phone Driver SW
FBUS Ctrl
FBUS
LAYER2
47
LAYER1
48
481
LAN Adapter Driver SW
423
LAN Interface

Fig. 4.

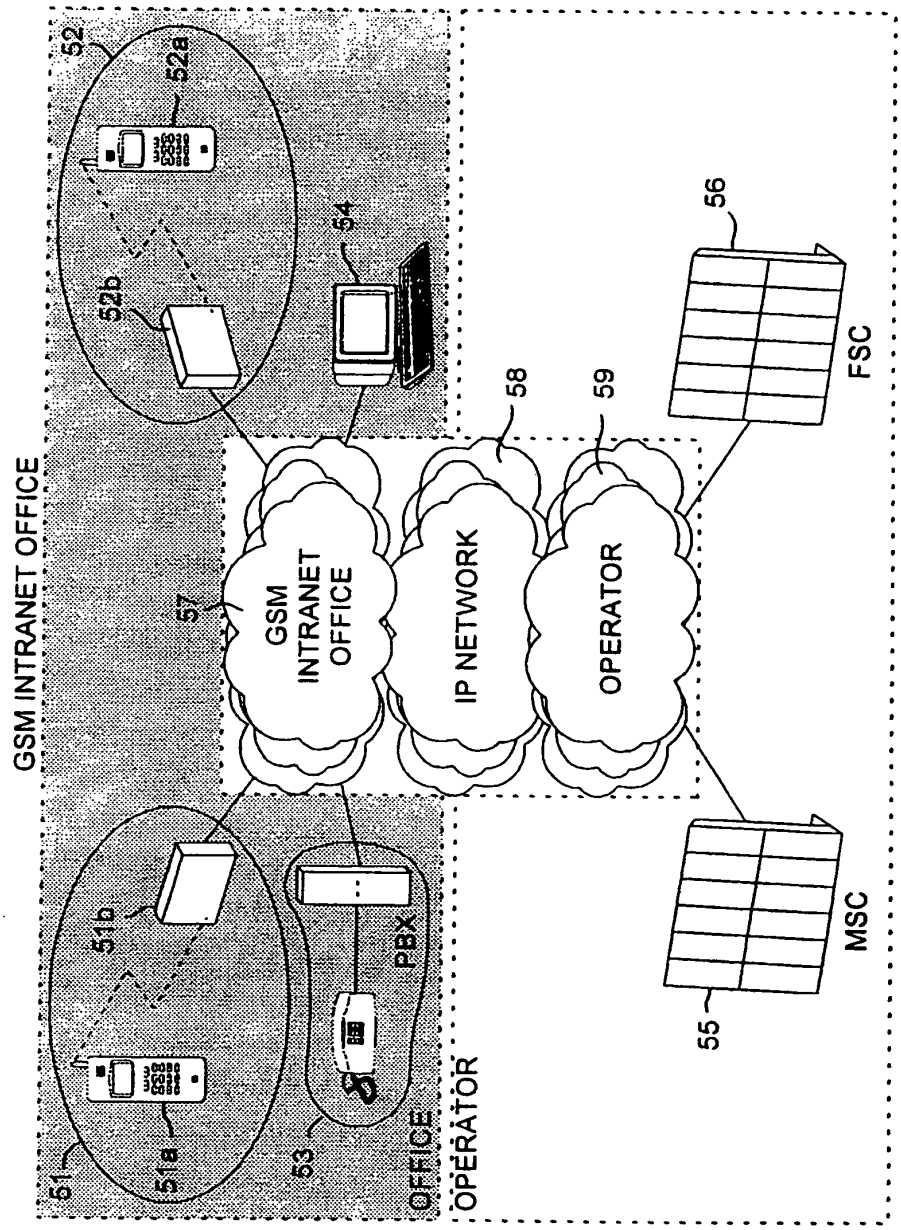

GSM INTRANET OFFICE
OPERATOR
OFFICE
GSM INTRANET OFFICE
IP NETWORK
OPERATOR
FSC
MSC
PBX
51
51a
51b
52
52a
52b
53
54
55
56
57
58
59

FIG. 5

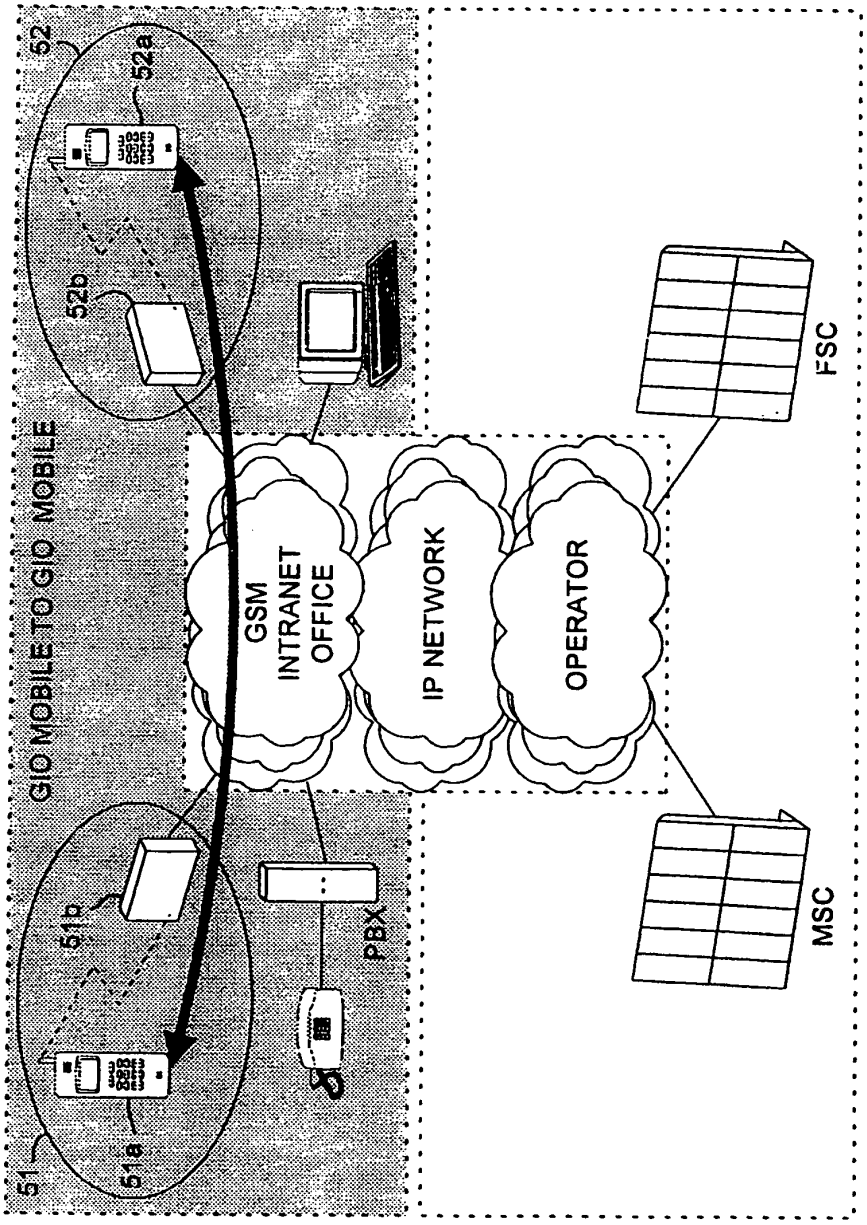

GIO MOBILE TO GIO MOBILE
52
52a
52b
51
51a
51b
PBX
GSM INTRANET OFFICE
IP NETWORK
OPERATOR
FSC
MSC

FIG. 6

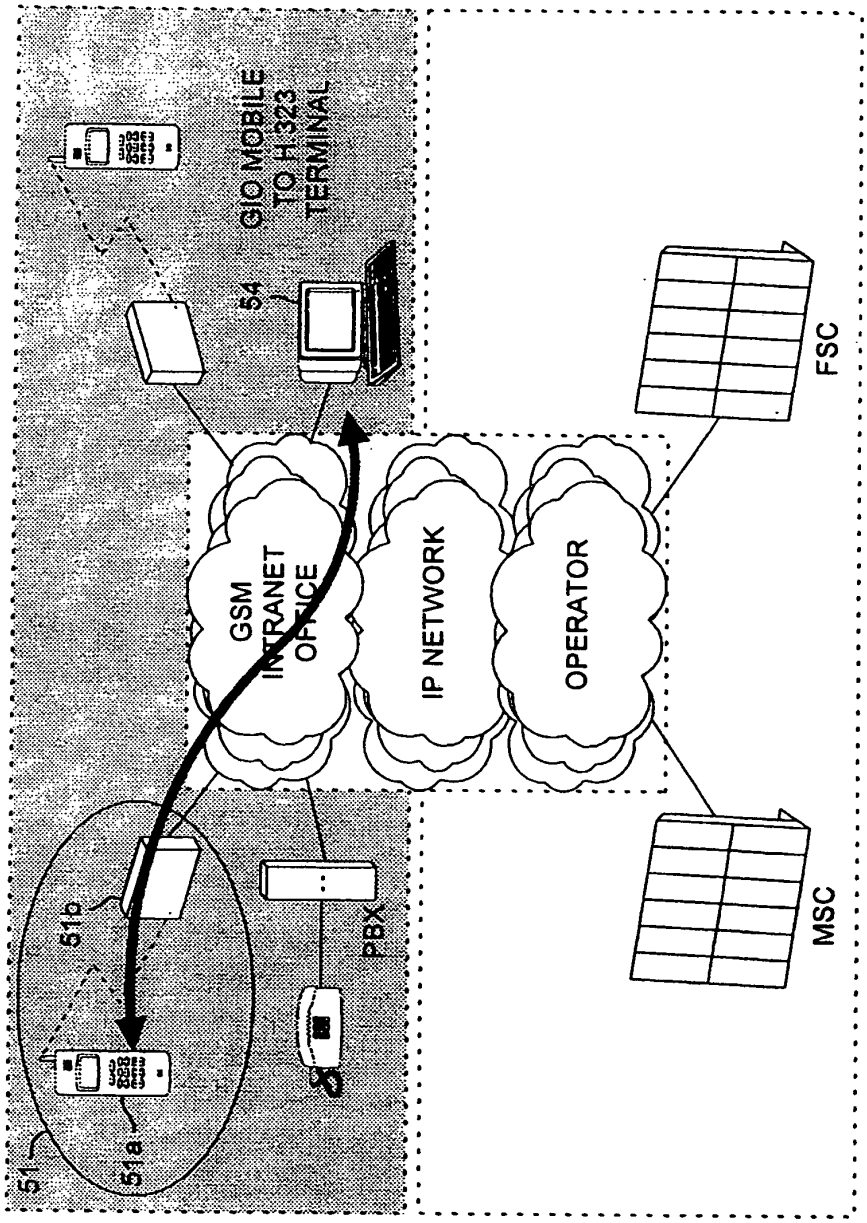

GIO MOBILE TO H.323 TERMINAL
54
FSC
GSM INTRANET OFFICE
IP NETWORK
OPERATOR
PBX
MSC
51b
51a
51

FIG. 7

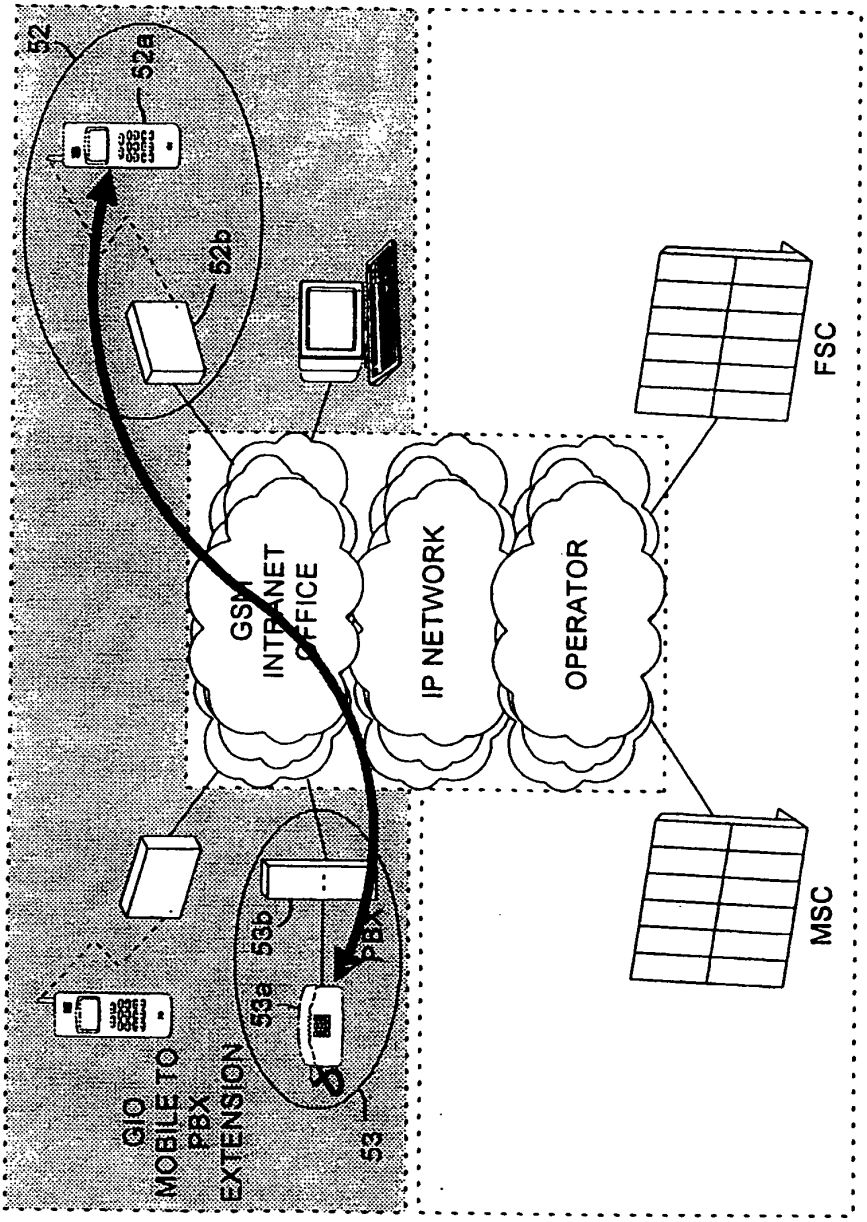

52
52a
52b
GSM INTRANET OFFICE
IP NETWORK
OPERATOR
FSC
MSC
GIO MOBILE TO PBX EXTENSION
53
53a
53b
PBX

FIG. 8

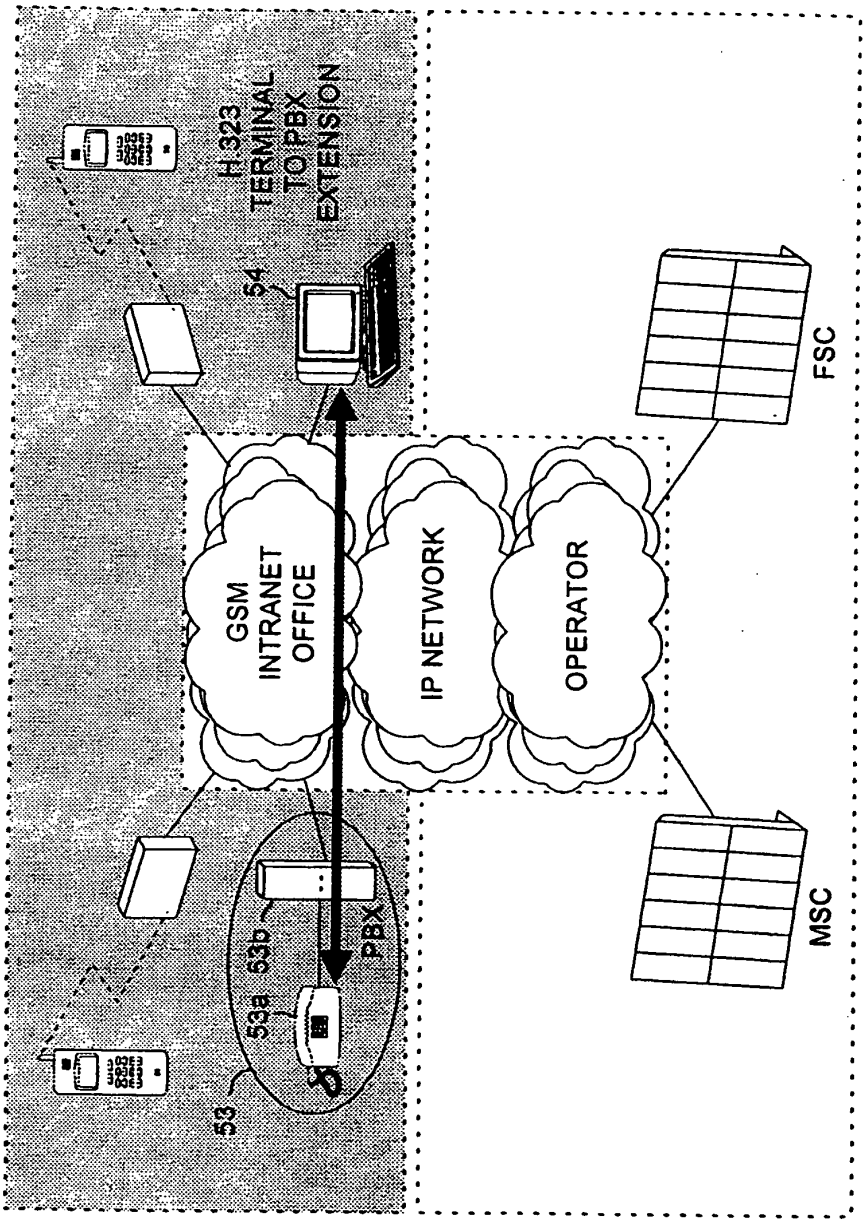
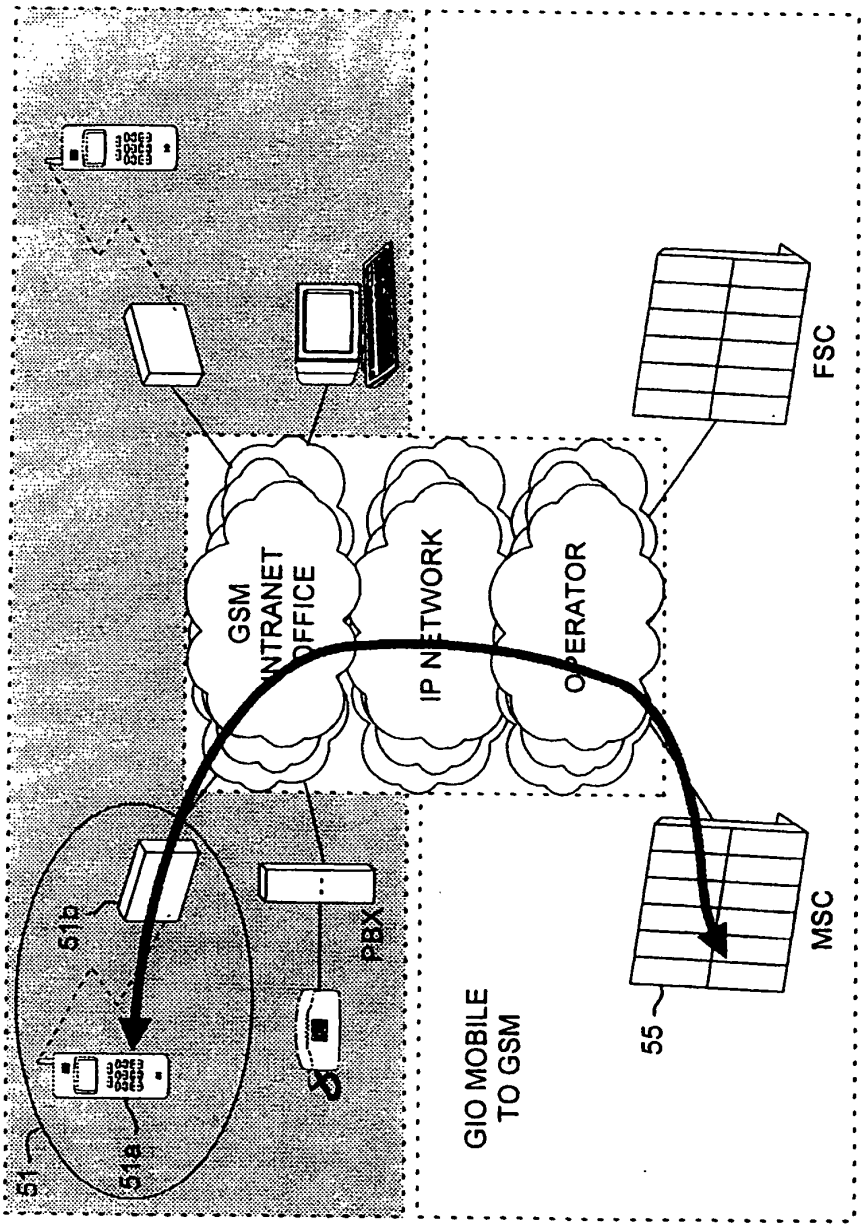

H.323
TERMINAL
TO PBX
EXTENSION
54
FSC
GSM
INTRANET
OFFICE
IP NETWORK
OPERATOR
MSC
PBX
53a
53b
53

FIG. 9


GSM
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OFFICE
IP NETWORK
OPERATOR
FSC
MSC
55
PBX
51b
51a
51
GIO MOBILE
TO GSM

FIG. 10

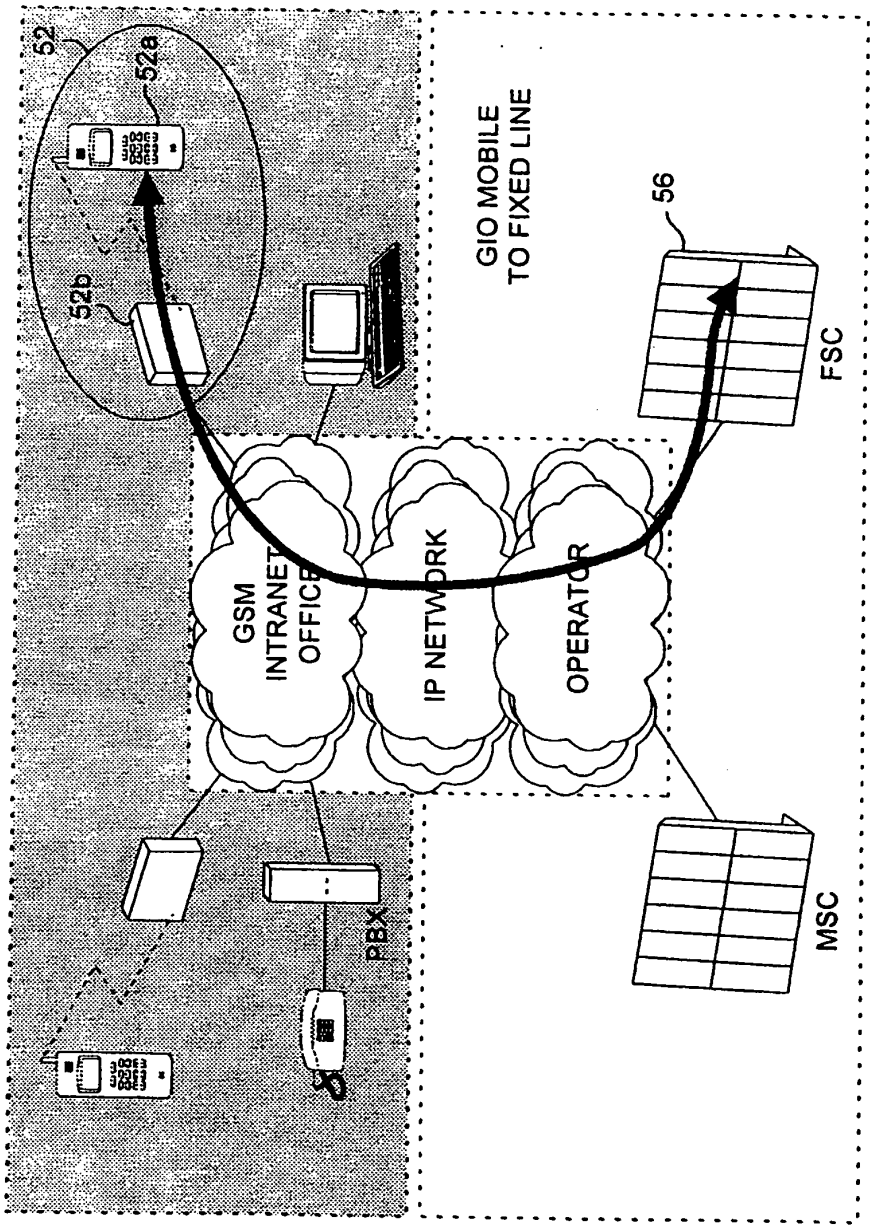

52
52a
52b
GIO MOBILE
TO FIXED LINE
56
FSC
GSM
INTRANET
OFFICE
IP NETWORK
OPERATOR
PBX
MSC

FIG. 11

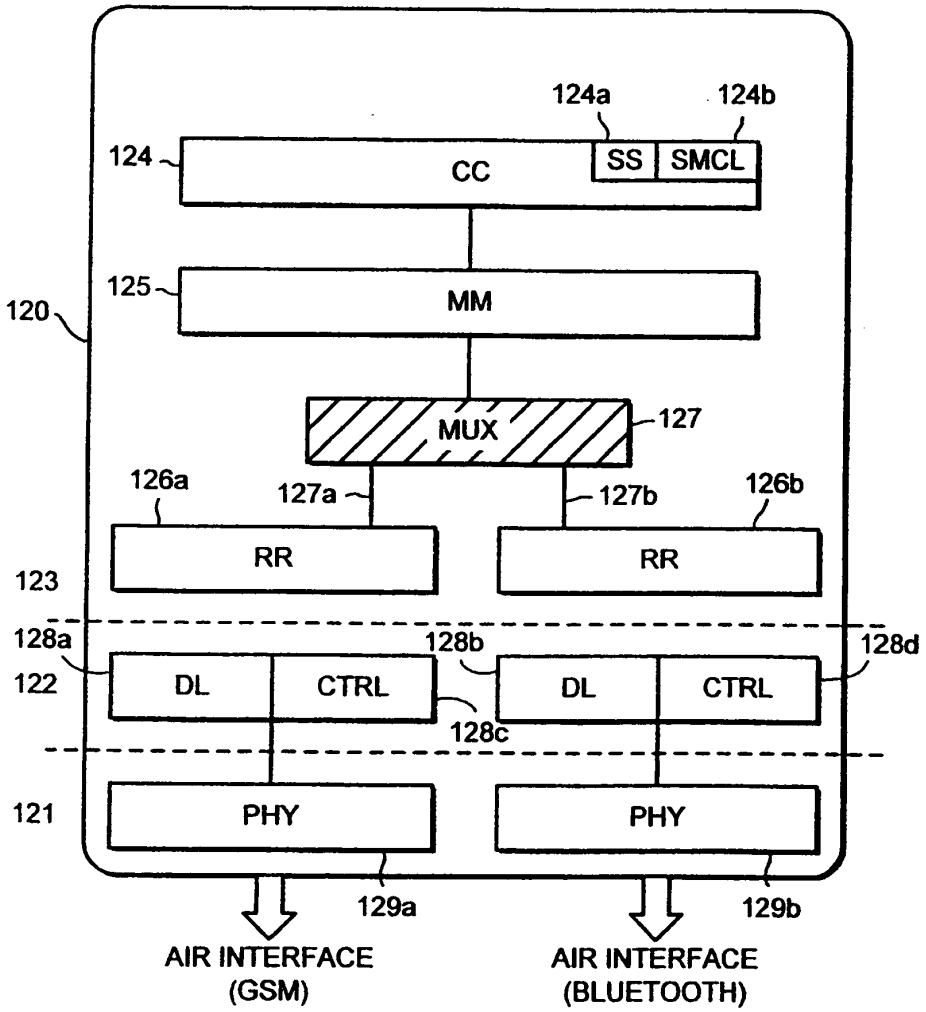
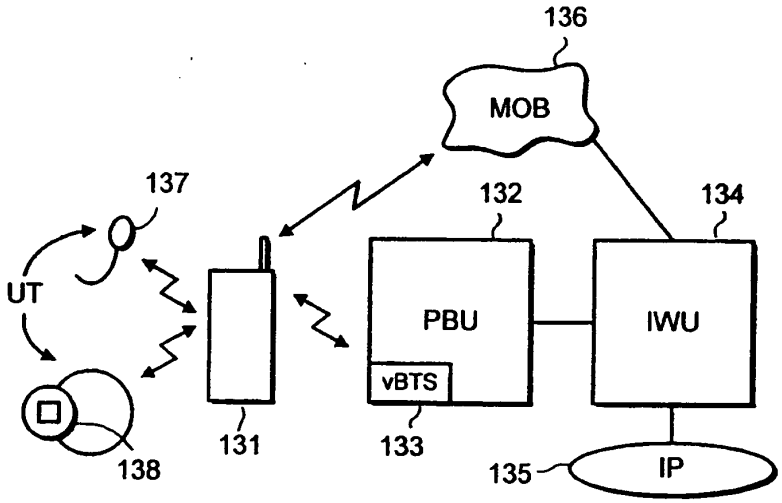

124a
124b
124
CC
SS
SMCL
125
MM
120
MUX
127
126a
127a
127b
126b
RR
RR
123
128a
128b
128d
122
DL
CTRL
DL
CTRL
128c
121
PHY
PHY
129a
129b
AIR INTERFACE
(GSM)
AIR INTERFACE
(BLUETOOTH)

FIG. 12


136
MOB
137
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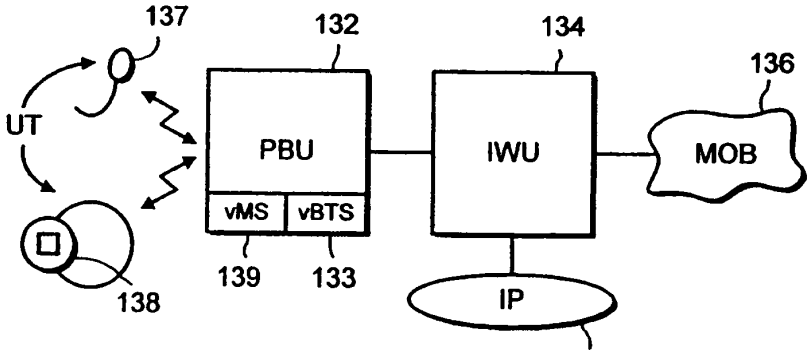
UT
PBU
IWU
vBTS
131
133
135
IP
138

FIG. 13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UT
PBU
IWU
MOB
vMS
vBTS
139
133
IP
138
135

FIG. 14

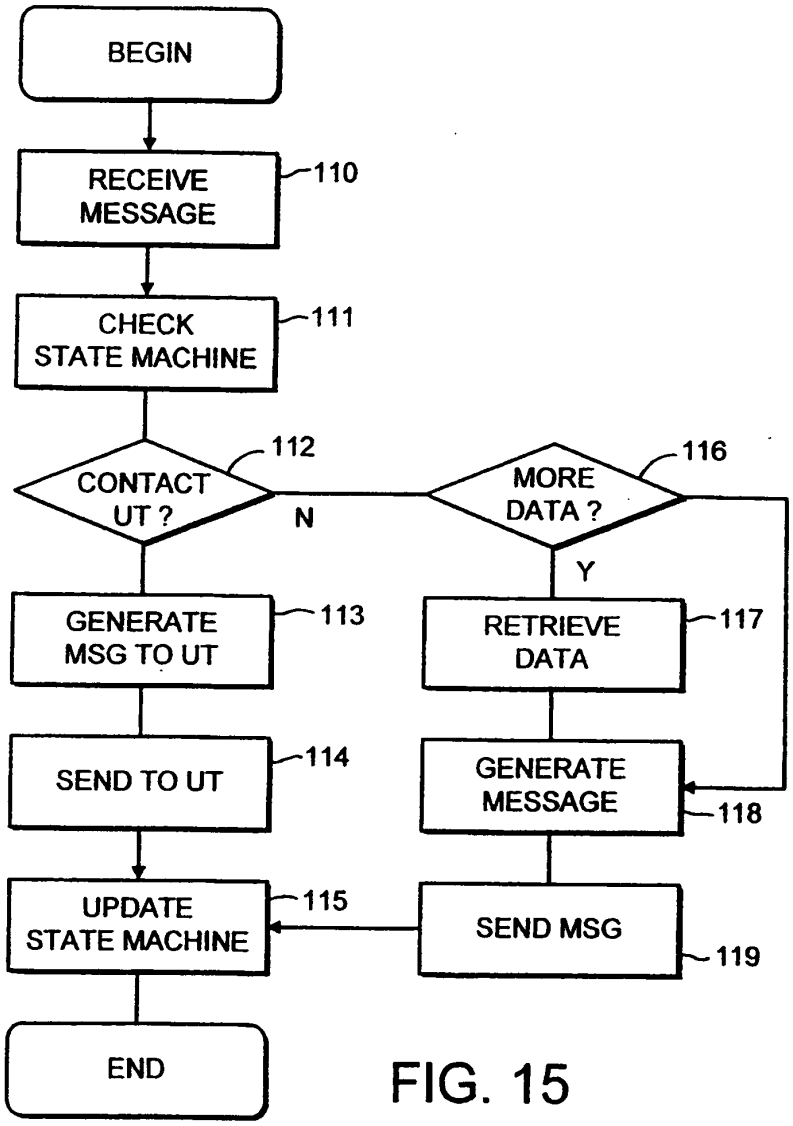
BEGIN
RECEIVE MESSAGE
110
CHECK STATE MACHINE
111
CONTACT UT ?
112
N
MORE DATA ?
116
Y
GENERATE MSG TO UT
113
RETRIEVE DATA
117
SEND TO UT
114
GENERATE MESSAGE
118
UPDATE STATE MACHINE
115
SEND MSG
119
END

FIG. 15

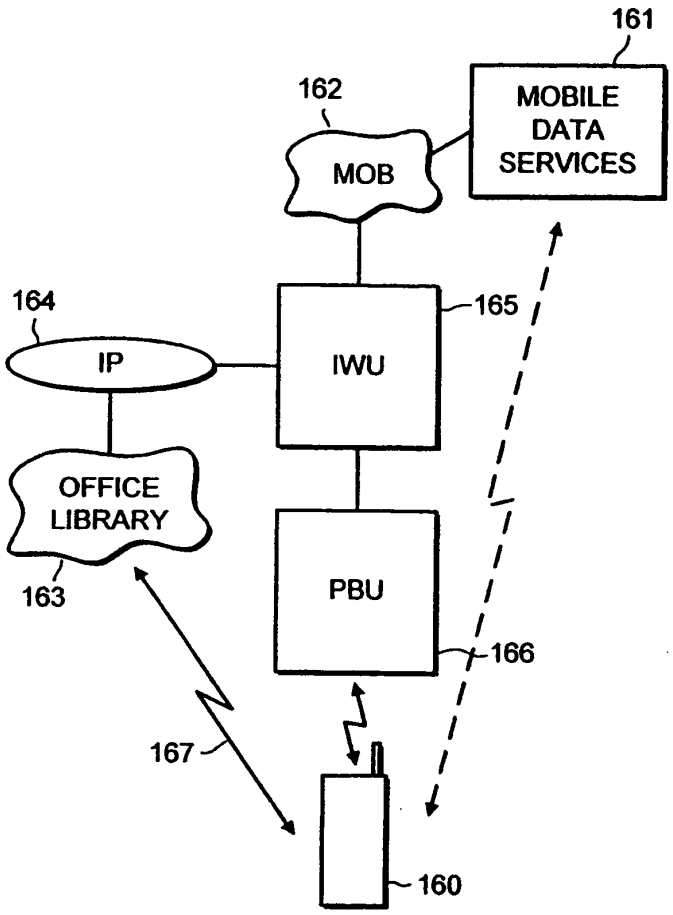
161
MOBILE DATA SERVICES
162
MOB
164
IP
165
IWU
OFFICE LIBRARY
163
PBU
166
167
160

FIG. 16

INTERNATIONAL SEARCH REPORT

	International Application No PCT/IB 99/00555

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 H04Q7/32 H04Q7/24

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 36442 A (BRITISH TELECOMM ;GOETZ IAN (GB)) 2 October 1997 (1997-10-02) page 7, line 5 - page 10, line 11 page 15, line 7 - line 26	1,2,8,9, 18
A	WO 97 34429 A (BELL COMMUNICATIONS RES) 18 September 1997 (1997-09-18) page 7, line 1 - page 10, line 4; figure 1	1,12,13, 28
A	EP 0 735 789 A (AT & T CORP) 2 October 1996 (1996-10-02) abstract	12,13, 15,18
A	EP 0 766 490 A (NOKIA MOBILE PHONES LTD) 2 April 1997 (1997-04-02)	

-/--

[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
12 July 1999	19/07/1999

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Schut, G

Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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(54)【発明の名称】　電話回線の制御委譲システム

(57)【特許請求の範囲】

【請求項１】　通信事業者が提供する通信サービスについての制御を行うホストコンピュータと、前記ホストコンピュータが識別可能な親ＩＤ情報を有する親端末機と．前記ホストコンピュータが識別可能な子ＩＤ情報を有し．前記親端末機からの制御の委譲を受けて前記ホストコンピュータとの通信を行う複数の子端末機を有し、前記親端末機は．各子端末機と通信を行う第１の通信手段と．前記第１の通信手段により通信を行った子端末機の中から、制御を委譲しようとするｎ個（ｎは１以上の整数）の子端末機を選択する選択手段と、前記第１の通信手段を制御する制御手段とを有し．

前記子端末機は．前記親端末機と通信を行う第１の通信手段と、前記ホストコンピュータと通信を行う第２の通信手段と、前記第１の通信手段と前記第２の通信手段と

を制御する制御手段とを有し、

前記親端末機の前記制御手段は、前記選択手段によって選択したｎ個の子端末機に対して、前記親ＩＤ情報を基に前記ホストコンピュータが前記親ＩＤ情報を特定できる子端末ＩＤをｎ個生成し．生成した子端末ＩＤを各子端末機毎に送信するように前記第１の通信手段を制御し．

各子端末機の前記制御手段は、前記親端末機からの前記子端末ＩＤを前記第１の通信手段で受信すると．受信した当該子端末ＩＤに前記子ＩＤ情報を付加して前記第２の通信手段により前記ホストコンピュータに送信するように前記第２の通信手段を制御することを特徴とする電話回線の制御委譲システム。

【請求項２】　前記親ＩＤ情報は、前記親端末機のユーザの電話番号についての電話番号であることを特徴とす

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(54)【発明の名称】 電話回線の課金制御システム

(57)【特許請求の範囲】
【請求項1】 通信事業者が提供する通信サービスについての制御を行うホストコンピュータと、前記ホストコンピュータが識別可能な親ID情報を有する親端末機と、前記ホストコンピュータが識別可能な子ID情報を有し、前記親端末機からの制御の委譲を受けて前記ホストコンピュータとの通信を行う複数の子端末機を有し、前記親端末機は、各子端末機と通信を行う第1の通信手段と、前記第1の通信手段により通信を行った子端末機の中から、制御を委譲しようとするn個(nは1以上の整数)の子端末機を選択する選択手段と、前記第1の通信手段を制御する制御手段とを有し、
前記子端末機は、前記親端末機と通信を行う第1の通信手段と、前記ホストコンピュータと通信を行う第2の通信手段と、前記第1の通信手段と前記第2の通信手段とを制御する制御手段とを有し、
前記親端末機の前記制御手段は、前記選択手段によって選択したn個の子端末機に対して、前記親ID情報を基に前記ホストコンピュータが前記親ID情報を特定できる子端末IDをn個生成し、生成した子端末IDを各子端末機毎に送信するように前記第1の通信手段を制御し、
各子端末機の前記制御手段は、前記親端末機からの前記子端末IDを前記第1の通信手段で受信すると、受信した当該子端末IDに前記子ID情報を付加して前記第2の通信手段により前記ホストコンピュータに送信するように前記第2の通信手段を制御することを特徴とする電話回線の制御装置システム。
【請求項2】 前記親ID情報は、前記親端末機のユーザの電話番号についての電話番号であることを特徴とす

る請求項１記載の電話回線の制御委譲システム。

【請求項３】 前記親端末機は、前記ホストコンピュータと通信を行う第２の通信手段を備えたことを特徴とする請求項１又は２記載の電話回線の制御委譲システム。

【請求項４】 前記親端末機の前記第２の通信手段は、前記ホストコンピュータから予め割り当てられた通信速度の範囲内で前記ホストコンピュータと通信を行うことを特徴とする請求項３記載の電話回線の制御委譲システム。

【請求項５】 前記親端末機は、前記ホストコンピュータから予め割り当てられた通信速度の範囲内で、前記ｎ個の子端末機の前記第２の通信手段でそれぞれ同時に前記ホストコンピュータと通信を行う内容の制御を委譲することを特徴とする請求項４記載の電話回線の制御委譲システム。

【請求項６】 前記親端末機は、制御の委譲の際に、前記ｎ個の子端末機の少なくとも１個について、前記第２の通信手段で使用する通信速度を指定することを特徴とする請求項５記載の電話回線の制御委譲システム。

【請求項７】 前記親端末機は、前記ホストコンピュータから予め割り当てられた通信速度の範囲内で、前記親端末機の前記第２の通信手段及び前記ｎ個の子端末機の前記第２の通信手段でそれぞれ同時に前記ホストコンピュータと通信を行う内容の制御を委譲することを特徴とする請求項４記載の電話回線の制御委譲システム。

【請求項８】 前記親端末機は、制御の委譲の際に、前記親端末機及び／又は前記ｎ個の子端末機の少なくとも１の端末機について、前記第２の通信手段で使用する通信速度を指定することを特徴とする請求項７記載の電話回線の制御委譲システム。

【請求項９】 前記ホストコンピュータは、前記親端末機及び前記ｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計を監視し、前記親端末機に予め割り当てた通信速度の範囲内になるように調整する通信速度監視部を有することを特徴とする請求項５乃至８のいずれか１記載の電話回線の制御委譲システム。

【請求項１０】 前記ホストコンピュータの前記通信速度監視部は、前記親端末機及び前記ｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計が前記親端末機に予め割り当てた通信速度の範囲を超えた場合には、前記親端末機及び前記ｎ個の子端末機の各々の第２の通信手段で使用している通信速度の割合に応じて低減するように調整することを特徴とする請求項９記載の電話回線の制御委譲システム。

【請求項１１】 前記ホストコンピュータの前記通信速度監視部は、前記親端末機及び前記ｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計が前記親端末機に予め割り当てた通信速度の範囲を超えた場合には、前記親端末機から前記ｎ個の子端末機への制御の委譲の際に通信速度が指定されていない前記親端末機及び／又は前記子端末機についての通信速度を低減するように調整することを特徴とする請求項６又は８記載の電話回線の制御委譲システム。

【請求項１２】 前記ホストコンピュータは、前記各子端末機の前記第２の通信手段から送信された前記子端末ＩＤ及び前記子ＩＤ情報に基づいて、前記通信事業者が提供する通信サービスが前記各子端末機の前記第２の通信手段で受信されるように制御することを特徴とする請求項１乃至１１のいずれか１記載の電話回線の制御委譲システム。

【請求項１３】 前記ホストコンピュータは、前記通信事業者が提供する通信サービスについての課金を、前記親ＩＤ情報を有するユーザ宛に課する課金処理を行う課金処理部を有することを特徴とする請求項１２記載の電話回線の制御委譲システム。

【請求項１４】 前記ホストコンピュータは、前記通信事業者が提供する通信サービスとして、インターネットへの接続サービスについての制御を行うことを特徴とする請求項１乃至１３のいずれか１記載の電話回線の制御委譲システム。

【請求項１５】 前記ホストコンピュータは、前記通信事業者が提供する通信サービスとして、他の電話機への接続サービスについての制御を行うことを特徴とする請求項１乃至１４のいずれか１記載の電話回線の制御委譲システム。

【請求項１６】 前記親端末機は、前記選択手段で選択したｎ個の子端末機に対して前記子端末ＩＤとともに認証情報と委譲する制御内容について示す制御内容情報とを各子端末機毎に送信するように、前記制御手段が前記第１の通信手段を制御することを特徴とする請求項１乃至１５のいずれか１記載の電話回線の制御委譲システム。

【請求項１７】 前記親端末機の前記選択手段には、前記第１の通信手段により通信を行った子端末機の一覧を表示する表示手段と、前記表示手段に表示された子端末機の一覧のうち制御を委譲しようとする前記ｎ個の子端末機について設定する設定入力手段とが含まれることを特徴とする請求項１乃至１６のいずれか１記載の電話回線の制御委譲システム。

【請求項１８】 前記子端末機は、前記親端末機の有する機能についての一部又は全部の委譲を受けて、前記第２の通信手段で前記ホストコンピュータとの通信を行うことを特徴とする請求項１乃至１７のいずれか１記載の電話回線の制御委譲システム。

【請求項１９】 前記子端末機は、制御委譲を中止する旨の制御委譲中止信号を前記第１の通信手段で受信するまで、前記第２の通信手段で前記ホストコンピュータとの通信を行うことを特徴とする請求項１乃至１８のいずれか１記載の電話回線の制御委譲システム。

【発明の詳細な説明】

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【０００１】

【発明の属する技術分野】本発明は、電話回線の制御委譲システムに関し、詳しくは、携帯電話機等の親端末機から１又は複数の子端末機に対して電話回線の使用権を委譲して、電話回線の有効利用を図るためのシステムに関するものである。

【０００２】

【従来の技術】近年、携帯電話機、ＰＨＳ（Ｐｅｒｓｏｎａｌ Ｈａｎｄｙｐｈｏｎｅ Ｓｙｓｔｅｍ）又はＰＤＡ（Ｐｅｒｓｏｎａｌ Ｄｉｇｉｔａｌ Ａｓｓｉｓｔａｎｔ）等の移動体通信端末装置の急速な普及に伴い、個人の日常生活においては、通常の有線による一家庭用の電話回線と、無線による個人用の移動体通信端末装置の回線との２回線を使い分けて活用されることが一般的になりつつある。

【０００３】また、近年のインターネット等の情報通信網の普及により、情報通信網の利用者は、上述の移動体通信端末装置を利用して、メールの送受信、各種情報の取得、商品の購入、ホテルやチケットの予約などの、様々なサービスの提供を受けることができるようになった。

【０００４】

【発明が解決しようとする課題】さらには、最近では、次世代の携帯電話機の形態として、各種放送の受信機能、テレビ電話機能、ＧＰＳ（Ｇｌｏｂａｌ Ｐｏｓｉｔｉｏｎｉｎｇ Ｓｙｓｔｅｍ：全地球測位システム）による複数の人工衛星を利用したナビゲーション機能などの、様々な機能を備えた複合端末装置としての役割を持たせることが提案されている。また、次世代の携帯電話機の形態としては、１回線を複数の回線に分割して、この分割した回線を各携帯電話機が同時に使用することにより、当該複数の携帯電話機が同時に通信を行う所謂マルチレート機能やマルチコール機能が付与されることが予想される。

【０００５】このような現状より、利用者が情報通信網のサービスを受けるために使用される装置は、上記移動体通信端末及びパーソナルコンピュータから、さらにはテレビ等の家庭用電子機器へと広まるものと予想され、近い将来には、全ての電化製品に情報通信網へのアクセス機能が付与され、データ通信やサービス提供者による課金処理等のために、電話回線等を介して情報通信網へアクセスできるようになることが予想される。

【０００６】このような、電話回線の複数保有、電化製品に対する電話機能付与等の傾向下においては、利用者の認証に関する重要性が益々高くなる。例えば、不特定多数の利用者が、職場の会議室等に配置されている共有のテレビを利用し、当該テレビで情報通信網へアクセスして所定のサービスを受けるような場合を考えてみると、サービス提供等に関する課金の対象者について、本来は当該不特定多数の利用者とすべき場合であっても、

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現実にはその対象者の認証が困難である。

【０００７】これに対して、例えば当該不特定多数の利用者が所有する各端末装置を利用して、当該複数の端末装置で各端末装置毎のＩＤを用いて情報通信網へ略同時にアクセスして、それぞれ同一のサービスを受けるようなシステムとすることも考えられ、このようなシステムとすれば、各利用者を課金対象者として特定することができる。しかしながら、今度は、課金対象者を例えば当該会社名義としたい場合等に、逆に不便が生じることになる。

【０００８】一方、移動体通信端末装置は、容易な移動を可能にするための小型化、軽量化、等の構成が求められており、これに起因して、小型の入力キーの操作がしにくく操作間違えが起きやすいこと、メモリ容量及び表示部における表示領域の制限があること、さらには連続使用時間に限界があること、等の問題があった。

【０００９】このような問題に対して、自宅又は職場等の屋内において情報通信網へアクセスして種々のサービスを受けるにあたっては、該サービス提供を受けるに適切な電子機器を利用できることが好ましいが、この場合には、移動体通信端末装置以外の各種電子機器に加入者回線及び利用者のＩＤ等を設定することになると、ＩＤ等の管理が煩雑になったり、さらには加入者回線の使用権の基本料金がかさむ等の新たな問題が生じる。

【００１０】例えば、利用者が、携帯電話機等の移動体通信端末装置を利用して、情報通信網へアクセスして株価に関するデータを入手しようとする場合には、表示領域の制限のために、株価の推移についての折れ線グラフ等の、利用者にとって最も必要な詳細部分が識別又は表示されないという問題が生じる。このような場合には、移動体通信端末装置の代わりに、大画面を有する自宅のテレビ等の表示部に対して該詳細部分を表示することが適当であるが、これを実現しようとすると、テレビ等にも加入者回線及び利用者のＩＤの設定等が必要になる。しかしながら、このような場合には、例えば家族の他の人が当該テレビを利用して情報通信網へアクセスして、例えばチケットの予約等のサービスを受けようとする場合には、その都度利用者のＩＤの設定等を変更しなければならず、管理が不便である。

【００１１】さらには、将来的に、全ての電化製品に上述の電話機能が付与された場合に、各製品毎にそれぞれ電話番号を割り当てることとすると、これら各製品毎に電話の基本料金が課されることとなり、各電話番号の管理や費用面での負担が過大となる。

【００１２】このように、現状のシステムでは、近い将来における移動体通信端末装置のさらなる発達が確実視されている状況にも拘わらず、電話回線の有効利用とユーザの意図に応じた課金処理を行うことが困難である、という問題を有している。

【００１３】本発明の目的は、情報通信網の利用時に、

電話回線の有効利用を図りながらユーザの意図に応じた課金処理を行いつつ、利用者へのサービス向上に寄与するシステムを提供することにある。

【００１４】

【課題を解決するための手段】本発明に係る電話回線の制御委譲システムは、通信事業者が提供する通信サービスについての制御を行うホストコンピュータと、ホストコンピュータが識別可能な親ＩＤ情報を有する親端末機と、ホストコンピュータが識別可能な子ＩＤ情報を有し、親端末機からの制御の委譲を受けてホストコンピュータとの通信を行う複数の子端末機を有し、親端末機は、各子端末機と通信を行う第１の通信手段と、第１の通信手段により通信を行った子端末機の中から、制御を委譲しようとするｎ個（ｎは１以上の整数）の子端末機を選択する選択手段と、第１の通信手段を制御する制御手段とを有し、子端末機は、親端末機と通信を行う第１の通信手段と、ホストコンピュータと通信を行う第２の通信手段と、第１の通信手段と第２の通信手段とを制御する制御手段とを有し、親端末機の制御手段は、選択手段によって選択したｎ個の子端末機に対して、親ＩＤ情報を基にホストコンピュータが親ＩＤ情報を特定できる子端末ＩＤをｎ個生成し、生成した子端末ＩＤを各子端末機毎に送信するように第１の通信手段を制御し、各子端末機の制御手段は、親端末機からの子端末ＩＤを第１の通信手段で受信すると、受信した当該子端末ＩＤに子ＩＤ情報を付加して第２の通信手段によりホストコンピュータに送信するように第２の通信手段を制御することを特徴とする。

【００１５】ここで、親ＩＤ情報としては、ホストコンピュータが親端末機を識別可能な情報であれば特に限定されないが、好ましくは親端末機のユーザの電話番号についての電話番号情報とする。

【００１６】また、親端末機について、ホストコンピュータと通信を行う第２の通信手段を備えた構成とすることにより、親端末機と子端末機とで同時にホストコンピュータと通信を行うことが可能となる。ここで、親端末機の第２の通信手段は、ホストコンピュータから予め割り当てられた通信速度の範囲内でホストコンピュータと通信を行うようにする。この場合に、親端末機は、ホストコンピュータから予め割り当てられた通信速度の範囲内で、ｎ個の子端末機の第２の通信手段でそれぞれ同時にホストコンピュータと通信を行う内容の制御を委譲するようにする。さらに、この場合には、親端末機は、制御の委譲の際に、ｎ個の子端末機の少なくとも１個について、第２の通信手段で使用する通信速度を指定することとしても良い。

【００１７】親端末機について第２の通信手段を設ける場合には、親端末機は、ホストコンピュータから予め割り当てられた通信速度の範囲内で、親端末機の第２の通信手段及びｎ個の子端末機の第２の通信手段でそれぞれ同時にホストコンピュータと通信を行う内容の制御を委譲するようにする。この場合には、親端末機は、制御の委譲の際に、親端末機及び／又はｎ個の子端末機の少なくとも１の端末機について、第２の通信手段で使用する通信速度を指定することとしても良い。

【００１８】親端末機は、選択手段で選択したｎ個の子端末機に対して子端末ＩＤとともに認証情報と委譲する制御内容について示す制御内容情報とを各子端末機毎に送信するように、制御手段が第１の通信手段を制御する構成とする。

【００１９】また、親端末機の選択手段については、第１の通信手段により通信を行った子端末機の一覧を表示する表示手段と、表示手段に表示された子端末機の一覧のうち制御を委譲しようとするｎ個の子端末機について設定する設定入力手段とを含める構成とする。

【００２０】一方、ホストコンピュータについては、親端末機及びｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計を監視し、親端末機に予め割り当てた通信速度の範囲内になるように調整する通信速度監視部を有する構成とする。

【００２１】ここで、ホストコンピュータの通信速度監視部は、親端末機及びｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計が親端末機に予め割り当てた通信速度の範囲を超えた場合には、親端末機及びｎ個の子端末機の各々の第２の通信手段で使用している通信速度の割合に応じて低減するように調整する。

【００２２】または、ホストコンピュータの通信速度監視部は、親端末機及びｎ個の子端末機の各々の第２の通信手段で行う通信速度の合計が親端末機に予め割り当てた通信速度の範囲を超えた場合には、親端末機からｎ個の子端末機への制御の委譲の際に通信速度が指定されていない親端末機及び／又は子端末機についての通信速度を低減するように調整する。

【００２３】ホストコンピュータは、各子端末機の第２の通信手段から送信された子端末ＩＤ及び前記子ＩＤ情報に基づいて、通信事業者が提供する通信サービスが各子端末機の前記第２の通信手段で受信されるように制御する。この場合に、ホストコンピュータは、通信事業者が提供する通信サービスについての課金を、親ＩＤ情報を有するユーザ宛に課する課金処理を行う課金処理部を有する構成とする。

【００２４】ホストコンピュータは、通信事業者が提供する通信サービスとして、例えばインターネットへの接続サービスについての制御を行うようにする。

【００２５】また、ホストコンピュータは、通信事業者が提供する通信サービスとして、他の電話機への接続サービスについての制御を行うようにする。

【００２６】一方、子端末機の構成としては、親端末機の有する機能についての一部又は全部の委譲を受けて、第２の通信手段でホストコンピュータとの通信を行うも

のとする。

【００２７】また、子端末機は、制御委譲を中止する旨の制御委譲中止信号を第１の通信手段で受信するまで、第２の通信手段でホストコンピュータとの通信を行うものとする。

【００２８】

【発明の実施の形態】本発明の実施の形態を、図面を参照しながら詳細に説明する。

【００２９】図１に、本発明を適用した電話回線の制御委譲システムの概念図を示す。

【００３０】この実施の形態では、図１に示すように、親端末機として、移動体通信端末装置である携帯電話機１が用いられ、子端末機として、持ち運び可能な所謂ノート型のパーソナルコンピュータ（以下、単にパソコンという）２が複数台用いられ、携帯電話機１とパソコン２（２Ａ，２Ｂ，・・・２ｎ）のいずれもが、通信事業者が提供する通信サービスを制御するホストコンピュータ３に対して接続できるようになっている。そして、第１の実施の形態では、１台の携帯電話機１と各パソコン２とで通信を行うようになっている。

【００３１】（親端末機の概略構成）親端末機としての携帯電話機１は、携帯電話機としての機能を備えた携帯電話機本体１０と、各パソコン２に対して通信を行うための第１の通信手段としての応答器４とを有している。

【００３２】親端末機としてのこの携帯電話機１は、予め定められた通信速度（例えば２Ｍｂｐｓ）が割り当てられており、固有の電話回線が設定されている。

【００３３】携帯電話機１の携帯電話機本体１０は、この実施の形態では、図１に示すように、装置本体（筐体）の上部にアンテナ１４が配置され、装置前面には、上から、通話手段としてのスピーカ１７と、液晶パネル等からなる表示手段としての表示部１５と、操作入力手段としての多数のキースイッチからなる操作入力部１２と、通話手段としてのマイク１６とがそれぞれ配置されている。なお、携帯電話機１の他の構成部分については図２に示し、これらについての説明は後述する。また、この実施の形態では、図１に示すように、携帯電話機本体１０の上部に応答器４が一体に設けられた構成となっているが、この配置に限定されないことは勿論であり、さらには、携帯電話機本体１０に対して応答器４を着脱可能とする構成であっても良い。

【００３４】（子端末機の概略構成）一方、子端末機としてのパソコン２は、通常のコンピュータとしての機能を備えたパソコン本体２０と、携帯電話機１に対して通信を行うための第１の通信手段としての質問器５とを有している。

【００３５】パソコン２は、この実施の形態では、図１に示すように、多数のキースイッチによる操作入力部２２を有するパソコン本体２０の筐体設置側に対して、液晶表示ディスプレイからなる表示部２４を有する筐体上部側が回動可能となっており、この筐体上部側に質問器５が取り付けられた構成となっている。ここで、パソコン２は、パソコン本体２０の表示部２４が携帯電話機１の表示部１５よりも表示領域（面積）が広く、操作入力部２２の各キーが携帯電話機１の操作入力部１２の各キースイッチよりも大きくなっている。

【００３６】この実施の形態では、パソコン本体２０の上部に質問器５が一体に設けられた構成となっているが、この配置に限定されないことは勿論であり、さらには、パソコン本体２０に対して質問器５を着脱可能とする構成であっても良い。

【００３７】（ホストコンピュータの概略構成）ホストコンピュータ３は、通信事業者が提供する通信サービスとして、例えばインターネットや各種の情報通信網と接続されている。そして、ホストコンピュータ３は、上述した親端末機又は子端末機からの各種要求に応じて、当該要求に応じた各種サービスを提供するようになっている。ここで、ホストコンピュータ３が行う各種サービスとしては、例えば被呼側となる他の有線或いは無線による電話機との接続サービス、上述のインターネットや各種情報通信網からの各種データを送信するデータ送信サービスなどが含まれる。

【００３８】また、ホストコンピュータ３は、親端末機又は子端末機からの認証情報に基づいて、正規なユーザか否かを認証する不図示の認証部を有しており、認証部で正規なユーザと認めた場合にのみ、親端末機又は子端末機からの要求に応じたサービスを提供するようになっている。そして、ホストコンピュータ３は、不図示の課金処理部を有し、前記認証部で認証した正規なユーザに対して所定の課金処理を行うようになっている。

【００３９】さらに、ホストコンピュータ３は、親端末機である携帯電話機１に予め所定の通信速度（例えば２Ｍｂｐｓ）を割り当てるとともに、この通信速度の範囲内で、携帯電話機１からの要求に応じた通信速度を、携帯電話機１が選択した複数の子端末機に対して割り当てる不図示の通信速度割当部を有している。さらにまた、ホストコンピュータ３は、携帯電話機１及び携帯電話機１が選択した複数の子端末機のホストコンピュータ３に対する通信速度を監視し、親及び各子端末機の通信速度の合計が親端末機の有する通信速度（例えば２Ｍｂｐｓ）を超えないように調整するための通信速度監視部を有している。

【００４０】（親端末機の回路構成）次に、図２を参照して、携帯電話機１及びパソコン２の回路構成について説明する。図２に示すように、携帯電話機１の携帯電話機本体１０は、この携帯電話機１全体を制御するＣＰＵ１１と、図１で説明した操作入力部１２と、ホストコンピュータ３と通信を行う第２の通信手段としての送受信部１３及びアンテナ１４と、図１で説明した表示部１５、マイク１６、及びスピーカ１７と、携帯電話機１全

体を振動させるバイブレータ１８と．後述する各種の情報が格納されるメモリ１９とを有している。

【００４１】携帯電話機本体１０のＣＰＵ１１は．携帯電話機１全体の制御についての制御プログラム及び操作入力部１２による入力操作に基づいて．送受信部１３、表示部１５、スピーカ１７．バイブレータ１８．及びメモリ１９を制御する。また．携帯電話機本体１０のＣＰＵ１１は、後述する応答器４の通信部４１と接続され、通信部４１から入力した信号に基づいて各部を制御する。

【００４２】例えば、携帯電話機本体１０では．操作入力部１２による入力操作に基づいて．接続すべき被呼側の電話機の電話番号が入力されると．ＣＰＵ１１の制御により、当該電話番号が表示部１５に表示され．送受信部１３及び送受信部１３に接続されたアンテナ１４を介して．被呼側との回線接続のための無線信号が送信される。ホストコンピュータ３は、携帯電話機１から送信されたこの無線信号を受信して、被呼側の電話機との接続を図る処理を行う。

【００４３】そして、被呼側の電話機と回線が接続されると．携帯電話機本体１０では、ＣＰＵ１１の制御により．被呼側の電話機からの声音がスピーカ１７から声音として出力され．これに対する発呼側のユーザの発する声音がマイク１６を通して電気信号に変換され．送受信部１３で所定処理が施され．アンテナ１４及びホストコンピュータ３を介して被呼側の電話機に通話のための無線信号として送信される。

【００４４】一方、携帯電話機本体１０では、発呼側となる相手側の電話機からホストコンピュータ３を介して送信された回線接続のための無線信号をアンテナ１４を介して送受信部１３で受信すると、ＣＰＵ１１の制御により．着信音がスピーカ１７から出力され、又は操作入力部１２の入力操作に基づく設定状態に応じてバイブレータ１８が振動し、被呼側のユーザにより操作入力部１２の所定のキーが操作されると、発呼側と回線が接続され．上述と同様に、相手側の電話機との通話が可能な状態となる。

【００４５】さらに、携帯電話機本体１０では．操作入力部１２による入力操作に基づいて．接続すべきインターネットへの電話番号が入力されると．ＣＰＵ１１の制御により、当該電話番号が表示部１５に表示され．送受信部１３及び送受信部１３に接続されたアンテナ１４を介してインターネットへの回線接続のための無線信号が送信される。ここで、ホストコンピュータ３は．携帯電話機１から送信されたこの無線信号を受信して．インターネットとの接続を図る処理を行う。

【００４６】そして、インターネットと回線が接続されると．携帯電話機本体１０では、ＣＰＵ１１の制御により．インターネット側から送られる画像データやメールについての文字データ等が表示部１５に表示され．音声

データについてはスピーカ１７から出力され、このうちユーザが必要とするデータについては．操作入力部１２による入力操作に基づいて．メモリ１９に格納される。

【００４７】携帯電話機本体１０の操作入力部１２は、この他にも、応答器４を介してパソコン２の質問器５との通信を行う場合の各種設定を行う際にも操作される。

【００４８】携帯電話機本体１０のメモリ１９は．応答器４を介してパソコン２の質問器５との通信を行った後に質問器５側から送られてくる詳細を後述する通信結果についての情報を記憶する。

【００４９】また、メモリ１９は、携帯電話機１についての電話番号のデータ（以下、電話番号情報という。）と．子端末機（パソコン２）側に委譲する制御内容についてのデータ（以下、制御内容情報という。）とが格納されており、これらの各情報がＣＰＵ１１の制御により読み出されてパソコン２の質問器５側に送信されるようになっている。

【００５０】すなわち、携帯電話機１の応答器４は、パソコン２の質問器５とデータの送受信を行う通信部４１を有しており．携帯電話機本体１０のＣＰＵ１１がメモリ１９内の電話番号情報と制御内容情報とを読み出して．これら各情報を制御信号とともに通信部４１に供給することにより．通信部４１からこれら各情報が無線信号の形態で出力される。なお、無線信号の形態としては．電波や赤外線等が使用可能である。

【００５１】さらに、携帯電話機１の応答器４では、電話番号情報及び制御内容情報を送信するに先立って、携帯電話機本体１０のＣＰＵ１１の制御に基づいて．パソコン２の質問器５との接続を確立するための接続信号が通信部４１から出力されるようになっており、この処理については後述する。

【００５２】（子端末機の回路構成）次に、子端末機側のパソコン２の回路構成について説明する。図２に示すように、パソコン２のパソコン本体２０は、このパソコン本体２０全体を制御するＣＰＵ２１と、図１で説明した操作入力部２２と、ホストコンピュータ３と有線あるいは無線で接続されることによりデータの送受信を行うためのモデム等を備えた送受信部２３と、図１で説明した表示部２４と．各種データが格納されるハードディスクドライブ（ＨＤＤ）２５と、プリンタ、外部記憶装置．カードモデム、他のパソコン、などの外部機器との接続を図るためのインタフェース部（Ｉ／Ｆ部）２６と．声音を出力するスピーカ２７とを備えている。

【００５３】パソコン本体２０のＣＰＵ２１は．所定の制御プログラム及び操作入力部２２による入力操作に基づいて、送受信部２３、表示部２４．ＨＤＤ２５．Ｉ／Ｆ部２６、及びスピーカ２７を制御する。また．パソコン本体２０のＣＰＵ２１は．後述する質問器５の通信部５１と接続され．通信部５１から入力された信号に基づいて各部を制御する。

【００５４】例えば、パソコン本体２０では、ホストコンピュータ３に違なる電話回線２８と送受信部２３とを有線で接続した状態で、接続すべきインターネットへの電話番号が操作入力部２２による入力操作で入力されると、ＣＰＵ２１の制御により、当該電話番号が表示部２４に表示され、送受信部２３及び前記電話回線２８を介して、インターネットへの回線接続のための信号がホストコンピュータ３に送信される。ホストコンピュータ３は、パソコン本体２から送信されたこの信号を受信すると、インターネットとの接続を図る処理を行う。

【００５５】そして、パソコン本体２０では、インターネットと回線が接続されると、ホストコンピュータ３を介してインターネットから送られる画像データやメールについての文字データ等が、ＣＰＵ２１の制御によって表示部２４に表示され、音声データについてはスピーカ２７から声音として出力され、このうちユーザが必要とするデータについては、操作入力部２２による入力操作に基づいて、ＨＤＤ２５に格納（ダウンロード）される。

【００５６】パソコン本体２０の操作入力部２２は、この他にも、後述する質問器５を介して携帯電話器１の応答器４との通信を行う場合の各種設定を行う際にも操作される。

【００５７】パソコン２の質問器５は、パソコン本体２０のＣＰＵ２１と接続され、携帯電話機１の応答器４とデータの送受信を行う通信部５１を有している。

【００５８】パソコン２の質問器５では、パソコン本体２０のＣＰＵ２１から出力される制御信号に基づいて、携帯電話機１の応答器４との接続を確立するための確認信号が通信部５１から出力されるようになっており、この処理については後述する。

【００５９】（親端末機から子端末機への制御の委譲）このような構成とされた携帯電話機１及びパソコン２においては、親端末機である携帯電話機１が子端末機である複数のパソコン２Ａ，２Ｂ，・・・２ｎに以下のように制御を委譲することによって、本来携帯電話機１が行う処理を各パソコン２がいわば代行したり、携帯電話機１と各パソコン２とが同時にホストコンピュータ３と通信を行うようになっている。

【００６０】以下、この制御委譲の処理について、図３のフローチャートを参照して説明する。なお、図３は、携帯電話機１の応答器４と複数のパソコン２Ａ、２Ｂ，・・・２ｎの各質問器５とホストコンピュータ３との間で行われる処理を説明するためのフローチャートである。

【００６１】本実施の形態では、まず、携帯電話機１の応答器４をパソコン２Ａ～２ｎの各質問器５に対して所定距離内に近づけ、操作入力部１２の所定のキースイッチが押される。このとき、携帯電話機１における応答器４の通信部４１から接続信号が送信され、子端末機としての各パソコン２Ａ～２ｎは、親端末機である携帯電話機１からの接続信号を受信する（ステップＳ１）。

【００６２】次のステップＳ２で、パソコン２Ａ～２ｎは、携帯電話機１に確認信号を送信する。この確認信号は、各パソコン２Ａ～２ｎ毎にそれぞれ異なった信号とし、例えば当該パソコン２固有の子ＩＤ情報を含めるようにする。ここで、当該パソコン２固有の子ＩＤ情報とは、ホストコンピュータ３が識別可能な情報であり、例えば、パソコン２の製品番号についての情報、パソコン２の所有者についての情報、パソコン２の所有者の銀行口座等についての情報などである。また、当該パソコン２が独自の電話番号を有している場合には、その電話番号についての情報を含めても良い。

【００６３】この確認信号を各パソコン２Ａ～２ｎから受信した携帯電話機１は、次のステップＳ３で、各子端末機（パソコン２Ａ～２ｎ）についての一覧を表示部１５に表示し、制御を委譲する対象となる子端末機を選択するように、ユーザに操作入力部１２の操作を行うように促し、ステップＳ４に移行して操作入力部１２の入力を待つ。なお、この例では、操作入力部１２で各パソコン２Ａ～２ｎの全てを選択した場合について説明する。

【００６４】ステップＳ４で操作入力部１２の入力が行われて子端末機の選択が行われると、ステップＳ５に移行して、選択された子端末機の数の分だけ、子端末ＩＤを発行する。この子端末ＩＤは、ホストコンピュータ３が、親端末機である携帯電話機１が発行したものであることを認識でき、かつ、複数の子端末機のそれぞれを識別できるようなＩＤとする。この実施の形態では、子端末ＩＤとして、親端末機である携帯電話機１の電話番号に所定の符号を付加して、各子端末機毎に異なった電話番号となるような電話番号情報を発行することとしている。

【００６５】具体的には、例えば携帯電話機１の電話番号が「０９０－１２３４－５６７８」の場合には、１台目の子端末機に対しては「０９０－１２３４－５６７８－０１」、２台目の子端末機に対しては「０９０－１２３４－５６７８－０２」・・・のように枝番号を付加して割り当てる。

【００６６】なお、子端末ＩＤの実施の形態としては、ホストコンピュータ３が、親端末機である携帯電話機１が発行したものであることを認識でき、かつ、複数の子端末機のそれぞれを識別できるようなＩＤであればこれに限られない。

【００６７】次のステップＳ６では、生成した子端末ＩＤとしての電話番号情報を各子端末機に対して個別に送信する。この実施の形態では、ステップＳ６で、電話番号情報とともに、親端末機である携帯電話機１の認証情報と、子端末機に委譲する制御内容についての制御内容情報とを、各子端末機に対して個別に送信する。ここで、携帯電話機１の認証情報とは、例えば携帯電話機１

のユーザが設定したパスワード情報とし、携帯電話機１のユーザが操作入力部１２の操作で適宜変更可能な情報とする。

【００６８】なお、この例では、各パソコン２Ａ～２ｎに委譲する制御内容として、情報通信網であるインターネットへアクセスして所定の有料データをダウンロードする制御とし、この制御内容を委譲する旨を示す制御内容情報を携帯電話機１の通信部４１からパソコン２Ａ～２ｎの各通信部５１に送信するものとする。ここで、制御内容情報は、メモリ１９に格納されており、送信に先立って例えば携帯電話機１の表示部１５にその一覧を表示し、ユーザが操作入力部１２を操作して、表示された一覧から選択することにより、ＣＰＵ１１が該当する情報をメモリ１９から読み出して、応答器４の通信部４１から無線信号として送信するようにする。

【００６９】この例では、子端末機である各パソコン２Ａ～２ｎに同一の制御内容を委譲するため、各パソコン２Ａ～２ｎに対して同一の制御内容情報が送信されるが、各子端末機毎に異なる制御内容を委譲しても良く、その場合には、パソコン２Ａ～２ｎに対して相互に異なる制御内容情報が送信されることになる。例えば、パソコン２Ａ～２ｎに対して相互に異なる通信速度を設定したい場合には、操作入力部１２の操作により、各パソコン２Ａ～２ｎに対してそれぞれ異なる制御内容情報が送信される。また、例えばパソコン２Ａの使用する通信速度のみを設定したい場合には、操作入力部１２の操作により、パソコン２Ａに対してのみ異なる制御内容情報が送信される。

【００７０】各パソコン２Ａ～２ｎは、携帯電話機１からの電話番号情報と認証情報と制御内容情報とを含んだ信号をステップＳ７で受信すると、次のステップＳ８で、これら各情報に前記子ＩＤ情報を付加してホストコンピュータ３に送信する。ホストコンピュータ３は、ステップＳ９で各パソコン２Ａ～２ｎからの各情報を受信すると、次のステップＳ１０で、前記認証部が例えば電話番号情報と認証情報とを照合することにより認証を行い、続くステップＳ１１で、各子端末機（パソコン２Ａ～２ｎ）とインターネットとを接続する処理を行う。

【００７１】ここで、各パソコン２Ａ～２ｎから受信した制御内容情報に通信速度を指定する旨の情報が含まれている場合には、ホストコンピュータ３は、前記通信速度割当部によって、各パソコン２Ａ～２ｎが当該指定された速度で通信を行うように、各パソコン２Ａ～２ｎに通信速度を割り当てる。

【００７２】そして、これ以後は、ホストコンピュータ３は、前記通信速度監視部で各パソコン２Ａ～２ｎとインターネットとの接続状態を監視して、各パソコン２Ａ～２ｎで通信している通信速度の合計が親端末機の有する通信速度（例えば２Ｍｂｐｓ）を超えないように監視し、超えた場合に調整を行う。

【００７３】ここで、各パソコン２Ａ～２ｎで通信している通信速度の合計が親端末機としての携帯電話機１の有する通信速度（例えば２Ｍｂｐｓ）を超えた場合の調整方法としては、ホストコンピュータ３は、例えばｎ個の各パソコン２Ａ～２ｎの各々の送受信部２３で使用している通信速度の割合に応じて低減するように、前記通信速度監視部で調整する。また、他の調整方法としては、ホストコンピュータ３は、携帯電話機１からｎ個の各パソコン２Ａ～２ｎへの制御の委譲の際（制御内容情報の送信の際）に通信速度が指定されていないパソコン２についての通信速度を低減するように調整する。

【００７４】さらに、ホストコンピュータ３は、各パソコン２Ａ～２ｎについてのインターネットへの接続に対する接続料金（電話料金）が、携帯電話機１の電話番号の使用権を有するユーザに課されるように、前記課金処理部で課金処理を行う。

【００７５】そして、続くステップＳ１２で、各パソコン２Ａ～２ｎは、所定の有料データを各パソコン本体２０のＨＤＤ２５にダウンロードする制御を行う。これにより、有料データのダウンロードに対するサービス料金（課金）が、ホストコンピュータ３の課金処理部によって、携帯電話機１の電話番号の使用権を有するユーザに課されることになる。

【００７６】ダウンロードの処理が終了すると、各パソコン２Ａ～２ｎの質問器５は、ステップＳ１３で通信結果についての各種情報を含んだ無線信号を、携帯電話機１の応答器４に対して送信し、一連の処理が終了し、携帯電話機１から各パソコン２Ａ～２ｎへの制御委譲が終了する。ここで、通信結果についての情報としては、例えば、インターネットへの接続時間である通信時間、電話料金、有料データのダウンロードに対するサービス料金（課金）、ダウンロードデータ量等についての情報が含まれる。

【００７７】なお、各パソコン２Ａ～２ｎによるこれらの処理を途中で終了したい場合には、携帯電話機１のユーザが操作入力部１２で所定の操作を行うようにする。この操作により、携帯電話機１のＣＰＵ１１の制御に基づいて、応答器４の通信部４１から制御委譲を中止する旨の制御委譲中止信号が送信され、各パソコン２Ａ～２ｎの通信部５１がこれを受信すると、ＣＰＵ２１の制御に基づいて、送受信部２３から接続終了のコマンドがホストコンピュータ３に送信され、ホストコンピュータ３の処理によってインターネットへの接続が切断されることにより、携帯電話機１から各パソコン２Ａ～２ｎへの制御委譲が終了する。

【００７８】本実施の形態では、親端末機から複数の子端末機にこのような制御委譲を行うことにより、子端末機側の各パソコン２Ａ～２ｎに対して固有の電話番号を設定する必要がなくなり、新たな電話番号の使用権についての基本料金を支払う負担から解消される。

【００７９】また、子端末機側の各パソコン２Ａ～２ｎに固有の電話番号が設定されている場合であっても、ホストコンピュータ３及びインターネットへの接続については、当該電話番号の設定とは関係なしに親端末機側の携帯電話機１の電話番号に基づいて行われるので、接続に先立って各パソコン２Ａ～２ｎ側の電話番号の設定を変更する必要もない。すなわち、本実施の形態によれば、子端末機である各パソコン２Ａ～２ｎの所有者が誰であろうとも、電話料金やサービス料金についての課金が親端末機側の携帯電話機１のユーザに対して課されることになり、例えば各パソコン２Ａ～２ｎを不特定多数の人が集まる場所（例えばショールーム等）に設置した場合でも、特定のサービスの取得に要した通信料金、サービス提供料金等を、各パソコン２Ａ～２ｎの所有名義にかかわらず、各パソコン２Ａ～２ｎの利用者等（この場合は携帯電話機１のユーザ）に対して適切に課金することが可能となる。

【００８０】また、ダウンロードするデータが子端末機側のパソコン２Ａ～２ｎの各ＨＤＤ２５に保存されるので、親端末機側の携帯電話機１では、メモリ１９の記憶容量を大きくする必要がなく、不図示の電源電池の容量を増やす必要もないので、装置の小型、軽量化を維持することが可能となる。さらには、ダウンロードしたデータがＨＤＤ２５から読み出されてパソコン本体２０の表示部２４で表示されるので、親端末機側の携帯電話機１では、携帯電話機本体１０の表示部１５の面積を大きくする必要が無く、装置の小型、軽量化を維持することが可能となる。

【００８１】さらにまた、親端末機側の応答器４と子端末機側の質問器５とでやりとりされるデータの量が少ないので、応答器４及び質問器５双方における通信部４１、５１を、簡易なインタフェースを用いて構成することが可能となる。

【００８２】なお、上述した実施の形態では、子端末機側のパソコン２の送受信部２３がホストコンピュータ３から有線信号を介してインターネットからのデータをダウンロードする例について説明したが、各子端末機が無線信号を介してデータをダウンロードする場合も同様の処理で行うことが可能である。

【００８３】上述した実施の形態では、親端末機の構成を、応答器４と携帯電話機本体１０とからなる携帯電話機１とした例について説明したが、親端末機側の構成はこれに限定されるものではなく、応答器４が取り付け或いは内蔵可能な各種端末機に適用可能である。応答器４が取り付け或いは内蔵可能な端末機としては、ＰＨＳ（Ｐｅｒｓｏｎａｌ Ｈａｎｄｙｐｈｏｎｅ Ｓｙｓｔｅｍ）又はＰＤＡ（Ｐｅｒｓｏｎａｌ Ｄｉｇｉｔａｌ Ａｓｓｉｓｔａｎｔ）等の各種移動体通信端末装置に好適に適用できる。また、上述した実施の形態では、親端末機側がホストコンピュータ３と通信を行う必要がないので、親端末機の構成としては、所謂リモートコントローラやＩＣカードのような製品に対しても好適に適用可能である。

【００８４】なお、上述した実施の形態では、親端末機の携帯電話機１が自らの持つ通信速度（２Ｍｂｐｓ）の全てを子端末機であるパソコン２Ａ～２ｎに委譲した場合の例であり、この場合には、子端末機であるパソコン２Ａ～２ｎの通信中には、親端末機の携帯電話機１は自らの持つ通信速度が無くなるため、携帯電話機１の送受信部１３及びアンテナ１４によるホストコンピュータ３に対しての通信ができなくなる。

【００８５】これに対して、携帯電話機１が自らの持つ通信速度（２Ｍｂｐｓ）の一部（例えば１Ｍｂｐｓ）のみをパソコン２Ａ～２ｎに委譲することも可能であり、この場合には、親端末機の携帯電話機１と子端末機のパソコン２Ａ～２ｎとで同時にホストコンピュータ３に対する通信を行うことが可能となり、携帯電話機１とパソコン２Ａ～２ｎとの間でのホストコンピュータ３を介してのデータ通信等を行うことが可能となる。

【００８６】なお、この場合には、ホストコンピュータ３の前記認証部による認証、前記通信速度割当部による通信速度の割り当て、前記通信速度監視部による通信速度の監視及び調整、前記課金処理部による課金処理については、携帯電話機１及びパソコン２Ａ～２ｎに対して、上述と同様の処理で行うことが可能である。

【００８７】上述した実施の形態では、子端末機の構成を、質問器５とパソコン本体２０とからなるパソコン２とした例について説明したが、子端末機側の構成はこれに限定されるものではなく、質問器５が取り付け或いは内蔵可能な各種電化製品に適用可能である。

【００８８】質問器５が取り付け或いは内蔵可能な各種電化製品の例としては、親端末機１と同様の構成を有する携帯電話機は勿論のこと、テレビ、ラジオ、カメラ、画像や音声の記録再生装置、冷暖房機（エアコン）、電子レンジ、ファクシミリ装置などの家庭用あるいはオフィス用の電子機器、さらには各種自動販売機のような不特定多数の者に利用される公共用の機器が挙げられ、これらの各種電化製品にホストコンピュータ３に対する通信機能を持たせることにより、独自の電話番号等を設定することなくホストコンピュータ３を介して様々なサービスを受けることができるようになる。

【００８９】親端末機から子端末機へ委譲される制御の内容は、上述の例に限定されるものではなく、例えば子端末機が携帯電話機の場合には、着信専用の制御、発信専用の制御、着発信双方の制御、等の委譲を行うことが可能である。

【００９０】また、上述の実施の形態では、親端末機と子端末機との間のデータの送受信を無線信号を介して行うこととしたが、これに限定されず、有線信号を介して行っても良いことは勿論である。

【００９１】

【発明の効果】以上説明したように．本発明によれば、情報通信網の利用時に、電話回線の有効利用を図りながらユーザの意図に応じた課金処理を行いつつ、利用者へのサービス向上に寄与するシステムを提供することが可能となる。

【図面の簡単な説明】

【図１】本発明を適用した電話回線の制御委譲システムの実施の形態の概要を説明する図である。

【図２】図１の携帯電話機（親端末機）及びパソコン（子端末機）の回路構成を説明するためのブロック図である。

【図３】親端末機が各子端末機に制御を委譲する場合に行われる処理を説明するためのフローチャートである。

【符号の説明】

１　携帯電話機（親端末機）
２　パソコン（子端末機）
３　ホストコンピュータ
４　応答器
４１　通信部（第１の通信手段）
１０　携帯電話機本体
１１　ＣＰＵ（制御手段）
１２　操作入力部（操作入力手段）
１３　送受信部（第２の通信手段）
１４　アンテナ
１５　表示部（表示手段）
１６　マイク
１７　スピーカ

＊１８　バイブレータ
１９　メモリ
２０　パソコン本体
２１　ＣＰＵ（制御手段）
２２　操作入力部
２３　送受信部（第２の通信手段）
２４　表示部
２５　ＨＤＤ
５　質問器
５１　通信部（第１の通信手段）

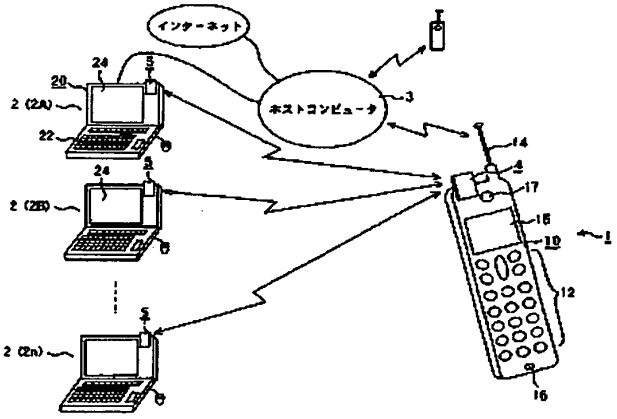
【要約】

【課題】　電話回線の有効利用を図りながらユーザの意図に応じた課金処理を行いつつ、利用者へのサービス向上に寄与する。

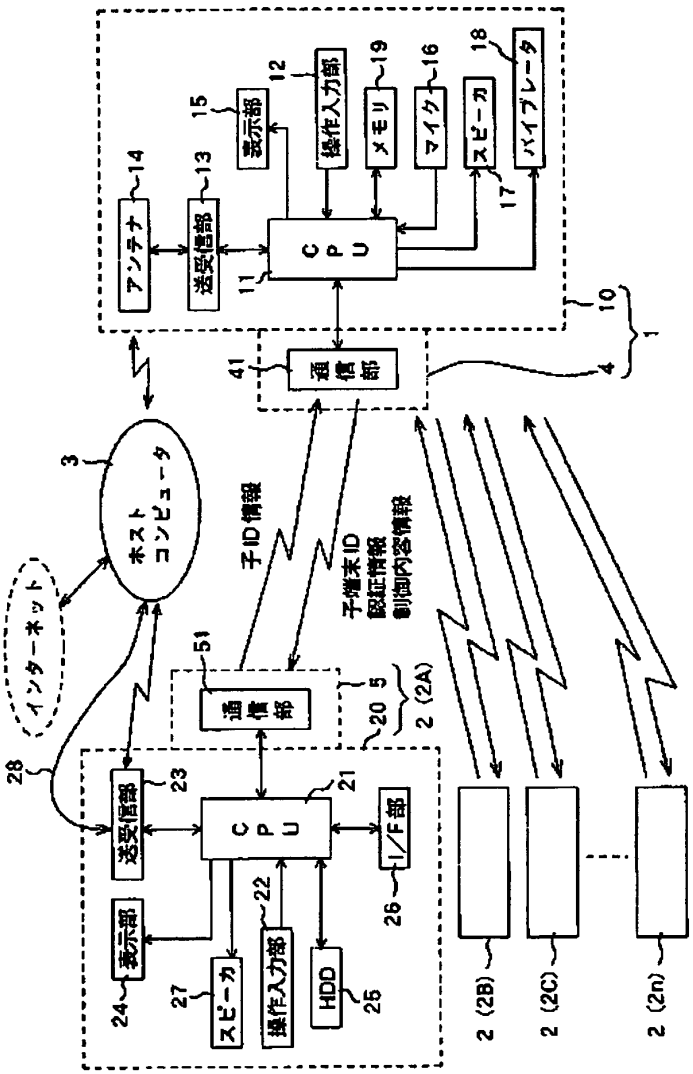
【解決手段】　通信事業者が提供する通信サービスについての制御を行うホストコンピュータ3と．ホストコンピュータが識別可能な親ＩＤ情報を有する親端末機1と．ホストコンピュータが識別可能な子ＩＤ情報を有し．親端末機からの制御の委譲を受けてホストコンピュータとの通信を行う複数の子端末機2A，2B・・を有し．親端末機1は、選択手段12によって選択したｎ個の子端末機に対して、親ＩＤ情報を基にホストコンピュータ3が親ＩＤ情報を特定できる子端末ＩＤをｎ個生成し．生成した子端末ＩＤを第１の通信手段4で各子端末機毎に送信し．各子端末機は、親端末機1からの子端末ＩＤを第１の通信手段5で受信し．子ＩＤ情報を付加して第２の通信手段23でホストコンピュータに送信する。

＊

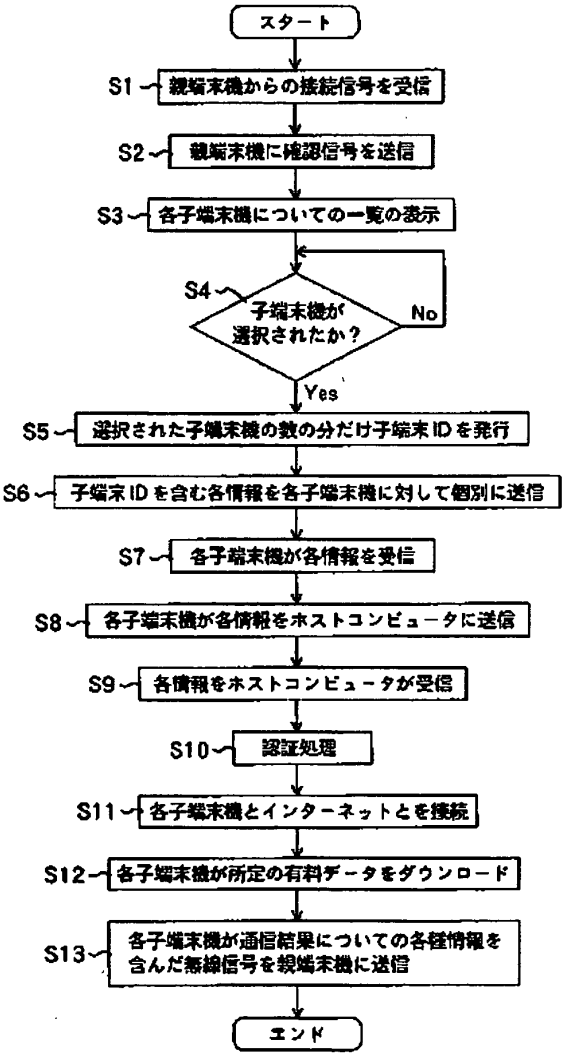
【図１】



【図2】


アンテナ
送受信部
表示部
操作入力部
メモリ
マイク
スピーカ
バイブレータ
CPU
通信部
ホストコンピュータ
インターネット
子ID情報
子端末ID
認証情報
制御内容情報
送受信部
表示部
スピーカ
操作入力部
HDD
I/F部
2 (2A)
2 (2B)
2 (2C)
2 (2n)

【図3】



フロントページの続き

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(58)調査した分野(Int.Cl.', DB名)
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H04B 7/00 - 7/26
H04Q 7/00 - 7/38

Patent #3153213

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3.In the drawings, any words are not translated.

CLAIMS

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(57) [Claim]
[Claim 1] The host computer which performs the control about the communication service which a communication entrepreneur offers, The parent terminal with which the aforementioned host computer has an identifiable parent ID information, The aforementioned host computer has an identifiable child ID information, and it has two or more child terminals which perform the communication with the aforementioned host computer in response to a transfer of the control from the aforementioned parent terminal. the aforementioned parent terminal A selection means to choose n child terminals (for n to be one or more integers) which are going to transfer a control from the child terminals which communicated by the 1st means of communications which communicates with each child terminal, and the 1st aforementioned means of communications, It has a control means to control the 1st aforementioned means of communications. the aforementioned child terminal The 1st means of communications which communicates with the aforementioned parent terminal, and the 2nd means of communications which communicates with the aforementioned host computer, It has a control means to control the 1st aforementioned means of communications and the 2nd aforementioned means of communications. the aforementioned control means of the aforementioned parent terminal n child terminal IDs as which the aforementioned host computer can specify the aforementioned parent ID information on the basis of the aforementioned parent ID information are generated to n child terminals chosen by the aforementioned selection means. The 1st aforementioned means of communications is controlled to transmit generated child terminal ID for every child terminal. the aforementioned control means of each child terminal If the aforementioned child terminal ID from the aforementioned parent terminal is received by the 1st aforementioned means of communications The control transfer system of the telephone line characterized by controlling the 2nd aforementioned means of communications to add the aforementioned child ID information to the concerned child terminal ID which received, and to transmit to the aforementioned host computer by the 2nd aforementioned means of communications.
[Claim 2] The aforementioned parent ID information is the control transfer system of the telephone line of the claim 1 publication characterized by being the telephone number about the telephone number of the user of the aforementioned parent terminal.
[Claim 3] The aforementioned parent terminal is the claim 1 characterized by having the 2nd means of communications which communicates with the aforementioned host computer, or the control transfer system of the telephone line given in two.

[Claim 4] The 2nd aforementioned means of communications of the aforementioned parent terminal is the control transfer system of the telephone line of the claim 3 publication characterized by communicating with the aforementioned host computer within the limits of the transmission speed beforehand assigned from the aforementioned host computer.
[Claim 5] The aforementioned parent terminal is the control transfer system of the telephone line of the claim 4 publication characterized by transferring a control of the content which communicates with the aforementioned host computer simultaneously by the 2nd aforementioned means of communications of the n aforementioned child terminals, respectively within the limits of the transmission speed beforehand assigned from the aforementioned host computer.
[Claim 6] The aforementioned parent terminal is the control transfer system of the telephone line of the claim 5 publication characterized by specifying the transmission speed used by the 2nd aforementioned means of communications about at least one of the n aforementioned child terminals in the case of a transfer of a control.
[Claim 7] The aforementioned parent terminal is the control transfer system of the telephone line of the claim 4 publication characterized by transferring a control of the content which communicates with the aforementioned host computer simultaneously, respectively by the 2nd aforementioned means of communications of the aforementioned parent terminal, and the 2nd aforementioned means of communications of the n aforementioned child terminals within the limits of the transmission speed beforehand assigned from the aforementioned host computer.
[Claim 8] The aforementioned parent terminal is the control transfer system of the telephone line of the claim 7 publication characterized by specifying the transmission speed used by the 2nd aforementioned means of communications about the terminal of at least 1 of the aforementioned parent terminal and/or the n aforementioned child terminals in the case of a transfer of a control.
[Claim 9] The aforementioned host computer is the claim 5 characterized by having the transmission-speed Monitoring Department which adjusts so that it may become within the limits of the transmission speed which supervised the sum of transmission speed performed by each 2nd means of communications of the aforementioned parent terminal and the n aforementioned child terminals, and was beforehand assigned to the aforementioned parent terminal, or the control transfer system of the telephone line of any 1 publication of 8.
[Claim 10] The aforementioned transmission-speed Monitoring Department of the aforementioned host computer is the control transfer system of the telephone line of the claim 9 publication characterized by adjusting so that it may decrease according to the rate of the transmission speed currently used by each 2nd means of communications of the aforementioned parent terminal and the n aforementioned child terminals, when the sum of transmission speed performed by each 2nd means of communications of the aforementioned parent terminal and the n aforementioned child terminals exceeds the domain of the transmission speed beforehand assigned to the aforementioned parent terminal.
[Claim 11] The aforementioned transmission-speed Monitoring Department of the aforementioned host computer When the sum of transmission speed performed by each 2nd means of communications of the aforementioned parent terminal and the n

aforementioned child terminals exceeds the domain of the transmission speed beforehand assigned to the aforementioned parent terminal The claim 6 characterized by adjusting so that the transmission speed about the aforementioned parent terminal with which the transmission speed is not specified in the case and/or the aforementioned child terminal of a transfer of the control to the n aforementioned child terminals may be reduced from the aforementioned parent terminal, or the control transfer system of the telephone line given in eight.

[Claim 12] The aforementioned host computer is the claim 1 characterized by controlling so that the communication service which the aforementioned communication entrepreneur offers is received by the 2nd aforementioned means of communications of each aforementioned child terminal based on the aforementioned child terminal ID and the aforementioned child ID information which were transmitted from the 2nd aforementioned means of communications of each aforementioned child terminal, or the control transfer system of the telephone line of any 1 publication of 11.

[Claim 13] The aforementioned host computer is the control transfer system of the telephone line of the claim 12 publication characterized by having the accounting section which performs accounting which imposes accounting about the communication service which the aforementioned communication entrepreneur offers on user ** which has the aforementioned parent ID information.

[Claim 14] The aforementioned host computer is the claim 1 characterized by performing the control about the connection service to internet as communication service which the aforementioned communication entrepreneur offers, or the control transfer system of the telephone line of any 1 publication of 13.

[Claim 15] The aforementioned host computer is the claim 1 characterized by performing the control about the connection service to other telephones as communication service which the aforementioned communication entrepreneur offers, or the control transfer system of the telephone line of any 1 publication of 14.

[Claim 16] The aforementioned parent terminal is the claim 1 characterized by the aforementioned control means controlling the 1st aforementioned means of communications so that the content information of a control shown about the content of a control transferred [ID / child terminal / aforementioned] with an authentication information to n child terminals chosen with the aforementioned selection means may be transmitted for every child terminal, or the control transfer system of the telephone line of any 1 publication of 15.

[Claim 17] The claim 1 characterized by to include a setting input means set up about the n aforementioned child terminals which are going to transfer a control among lists of the child terminal displayed on a display means display a list of the child terminal which communicated by the 1st aforementioned means of communications on the aforementioned selection means of the aforementioned parent terminal, and the aforementioned display means, or the control transfer system of the telephone line of any 1 publication of 16.

[Claim 18] The aforementioned child terminal is the claim 1 characterized by performing the communication with the aforementioned host computer by the 2nd aforementioned means of communications in response to the part about the function which the aforementioned parent terminal has, or all transfers, or the control transfer system of the telephone line of any 1 publication of 17.

[Claim 19] The aforementioned child terminal is the claim 1 characterized by performing the communication with the aforementioned host computer by the 2nd aforementioned means of communications until it receives the control transfer termination signal of the purport which stops a control transfer by the 1st aforementioned means of communications, or the control transfer system of the telephone line of any 1 publication of 18.

DETAILED DESCRIPTION

[Detailed description]
[0001]
[The technical field to which invention belongs] About the control transfer system of the telephone line, in detail, this invention transfers the royalty of the telephone line from parent terminals, such as a portable telephone, to 1 or two or more child terminals, and relates to the system for planning the deployment of the telephone line.
[0002]
[Prior art] It is becoming general to use two circuits of the telephone line for family yards by the usual cable and the circuit of the mobile communication terminal for individuals by the radio properly, and to be utilized in individual everyday life, in recent years in connection with the rapid spread of mobile communication terminals, such as a portable telephone, PHS (Personal Handyphone System), or PDA (Personal Digital Assistant).
[0003] Moreover, the spread of information communication networks, such as internet in recent years, can receive [the user of an information communication network] now offer of various services of transmission and reception of a mail, acquisition of various informations, the purchase of goods, a reservation of a hotel or a ticket, etc. using an above-mentioned mobile communication terminal.
[0004]
[Object of the Invention] Furthermore, recently, giving a role of complex-terminal equipment equipped with various functions, such as a reception function of various broadcasts, a TV phone function, and a navigation function using two or more satellites twisted to GPS (Global Positioning System:GPS), as gestalt of the portable telephone of the next generation is proposed. Moreover, when one circuit is divided into two or more circuits and each portable telephone uses this divided circuit simultaneously as gestalt of the portable telephone of the next generation, it is expected that the so-called multi-rate function in which two or more concerned portable telephones communicate simultaneously, and a multi-call function are given.
[0005] It is expected that it is expected that it spreads to home electronic equipment, such as television, further, the accessing function to an information communication network is given to all electric appliances at the near future, and the equipment used from such present condition in order that a user may receive a service of an information communication network can be accessed now from the above-mentioned mobile communication terminal and a personal computer to an information communication network through the telephone line etc. because of data communication, the accounting by the service provider, etc.
[0006] In the bottom of inclinations, such as such two or more possession of the telephone line, and telephone functional grant to electric appliances, the importance about a user's authentication becomes still higher. For example, about the candidate of accounting about a service provision etc., if a case so that many and unspecified users may use shared television arranged in the conference room of a station etc., may access to an information communication network on concerned television and may receive a predetermined service is considered, even if it is the case where it should originally consider as many and unspecified concerned users, the candidate's authentication is

actually difficult.
[0007] on the other hand -- for example, each terminal unit which many and unspecified concerned users own -- using -- two or more concerned terminal units -- ID for every terminal unit -- using -- an information communication network -- abbreviation -- it accesses simultaneously, considering as a system which receives the respectively same service is also considered, and such a system, then each user can be specified as an accounting candidate However, inconvenience will arise conversely to make an accounting candidate into the concerned business-firm name shortly, for example.
[0008] On the other hand, it is asked for the configuration of the miniaturization for enabling an easy move, lightweight-izing, etc., the mobile communication terminal originated in this, and there were problems, like that there is a limit of the viewing area in that **** between operations tends to occur that it is hard to carry out operation of a small input key, memory space, and a display and a limitation is in continuous duty time further.
[0009] Although it is desirable that suitable electronic equipment to receive this service provision can be used in accessing to an information communication network in indoor [, such as a house or a station,], and receiving various services to such a problem, if ID of the subscriber's loop and a user etc. will be set as various electronic equipment other than a mobile communication terminal in this case, a management of ID etc. will become complicated or new problems, like the minimum charge of the royalty of the subscriber's loop increases further will arise.
[0010] For example, when a user is going to access to an information communication network and is going to receive the data about a stock price using mobile communication terminals, such as a portable telephone, the problem that the required detailed fraction for users, such as a line graph about transition of a stock price, is not discriminated or displayed for a limit of a viewing area arises. In such a case, although it is appropriate to display this detailed fraction instead of a mobile communication terminal to the displays which have a big screen, such as television of a house, when it is going to realize this, a setup of ID of the subscriber's loop and a user etc. is needed for television etc. However, when other men of a family are going to access to an information communication network using the concerned television, for example, are going to receive a service of a reservation of a ticket etc., in such a case, a setup of a user's ID etc. must be changed each time, and the management is inconvenient to it.
[0011] Furthermore, if it will be assigning the telephone number for every product, respectively in the future when an above-mentioned telephone function is given to all electric appliances, the minimum charge of a telephone will be imposed for each [these] product of every, and a management of each telephone number and the burden in a cost side will become excessive.
[0012] Thus, in the present system, it has the problem that it is difficult to perform accounting according to the deployment of the telephone line, and the intention of an user in spite of the status that certain ** of the further development of the mobile communication terminal in the near future is carried out.
[0013] The purpose of this invention is to offer the system contributed to the enhancement in a service to a user, performing accounting according to the intention of an user planning the deployment of the telephone line at the time of use of an information communication network.

[0014]
[The means for solving a technical problem] The control transfer system of the telephone line concerning this invention The host computer which performs the control about the communication service which a communication entrepreneur offers, It has the parent terminal with which a host computer has an identifiable parent ID information, and a child ID information with an identifiable host computer. It has two or more child terminals which perform the communication with a host computer in response to a transfer of the control from a parent terminal. a parent terminal A selection means to choose n child terminals (for n to be one or more integers) which are going to transfer a control from the child terminals which communicated by the 1st means of communications which communicates with each child terminal, and the 1st means of communications, It has a control means to control the 1st means of communications. a child terminal The 1st means of communications which communicates with a parent terminal, and the 2nd means of communications which communicates with a host computer, It has a control means to control the 1st means of communications and 2nd means of communications. the control means of a parent terminal n child terminal IDs as which a host computer can specify a parent ID information on the basis of a parent ID information are generated to n child terminals chosen by the selection means. The 1st means of communications is controlled to transmit generated child terminal ID for every child terminal. the control means of each child terminal If child terminal ID from a parent terminal is received by the 1st means of communications, it will be characterized by controlling the 2nd means of communications to add a child ID information to the concerned child terminal ID which received, and to transmit to a host computer by the 2nd means of communications.
[0015] Here, as a parent ID information, although it will not be limited especially if a host computer is an identifiable information, it makes a parent terminal preferably the telephone number information about the telephone number of the user of a parent terminal.
[0016] Moreover, it is enabled to communicate with a host computer simultaneously at a parent terminal and a child terminal by considering as the configuration equipped with the 2nd means of communications which communicates with a host computer about the parent terminal. Here, the 2nd means of communications of a parent terminal is made to communicate with a host computer within the limits of the transmission speed beforehand assigned from the host computer. In this case, a parent terminal transfers a control of the content which communicates with a host computer simultaneously by the 2nd means of communications of n child terminals, respectively within the limits of the transmission speed beforehand assigned from the host computer. Furthermore, it is good also as a parent terminal specifying the transmission speed used by the 2nd means of communications about at least one of n child terminals in this case in the case of a transfer of a control.
[0017] In preparing the 2nd means of communications about a parent terminal, a parent terminal transfers a control of the content which communicates with a host computer simultaneously, respectively by the 2nd means of communications of a parent terminal, and the 2nd means of communications of n child terminals within the limits of the transmission speed beforehand assigned from the host computer. In this case, a parent terminal is good also as specifying the transmission speed used by the 2nd means of

communications about the terminal of at least 1 of a parent terminal and/or n child terminals in the case of a transfer of a control.
[0018] A control means considers a parent terminal as the configuration which controls the 1st means of communications so that the content information of a control shown about the content of a control transferred [ID / child terminal] with an authentication information to n child terminals chosen with the selection means may be transmitted for every child terminal.
[0019] Moreover, it considers as the configuration including a setting input means to set up about n child terminals which are going to transfer a control among lists of the child terminal displayed on a display means to display a list of the child terminal which communicated by the 1st means of communications about the selection means of a parent terminal, and the display means.
[0020] On the other hand, about a host computer, the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals is supervised, and it considers as the configuration which has the transmission-speed Monitoring Department which adjusts so that it may become within the limits of the transmission speed beforehand assigned to the parent terminal.
[0021] Here, when the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals exceeds the domain of the transmission speed beforehand assigned to the parent terminal, the transmission-speed Monitoring Department of a host computer adjusts so that it may decrease according to the rate of the transmission speed currently used by each 2nd means of communications of a parent terminal and n child terminals.
[0022] Or when the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals exceeds the domain of the transmission speed beforehand assigned to the parent terminal, the transmission-speed Monitoring Department of a host computer adjusts so that the transmission speed about the parent terminal with which the transmission speed is not specified in the case and/or child terminal of a transfer of the control to n child terminals may be reduced from a parent terminal.
[0023] A host computer is controlled so that the communication service which a communication entrepreneur offers is received by the 2nd aforementioned means of communications of each child terminal based on child terminal ID and the aforementioned child ID information which were transmitted from the 2nd means of communications of each child terminal. In this case, a host computer is taken as the configuration which has the accounting section which performs accounting which imposes accounting about the communication service which a communication entrepreneur offers on user ** which has a parent ID information.
[0024] A host computer is made to perform the control about the connection service to internet as communication service which a communication entrepreneur offers.
[0025] Moreover, a host computer is made to perform the control about the connection service to other telephones as communication service which a communication entrepreneur offers.
[0026] On the other hand, as a configuration of a child terminal, the communication with a host computer shall be performed by the 2nd means of communications in response to the part about the function which a parent terminal has, or all transfers.

[0027] Moreover, a child terminal shall perform the communication with a host computer by the 2nd means of communications until it receives the control transfer termination signal of the purport which stops a control transfer by the 1st means of communications.
[0028]
[Gestalt of implementation of invention] The gestalt of enforcement of this invention is explained in detail, referring to a drawing.
[0029] The conceptual diagram of the control transfer system of the telephone line which applied this invention to drawing 1 is shown.
[0030] with the gestalt of this enforcement, as shown in drawing 1 , as a parent terminal, the portable telephone 1 which is a mobile communication terminal is used, and two or more personal computers (only henceforth a personal computer) 2 of the so-called note type which can be carried use as a child terminal -- having -- both a portable telephone 1 and the personal computer 2 (2A, 2B, ... 2n) -- although -- it can connect now to the host computer 3 which controls the communication service which a communication entrepreneur offers And with the gestalt of the 1st enforcement, it communicates with one a portable telephone 1 and each personal computer 2.
[0031] (Outline configuration of a parent terminal) The portable telephone 1 as a parent terminal has the portable telephone mainframe 10 equipped with the function as a portable telephone, and the transponder 4 as the 1st means of communications for communicating to each personal computer 2.
[0032] The transmission speed (for example, 2Mbpses) as which this portable telephone 1 as a parent terminal was determined beforehand is assigned, and the peculiar telephone line is set up.
[0033] As the gestalt of this enforcement shows the portable telephone mainframe 10 of a portable telephone 1 to drawing 1 , an antenna 14 is arranged at the upper part of the mainframe (case) of equipment, and the loudspeaker 17 as a telephone call means, the display 15 as a display means which consists of a liquid crystal panel etc., the operation input section 12 that consists of many key switches as an operation input means, and the microphone 16 as a telephone call means are arranged from the top in the front face of equipment, respectively. In addition, other components of a portable telephone 1 are shown in drawing 2 , and the explanation about these is mentioned later. Moreover, although the transponder 4 serves as the configuration prepared in one with the gestalt of this enforcement at the upper part of the portable telephone mainframe 10 as shown in drawing 1 , of course, it is not limited to this arrangement, and you may be the configuration which makes a transponder 4 removable to the portable telephone mainframe 10 further.
[0034] (Outline configuration of a child terminal) On the other hand, the personal computer 2 as a child terminal has the mainframe 20 equipped with the function as a usual computer of a personal computer, and the interrogator 5 as the 1st means of communications for communicating to a portable telephone 1.
[0035] With the gestalt of this enforcement, **** of the case upper part side which has the display 24 which consists of a liquid-crystal-display display has become possible to the case installation [the mainframe 20 of a personal computer which has the operation input section 22 by many key switches] side, and the personal computer 2 serves as the configuration that the interrogator 5 was attached in this case upper part side, as shown in drawing 1 . Here, the display 24 of the mainframe 20 of a personal computer has [a

personal computer 2] a viewing area (area) larger than the display 15 of a portable telephone 1, and each key of the operation input section 22 is large rather than each key switch of the operation input section 12 of a portable telephone 1.
[0036] Although the interrogator 5 serves as the configuration prepared in one with the gestalt of this enforcement at the upper part of the mainframe 20 of a personal computer, of course, it is not limited to this arrangement, and you may be the configuration which makes an interrogator 5 removable to the mainframe 20 of a personal computer further.
[0037] (Outline configuration of a host computer) The host computer 3 is connected with internet or various kinds of information communication networks as communication service which a communication entrepreneur offers. And a host computer 3 offers the various services according to the concerned demand according to the various demands from the parent terminal mentioned above or a child terminal. Here, as various services which a host computer 3 performs, the connection service with the telephone by other cables or radios which serve as a called party, for example, the send-data service which transmits the various data from above-mentioned internet and various above-mentioned information communication networks are included.
[0038] Moreover, the host computer 3 has the authentication section which is not illustrated [which attests whether you are a regular user] based on the authentication information from a parent terminal or a child terminal, and only when it accepts as a regular user in the authentication section, it offers the service according to the demand from a parent terminal or a child terminal. And a host computer 3 has the non-illustrated accounting section, and performs predetermined accounting to the regular user who attested in the aforementioned authentication section.
[0039] Furthermore, a host computer 3 has the transmission-speed allocation section which is not illustrated [which assigns the transmission speed according to the demand from a portable telephone 1 within the limits of this transmission speed to two or more child terminals which the portable telephone 1 chose] while it assigns a predetermined transmission speed (for example, 2Mbpses) beforehand to the portable telephone 1 which is a parent terminal. Further again, a host computer 3 supervises the transmission speed to the host computer 3 of two or more child terminals which the portable telephone 1 and the portable telephone 1 chose, and has the transmission-speed Monitoring Department for adjusting so that the sum of the transmission speed of parents and each child terminal may not exceed the transmission speed (for example, 2Mbpses) which a parent terminal has.
[0040] (Circuit arrangement of a parent terminal) Next, with reference to drawing 2 , the circuit arrangement of the portable telephone 1 and the personal computer 2 are explained. As shown in drawing 2 , the portable telephone mainframe 10 of a portable telephone 1 CPU11 which controls this portable telephone 1 whole, and the operation input section 12 explained by drawing 1 , The transceiver section 13 and the antenna 14 as the 2nd means of communications which communicate with a host computer 3, It has the display 15 and the microphone 16 which were explained by drawing 1 and the loudspeaker 17, the vibrator 18 which vibrates the portable telephone 1 whole, and the memory 19 in which various kinds of informations mentioned later are stored.
[0041] CPU11 of the portable telephone mainframe 10 controls the transceiver section 13, the display 15, the loudspeaker 17, the vibrator 18, and the memory 19 based on the alter operation by the control program about a control of the portable telephone 1 whole,

and the operation input section 12. Moreover, it connects with the communications department 41 of the transponder 4 mentioned later, and CPU11 of the portable telephone mainframe 10 controls each part based on the signal inputted from the communications department 41.

[0042] For example, by the portable telephone mainframe 10, if the telephone number of the telephone of a called party which should be connected is inputted based on the alter operation by the operation input section 12, the concerned telephone number will be displayed on a display 15 by control of CPU11, and the radio signal for the line connection with a called party will be transmitted by it, through the antenna 14 connected to the transceiver section 13 and the transceiver section 13. A host computer 3 receives this radio signal transmitted from the portable telephone 1, and performs processing which aims at connection with the telephone of a called party.

[0043] And if the telephone and circuit of a called party are connected, by the portable telephone mainframe 10, by control of CPU11, the vocal sound which the vocal sound from the telephone of a called party is outputted as vocal sound from a loudspeaker 17, and the user by the side of the call origination to this utters is changed into an electrical signal through a microphone 16, and by the transceiver section 13, predetermined processing will be performed and it will be transmitted to the telephone of a called party as a radio signal for a telephone call through the antenna 14 and the host computer 3

[0044] When the radio signal for the line connection transmitted through the host computer 3 by the portable telephone mainframe 10 from the telephone of the other party which becomes a call origination side on the other hand is received in the transceiver section 13 through an antenna 14, by control of CPU11 If arrival-of-the-mail sound is outputted from a loudspeaker 17, or vibrator 18 vibrates according to the established state based on the alter operation of the operation input section 12 and the predetermined key of the operation input section 12 is operated by the user of a called party A circuit is connected a call origination side and it will be in the status in which the telephone call with the telephone of the other party is possible like ****.

[0045] Furthermore, by the portable telephone mainframe 10, if the telephone number to the internet which should be connected is inputted based on the alter operation by the operation input section 12, the concerned telephone number will be displayed on a display 15 by control of CPU11, and the radio signal for the line connection to internet will be transmitted by it, through the antenna 14 connected to the transceiver section 13 and the transceiver section 13. Here, a host computer 3 receives this radio signal transmitted from the portable telephone 1, and performs processing which aims at connection with internet.

[0046] And when internet and a circuit are connected, by the portable telephone mainframe 10, it is stored in memory 19 based on the alter operation by the operation input section 12 about the data which the image data sent from an internet side, the alphabetic data about a mail, etc. are displayed on a display 15 by control of CPU11, and it is outputted from a loudspeaker 17 about voice data, among these an user needs by it.

[0047] The operation input section 12 of the portable telephone mainframe 10 is operated in case various setup in the case of performing the communication with the interrogator 5 of a personal computer 2 through a transponder 4 is performed in addition to this.

[0048] The memory 19 of the portable telephone mainframe 10 memorizes the information about the communication result which mentions later the detail sent from an

interrogator 5 side, after performing the communication with the interrogator 5 of a personal computer 2 through a transponder 4.
[0049] Moreover, the data (henceforth a telephone number information) of the telephone number about a portable telephone 1 and the data (henceforth the content information of a control) about the content of a control transferred to a child terminal (personal computer 2) side are stored, each of these informations are read by control of CPU11, and memory 19 is transmitted to the interrogator 5 side of a personal computer 2.
[0050] That is, the transponder 4 of a portable telephone 1 has the communications department 41 which performs transmission and reception of the interrogator 5 of a personal computer 2, and data, CPU11 of the portable telephone mainframe 10 reads the telephone number information and the content information of a control in memory 19, and each [these] information is outputted with the gestalt of a radio signal from the communications department 41 by supplying each [these] information to the communications department 41 with a control signal. In addition, as gestalt of a radio signal, a Hertzian wave, infrared radiation, etc. are usable.
[0051] Furthermore, in the transponder 4 of a portable telephone 1, it precedes transmitting a telephone number information and the content information of a control, and based on a control of CPU11 of the portable telephone mainframe 10, the connection signal for establishing the connection with the interrogator 5 of a personal computer 2 outputs from the communications department 41, and mentions later about this processing.
[0052] (Circuit arrangement of a child terminal) Next, the circuit arrangement of the personal computer 2 by the side of a child terminal are explained. As shown in drawing 2 , the mainframe 20 of a personal computer of a personal computer 2 CPU21 which controls this mainframe of personal computer 20 whole, and the operation input section 22 explained by drawing 1 , The transceiver section 23 equipped with the modem for transmitting and receiving data by connecting by the host computer 3, the cable, or the radio etc., The display 24 explained by drawing 1 , and the hard disk drive 25 in which various data are stored (HDD), It has the interface section (I / F section) 26 for aiming at connection with external instruments, such as a printer, external storage, a card modem, and other personal computers, and the loudspeaker 27 which outputs vocal sound.
[0053] CPU21 of the mainframe 20 of a personal computer controls the transceiver section 23, the display 24, HDD25, the I / F section 26, and the loudspeaker 27 based on the alter operation by a predetermined control program and the predetermined operation input section 22. Moreover, it connects with the communications department 51 of the interrogator 5 mentioned later, and CPU21 of the mainframe 20 of a personal computer controls each part based on the signal inputted from the communications department 51.
[0054] For example, by the mainframe 20 of a personal computer, where the telephone line 28 and the transceiver section 23 which stand in a row to a host computer 3 are connected with a cable, if the telephone number to the internet which should be connected is inputted by the alter operation by the operation input section 22, the concerned telephone number will be displayed on a display 24 by control of CPU21, and the signal for the line connection to internet will be transmitted to a host computer 3 through the transceiver section 23 and the aforementioned telephone line 28. A host computer 3 will perform processing which aims at connection with internet, if this signal transmitted from the mainframe 2 of a personal computer is received.

[0055] And by the mainframe 20 of a personal computer, when internet and a circuit are connected, about the data which the image data sent from internet through a host computer 3, the alphabetic data about a mail, etc. are displayed on a display 24 by control of CPU21, and are outputted as vocal sound from a loudspeaker 27 about voice data, among these an user needs, it is stored in HDD25 based on the alter operation by the operation input section 22 (down load).
[0056] The operation input section 22 of the mainframe 20 of a personal computer is operated in case various setup in the case of in addition to this performing the communication with the transponder 4 of the cellular-phone machine 1 through the interrogator 5 mentioned later is performed.
[0057] It connects with CPU21 of the mainframe 20 of a personal computer, and the interrogator 5 of a personal computer 2 has the communications department 51 which performs transmission and reception of the transponder 4 of a portable telephone 1, and data.
[0058] In the interrogator 5 of a personal computer 2, based on the control signal outputted from CPU21 of the mainframe 20 of a personal computer, the acknowledge signal for establishing the connection with the transponder 4 of a portable telephone 1 outputs from the communications department 51, and mentions later about this processing.
[0059] (Transfer of the control to a child terminal from a parent terminal) two or more personal computer 2A whose portable telephones 1 which are a parent terminal in the portable telephone 1 and the personal computer 2 which were considered as such a configuration are child terminals, 2B, and ... by transferring a control as follows 2n, so to speak, each personal computer 2 executes by proxy processing which a portable telephone 1 originally performs, or a portable telephone 1 and each personal computer 2 communicate with a host computer 3 simultaneously
[0060] Hereafter, processing of this control transfer is explained with reference to the flow chart of drawing 3 . in addition, personal computer 2A of the transponder 4 of a portable telephone 1 and a plurality, 2B, and ... it is a flow chart for explaining processing performed between each 2n interrogator 5 and the host computer 3 [drawing 3]
[0061] With the gestalt of this enforcement, first, the transponder 4 of a portable telephone 1 is close brought into predetermined distance to each personal computers [2A-2n] interrogator 5, and the predetermined key switch of the operation input section 12 is pushed. At this time, a connection signal is transmitted from the communications department 41 of a transponder 4 in a portable telephone 1, and each personal computers 2A-2n as a child terminal receive the connection signal from the portable telephone 1 which is a parent terminal (step S1).
[0062] At the following step S2, personal computers 2A-2n transmit an acknowledge signal to a portable telephone 1. this acknowledge signal -- each personal computer 2 -- it considers as the signal which is different every A-2n, respectively, for example, is made to include a child ID information peculiar to the concerned personal computer 2 Here, a host computer 3 is an identifiable information, for example, a child ID information peculiar to the concerned personal computer 2 is an information about the bank account of the information about the part number of a personal computer 2, the information about the owner of a personal computer 2, and the owner of a personal computer 2 etc. Moreover, when it has the telephone number with the concerned original personal

computer 2, you may include the information about the telephone number.
[0063] The portable telephone 1 which received this acknowledge signal from each personal computers 2A-2n is the following step S3, it urges an user to operate the operation input section 12, shifts to step S4, and waits for the input of the operation input section 12 so that the list about each child terminal (personal computers 2A-2n) may be displayed on a display 15 and the child terminal used as the object which transfers a control may be chosen. In addition, this example explains the case where personal computers [each / 2A-2n] all are chosen in the operation input section 12.
[0064] If the input of the operation input section 12 is performed by step S4 and selection of a child terminal is performed, it will shift to step S5 and only a selected number of a child terminal of parts will publish child terminal ID. This child terminal ID is taken as ID which can recognize that the portable telephone 1 whose host computer 3 is a parent terminal publishes, and can discriminate each of two or more child terminals. Suppose that a telephone number information which serves as the telephone number which added the predetermined sign to the telephone number of the portable telephone 1 which is a parent terminal, and is different for every child terminal as a child terminal ID is published with the gestalt of this enforcement.
[0065] To the 2nd set of "090-1234-5678 -01" and child terminals, it is [as opposed to / the 1st set of a child terminal / when the telephone number of a portable telephone 1 is specifically "090-1234 -5678"] "090-1234-5678 -02"... A branch number number is added and assigned.
[0066] In addition, if it is ID which can recognize that the portable telephone 1 whose host computer 3 is a parent terminal publishes as gestalt of enforcement of child terminal ID, and can discriminate each of two or more child terminals, it will not be restricted to this.
[0067] At the following step S6, the telephone number information as a generated child terminal ID is individually transmitted to each child terminal. With the gestalt of this enforcement, the authentication information on the portable telephone 1 which is a parent terminal, and the content information of a control about the content of a control transferred to a child terminal are individually transmitted to each child terminal with a telephone number information by step S6. Here, with the authentication information on a portable telephone 1, it considers as the password information which the user of a portable telephone 1 set up, and the user of a portable telephone 1 considers as the information which can be changed suitably by operation of the operation input section 12.
[0068] In addition, in this example, it shall consider as the control which accesses to the internet which is an information communication network, and downloads predetermined charged data as content of a control transferred to each personal computers 2A-2n, and the content information of a control which shows the purport which transfers this content of a control shall be transmitted to each personal computers [2A-2n] communications department 51 from the communications department 41 of a portable telephone 1. Here, the content information of a control is stored in memory 19, displays the list on the display 15 of a portable telephone 1 in advance of sending, when an user chooses from the list as which the operation input section 12 is operated and it was displayed, reads the information to which CPU11 corresponds from memory 19, and transmits it as a radio signal from the communications department 41 of a transponder 4.
[0069] Although the same content information of a control is transmitted to each personal

computers 2A-2n in this example in order to transfer the same content of a control to each personal computers 2A-2n which are child terminals, the content different for every child terminal of a control may be transferred, and the content information of a control which is mutually different to personal computers 2A-2n in that case will be transmitted. For example, the content information of a control which is different to each personal computers 2A-2n, respectively is transmitted by operation of the operation input section 12 to set up the transmission speed which is mutually different to personal computers 2A-2n. Moreover, the content information different only to personal computer 2A of a control is transmitted by operation of the operation input section 12 to set up only the transmission speed which personal computer 2A uses, for example.

[0070] If the signal including the telephone number information, the authentication information, and the content information of a control from a portable telephone 1 is received at step S7, each personal computers 2A-2n are the following step S8, will add the aforementioned child ID information to each [these] information, and will transmit it to a host computer 3. If each information from each personal computers 2A-2n is received by step S9, a host computer 3 is the following step S10, and the aforementioned authentication section will be step S11 which attests and continues by collating a telephone number information and an authentication information, and it will perform processing which connects each child terminal (personal computers 2A-2n) and internet.

[0071] Here, by the aforementioned transmission-speed allocation section, when the information on a purport that transmission speed is specified to be the content information of a control received from each personal computers 2A-2n is included, a host computer 3 assigns transmission speed to each personal computers 2A-2n so that each personal computers 2A-2n may communicate at the specified concerned speed.

[0072] And after this, a host computer 3 supervises the connection status of each personal computers 2A-2n and internet at the aforementioned transmission-speed Monitoring Department, it supervises it so that the sum of the transmission speed which is communicating with each personal computers 2A-2n may not exceed the transmission speed (for example, 2Mbpses) which a parent terminal has, and when it exceeds, it adjusts.

[0073] Here, as the adjustment technique when the sum of the transmission speed which is communicating with each personal computers 2A-2n exceeds the transmission speed (for example, 2Mbpses) which the portable telephone 1 as a parent terminal has, a host computer 3 is adjusted at the aforementioned transmission-speed Monitoring Department so that it may decrease according to the rate of the transmission speed currently used in each transceiver section 23 of each n personal computers 2A-2n. Moreover, as other adjustment technique, a host computer 3 is adjusted so that the transmission speed about the personal computer 2 with which transmission speed is not specified from a portable telephone 1 in the case of a transfer of the control to each n personal computers 2A-2n (in the case of sending of the content information of a control) may be reduced.

[0074] Furthermore, a host computer 3 performs accounting in the aforementioned accounting section so that the user who has the royalty of the telephone number of a portable telephone 1 may be burdened with the connection charge gold (telephone rate) to the connection with the internet about each personal computers 2A-2n.

[0075] And each personal computers 2A-2n perform the control which downloads predetermined charged data to HDD25 of each mainframe 20 of a personal computer at

continuing step S12. By this, the user who has the royalty of the telephone number of a portable telephone 1 will be burdened with the service charge gold (accounting) to a down load of charged data by the accounting section of a host computer 3.
[0076] After processing of a down load is completed, it transmits to the transponder 4 of a portable telephone 1, a series of processing ends the radio signal which included the various informations about a communication result at step S13, and the control transfer to each personal computers 2A-2n ends the personal computers [each / 2A-2n] interrogator 5 from a portable telephone 1. Here, as an information about a communication result, the information about the communication time which is a connect time to internet, a telephone rate, the service charge gold (accounting) to a down load of charged data, the down-load amount of data, etc. is included, for example.
[0077] In addition, the user of a portable telephone 1 is made to perform predetermined operation in the operation input section 12 to end these processings by each personal computers 2A-2n on the way. If the control transfer termination signal of the purport which stops a control transfer from the communications department 41 of a transponder 4 is transmitted by this operation based on a control of CPU11 of a portable telephone 1 and the communications department 51 which are each personal computers 2A-2n receives this Based on a control of CPU21, the command of a connection end is transmitted to a host computer 3 from the transceiver section 23, and the control transfer to each personal computers 2A-2n is completed from a portable telephone 1 by cutting the connection with internet by processing of a host computer 3.
[0078] With the gestalt of this enforcement, it is canceled from the burden which becomes unnecessary to set up the peculiar telephone number to each personal computers 2A-2n by the side of a child terminal, and pays the minimum charge about the royalty of the new telephone number by performing such a control transfer to two or more child terminals from a parent terminal.
[0079] Moreover, about the connection with the host computer 3 and internet, even if it is the case where the telephone number peculiar to each personal computers 2A-2n by the side of a child terminal is set up, since it is carried out nothing with regards to a setup of the concerned telephone number based on the telephone number of the portable telephone 1 by the side of a parent terminal, in advance of connection, it is not necessary to change a setup of the telephone number by the side of each personal computer 2A-2n. Namely, even if who a personal computers [which are child terminals / each / 2A-2n] owner is according to the gestalt of this enforcement Accounting about a telephone rate or service charge gold will be imposed to the user of the portable telephone 1 by the side of a parent terminal. for example, even when each personal computers 2A-2n are installed in the locations (for example, showroom etc.) where many and unspecified men gather It is enabled to carry out accounting of the telex-rate gold which acquisition of a specific service took, the service-provision tariff, etc. pertinently to a personal computers [each / 2A-2n] user (for it to be the user of a portable telephone 1 in this case) etc. irrespective of a personal computers [each / 2A-2n] possession name.
[0080] Moreover, since the data to download are saved at each personal computers [by the side of a child terminal / 2A-2n] HDD25, it is not necessary to enlarge storage capacity of memory 19 in the portable telephone 1 by the side of a parent terminal, and since it is not necessary to increase the capacity of a non-illustrated power cell, it is enabled to maintain small [of equipment], and lightweight-ization. Furthermore, since

the downloaded data are read from HDD25 and displayed by the display 24 of the mainframe 20 of a personal computer, in the portable telephone 1 by the side of a parent terminal, there is no need of enlarging area of the display 15 of the portable telephone mainframe 10, and it is enabled to maintain small [of equipment], and lightweight-ization.

[0081] Further again, since there are few amounts of the data exchanged by the transponder 4 by the side of a parent terminal and the interrogator 5 by the side of a child terminal, it is enabled to constitute the communications departments 41 and 51 in transponder 4 and interrogator 5 both sides using a simple interface.

[0082] In addition, although the gestalt of enforcement mentioned above explained the example for which the transceiver section 23 of the personal computer 2 by the side of a child terminal downloads the data from internet through a cable signal from a host computer 3, when each child terminal downloads data through a radio signal, it is possible to carry out by the same processing.

[0083] Although the gestalt of enforcement mentioned above explained the example which made the configuration of a parent terminal the portable telephone 1 which consists of a transponder 4 and a portable telephone mainframe 10, the configuration by the side of a parent terminal cannot be limited to this, and a transponder 4 can attach it, or it can be applied to the various terminals which can be built in. A transponder 4 attaches or it can apply as a terminal which can be built in suitable for various mobile communication terminals, such as PHS (Personal Handyphone System) or PDA (Personal Digital Assistant). Moreover, with the gestalt of enforcement mentioned above, since a parent terminal side does not need to communicate with a host computer 3, as a configuration of a parent terminal, it is suitably applicable also to a product like the so-called remote controller or an IC card.

[0084] In addition, it is an example when the portable telephone 1 of a parent terminal transfers all of the transmission speed (2Mbps) which oneself has with the gestalt of enforcement mentioned above to the personal computers 2A-2n which are child terminals. In this case, during a communication of the personal computers 2A-2n which are child terminals, since the transmission speed which oneself has is lost, the communication of the portable telephone 1 of a parent terminal to the host computer 3 by the transceiver section 13 and the antenna 14 of a portable telephone 1 becomes impossible.

[0085] The portable telephone 1 is able to transfer a part of transmission speed (2Mbps) (for example, 1Mbps) which oneself has to personal computers 2A-2n. on the other hand, in this case It is enabled to perform the communication to a host computer 3 simultaneously with the portable telephone 1 of a parent terminal, and the personal computers 2A-2n of a child terminal, and is enabled to perform data communication through the host computer 3 of a portable telephone 1 and personal computers [2A-2n] between etc.

[0086] In addition, it is possible to carry out by the same processing as **** in this case to the portable telephone 1 and the personal computers 2A-2n about the accounting by monitoring of the transmission speed by authentication by the aforementioned authentication section of a host computer 3, assignment of the transmission speed by the aforementioned transmission-speed allocation section, and the aforementioned transmission-speed Monitoring Department and adjustment, and the aforementioned

accounting section.
[0087] Although the gestalt of enforcement mentioned above explained the example which used the configuration of a child terminal as the personal computer 2 which consists of an interrogator 5 and a mainframe 20 of a personal computer, the configuration by the side of a child terminal cannot be limited to this, and an interrogator 5 can attach it, or it can be applied to the various electric appliances which can be built in.
[0088] An interrogator 5 attaches. as an example of the various electric appliances which can be built in Not to mention the portable telephone which has the same configuration as the parent terminal 1, television, Radio, a camera, the record regenerative apparatus of a picture image or voice, an air conditioning machine (air-conditioner), Home use, such as a microwave oven and facsimile apparatus, or the electronic equipment for offices, By mentioning the public common device used for many and unspecified persons still like various vending machines, and giving the communication facility to a host computer 3 to these various electric appliances Various services can be received through a host computer 3, without setting up the original telephone number etc.
[0089] The content of the control transferred from a parent terminal to a child terminal is not limited to an above-mentioned example, and when a child terminal is [for example,] a portable telephone, it wears and it can transfer [the control only for arrival of the mail, the control only for dispatch, and] a control of both sides of dispatch etc.
[0090] Moreover, although [the gestalt of above-mentioned enforcement] transmission and reception of the data between a parent terminal and a child terminal are performed through a radio signal, it is not limited to this but, of course, you may carry out through a cable signal.
[0091]
[Effect of the invention] It is enabled to offer the system contributed to the enhancement in a service to a user, performing accounting according to the intention of an user according to this invention, as explained above planning the deployment of the telephone line at the time of use of an information communication network.

TECHNICAL FIELD

[The technical field to which invention belongs] About the control transfer system of the telephone line, in detail, this invention transfers the royalty of the telephone line from parent terminals, such as a portable telephone, to 1 or two or more child terminals, and relates to the system for planning the deployment of the telephone line.

PRIOR ART

[Prior art] It is becoming general to use two circuits of the telephone line for family yards by the usual cable and the circuit of the mobile communication terminal for individuals by the radio properly, and to be utilized in individual everyday life, in recent years in connection with the rapid spread of mobile communication terminals, such as a portable telephone, PHS (Personal Handyphone System), or PDA (Personal Digital Assistant). [0003] Moreover, the spread of information communication networks, such as internet in recent years, can receive [the user of an information communication network] now offer of various services of transmission and reception of a mail, acquisition of various informations, the purchase of goods, a reservation of a hotel or a ticket, etc. using an above-mentioned mobile communication terminal.

EFFECT OF THE INVENTION

[Effect of the invention] It is enabled to offer the system contributed to the enhancement in a service to a user, performing accounting according to the intention of an user according to this invention, as explained above planning the deployment of the telephone line at the time of use of an information communication network.

TECHNICAL PROBLEM

[Object of the Invention] Furthermore, recently, giving a role of complex-terminal equipment equipped with various functions, such as a reception function of various broadcasts, a TV phone function, and a navigation function using two or more satellites twisted to GPS (Global Positioning System:GPS), as gestalt of the portable telephone of the next generation is proposed. Moreover, when one circuit is divided into two or more circuits and each portable telephone uses this divided circuit simultaneously as gestalt of the portable telephone of the next generation, it is expected that the so-called multi-rate function in which two or more concerned portable telephones communicate simultaneously, and a multi-call function are given.

[0005] It is expected that it is expected that it spreads to home electronic equipment, such as television, further, the accessing function to an information communication network is given to all electric appliances at the near future, and the equipment used from such present condition in order that a user may receive a service of an information communication network can be accessed now from the above-mentioned mobile communication terminal and a personal computer to an information communication network through the telephone line etc. because of data communication, the accounting by the service provider, etc.

[0006] In the bottom of inclinations, such as such two or more possession of the telephone line, and telephone functional grant to electric appliances, the importance about a user's authentication becomes still higher. For example, about the candidate of accounting about a service provision etc., if a case so that many and unspecified users may use shared television arranged in the conference room of a station etc., may access to an information communication network on concerned television and may receive a predetermined service is considered, even if it is the case where it should originally consider as many and unspecified concerned users, the candidate's authentication is actually difficult.

[0007] on the other hand -- for example, each terminal unit which many and unspecified concerned users own -- using -- two or more concerned terminal units -- ID for every terminal unit -- using -- an information communication network -- abbreviation -- it accesses simultaneously, considering as a system which receives the respectively same service is also considered, and such a system, then each user can be specified as an accounting candidate However, inconvenience will arise conversely to make an accounting candidate into the concerned business-firm name shortly, for example.

[0008] On the other hand, it is asked for the configuration of the miniaturization for enabling an easy move, lightweight-izing, etc., the mobile communication terminal originated in this, and there were problems, like that there is a limit of the viewing area in that **** between operations tends to occur that it is hard to carry out operation of a small input key, memory space, and a display and a limitation is in continuous duty time further.

[0009] Although it is desirable that suitable electronic equipment to receive this service provision can be used in accessing to an information communication network in indoor [, such as a house or a station,], and receiving various services to such a problem, if ID of

the subscriber's loop and a user etc. will be set as various electronic equipment other than a mobile communication terminal in this case, a management of ID etc. will become complicated or new problems, like the minimum charge of the royalty of the subscriber's loop increases further will arise.

[0010] For example, when a user is going to access to an information communication network and is going to receive the data about a stock price using mobile communication terminals, such as a portable telephone, the problem that the required detailed fraction for users, such as a line graph about transition of a stock price, is not discriminated or displayed for a limit of a viewing area arises. In such a case, although it is appropriate to display this detailed fraction instead of a mobile communication terminal to the displays which have a big screen, such as television of a house, when it is going to realize this, a setup of ID of the subscriber's loop and a user etc. is needed for television etc. However, when other men of a family are going to access to an information communication network using the concerned television, for example, are going to receive a service of a reservation of a ticket etc., in such a case, a setup of a user's ID etc. must be changed each time, and the management is inconvenient to it.

[0011] Furthermore, if it will be assigning the telephone number for every product, respectively in the future when an above-mentioned telephone function is given to all electric appliances, the minimum charge of a telephone will be imposed for each [these] product of every, and a management of each telephone number and the burden in a cost side will become excessive.

[0012] Thus, in the present system, it has the problem that it is difficult to perform accounting according to the deployment of the telephone line, and the intention of an user in spite of the status that certain ** of the further development of the mobile communication terminal in the near future is carried out.

[0013] The purpose of this invention is to offer the system contributed to the enhancement in a service to a user, performing accounting according to the intention of an user planning the deployment of the telephone line at the time of use of an information communication network.

MEANS

[The means for solving a technical problem] The control transfer system of the telephone line concerning this invention The host computer which performs the control about the communication service which a communication entrepreneur offers, It has the parent terminal with which a host computer has an identifiable parent ID information, and a child ID information with an identifiable host computer. It has two or more child terminals which perform the communication with a host computer in response to a transfer of the control from a parent terminal. a parent terminal A selection means to choose n child terminals (for n to be one or more integers) which are going to transfer a control from the child terminals which communicated by the 1st means of communications which communicates with each child terminal, and the 1st means of communications, It has a control means to control the 1st means of communications. a child terminal The 1st means of communications which communicates with a parent terminal, and the 2nd means of communications which communicates with a host computer, It has a control means to control the 1st means of communications and 2nd means of communications. the control means of a parent terminal n child terminal IDs as which a host computer can specify a parent ID information on the basis of a parent ID information are generated to n child terminals chosen by the selection means. The 1st means of communications is controlled to transmit generated child terminal ID for every child terminal. the control means of each child terminal If child terminal ID from a parent terminal is received by the 1st means of communications, it will be characterized by controlling the 2nd means of communications to add a child ID information to the concerned child terminal ID which received, and to transmit to a host computer by the 2nd means of communications.

[0015] Here, as a parent ID information, although it will not be limited especially if a host computer is an identifiable information, it makes a parent terminal preferably the telephone number information about the telephone number of the user of a parent terminal.

[0016] Moreover, it is enabled to communicate with a host computer simultaneously at a parent terminal and a child terminal by considering as the configuration equipped with the 2nd means of communications which communicates with a host computer about the parent terminal. Here, the 2nd means of communications of a parent terminal is made to communicate with a host computer within the limits of the transmission speed beforehand assigned from the host computer. In this case, a parent terminal transfers a control of the content which communicates with a host computer simultaneously by the 2nd means of communications of n child terminals, respectively within the limits of the transmission speed beforehand assigned from the host computer. Furthermore, it is good also as a parent terminal specifying the transmission speed used by the 2nd means of communications about at least one of n child terminals in this case in the case of a transfer of a control.

[0017] In preparing the 2nd means of communications about a parent terminal, a parent terminal transfers a control of the content which communicates with a host computer simultaneously, respectively by the 2nd means of communications of a parent terminal, and the 2nd means of communications of n child terminals within the limits of the

transmission speed beforehand assigned from the host computer. In this case, a parent terminal is good also as specifying the transmission speed used by the 2nd means of communications about the terminal of at least 1 of a parent terminal and/or n child terminals in the case of a transfer of a control.

[0018] A control means considers a parent terminal as the configuration which controls the 1st means of communications so that the content information of a control shown about the content of a control transferred [ID / child terminal] with an authentication information to n child terminals chosen with the selection means may be transmitted for every child terminal.

[0019] Moreover, it considers as the configuration including a setting input means to set up about n child terminals which are going to transfer a control among lists of the child terminal displayed on a display means to display a list of the child terminal which communicated by the 1st means of communications about the selection means of a parent terminal, and the display means.

[0020] On the other hand, about a host computer, the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals is supervised, and it considers as the configuration which has the transmission-speed Monitoring Department which adjusts so that it may become within the limits of the transmission speed beforehand assigned to the parent terminal.

[0021] Here, when the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals exceeds the domain of the transmission speed beforehand assigned to the parent terminal, the transmission-speed Monitoring Department of a host computer adjusts so that it may decrease according to the rate of the transmission speed currently used by each 2nd means of communications of a parent terminal and n child terminals.

[0022] Or when the sum of transmission speed performed by each 2nd means of communications of a parent terminal and n child terminals exceeds the domain of the transmission speed beforehand assigned to the parent terminal, the transmission-speed Monitoring Department of a host computer adjusts so that the transmission speed about the parent terminal with which the transmission speed is not specified in the case and/or child terminal of a transfer of the control to n child terminals may be reduced from a parent terminal.

[0023] A host computer is controlled so that the communication service which a communication entrepreneur offers is received by the 2nd aforementioned means of communications of each child terminal based on child terminal ID and the aforementioned child ID information which were transmitted from the 2nd means of communications of each child terminal. In this case, a host computer is taken as the configuration which has the accounting section which performs accounting which imposes accounting about the communication service which a communication entrepreneur offers on user ** which has a parent ID information.

[0024] A host computer is made to perform the control about the connection service to internet as communication service which a communication entrepreneur offers.

[0025] Moreover, a host computer is made to perform the control about the connection service to other telephones as communication service which a communication entrepreneur offers.

[0026] On the other hand, as a configuration of a child terminal, the communication with

a host computer shall be performed by the 2nd means of communications in response to the part about the function which a parent terminal has, or all transfers.
[0027] Moreover, a child terminal shall perform the communication with a host computer by the 2nd means of communications until it receives the control transfer termination signal of the purport which stops a control transfer by the 1st means of communications.
[0028]
[Gestalt of implementation of invention] The gestalt of enforcement of this invention is explained in detail, referring to a drawing.
[0029] The conceptual diagram of the control transfer system of the telephone line which applied this invention to drawing 1 is shown.
[0030] with the gestalt of this enforcement, as shown in drawing 1 , as a parent terminal, the portable telephone 1 which is a mobile communication terminal is used, and two or more personal computers (only henceforth a personal computer) 2 of the so-called note type which can be carried use as a child terminal -- having -- both a portable telephone 1 and the personal computer 2 (2A, 2B, ... 2n) -- although -- it can connect now to the host computer 3 which controls the communication service which a communication entrepreneur offers And with the gestalt of the 1st enforcement, it communicates with one a portable telephone 1 and each personal computer 2.
[0031] (Outline configuration of a parent terminal) The portable telephone 1 as a parent terminal has the portable telephone mainframe 10 equipped with the function as a portable telephone, and the transponder 4 as the 1st means of communications for communicating to each personal computer 2.
[0032] The transmission speed (for example, 2Mbpses) as which this portable telephone 1 as a parent terminal was determined beforehand is assigned, and the peculiar telephone line is set up.
[0033] As the gestalt of this enforcement shows the portable telephone mainframe 10 of a portable telephone 1 to drawing 1 , an antenna 14 is arranged at the upper part of the mainframe (case) of equipment, and the loudspeaker 17 as a telephone call means, the display 15 as a display means which consists of a liquid crystal panel etc., the operation input section 12 that consists of many key switches as an operation input means, and the microphone 16 as a telephone call means are arranged from the top in the front face of equipment, respectively. In addition, other components of a portable telephone 1 are shown in drawing 2 , and the explanation about these is mentioned later. Moreover, although the transponder 4 serves as the configuration prepared in one with the gestalt of this enforcement at the upper part of the portable telephone mainframe 10 as shown in drawing 1 , of course, it is not limited to this arrangement, and you may be the configuration which makes a transponder 4 removable to the portable telephone mainframe 10 further.
[0034] (Outline configuration of a child terminal) On the other hand, the personal computer 2 as a child terminal has the mainframe 20 equipped with the function as a usual computer of a personal computer, and the interrogator 5 as the 1st means of communications for communicating to a portable telephone 1.
[0035] With the gestalt of this enforcement, **** of the case upper part side which has the display 24 which consists of a liquid-crystal-display display has become possible to the case installation [the mainframe 20 of a personal computer which has the operation input section 22 by many key switches] side, and the personal computer 2 serves as the

configuration that the interrogator 5 was attached in this case upper part side, as shown in drawing 1 . Here, the display 24 of the mainframe 20 of a personal computer has [a personal computer 2] a viewing area (area) larger than the display 15 of a portable telephone 1, and each key of the operation input section 22 is large rather than each key switch of the operation input section 12 of a portable telephone 1.

[0036] Although the interrogator 5 serves as the configuration prepared in one with the gestalt of this enforcement at the upper part of the mainframe 20 of a personal computer, of course, it is not limited to this arrangement, and you may be the configuration which makes an interrogator 5 removable to the mainframe 20 of a personal computer further.

[0037] (Outline configuration of a host computer) The host computer 3 is connected with internet or various kinds of information communication networks as communication service which a communication entrepreneur offers. And a host computer 3 offers the various services according to the concerned demand according to the various demands from the parent terminal mentioned above or a child terminal. Here, as various services which a host computer 3 performs, the connection service with the telephone by other cables or radios which serve as a called party, for example, the send-data service which transmits the various data from above-mentioned internet and various above-mentioned information communication networks are included.

[0038] Moreover, the host computer 3 has the authentication section which is not illustrated [which attests whether you are a regular user] based on the authentication information from a parent terminal or a child terminal, and only when it accepts as a regular user in the authentication section, it offers the service according to the demand from a parent terminal or a child terminal. And a host computer 3 has the non-illustrated accounting section, and performs predetermined accounting to the regular user who attested in the aforementioned authentication section.

[0039] Furthermore, a host computer 3 has the transmission-speed allocation section which is not illustrated [which assigns the transmission speed according to the demand from a portable telephone 1 within the limits of this transmission speed to two or more child terminals which the portable telephone 1 chose] while it assigns a predetermined transmission speed (for example, 2Mbpses) beforehand to the portable telephone 1 which is a parent terminal. Further again, a host computer 3 supervises the transmission speed to the host computer 3 of two or more child terminals which the portable telephone 1 and the portable telephone 1 chose, and has the transmission-speed Monitoring Department for adjusting so that the sum of the transmission speed of parents and each child terminal may not exceed the transmission speed (for example, 2Mbpses) which a parent terminal has.

[0040] (Circuit arrangement of a parent terminal) Next, with reference to drawing 2 , the circuit arrangement of the portable telephone 1 and the personal computer 2 are explained. As shown in drawing 2 , the portable telephone mainframe 10 of a portable telephone 1 CPU11 which controls this portable telephone 1 whole, and the operation input section 12 explained by drawing 1 , The transceiver section 13 and the antenna 14 as the 2nd means of communications which communicate with a host computer 3, It has the display 15 and the microphone 16 which were explained by drawing 1 and the loudspeaker 17, the vibrator 18 which vibrates the portable telephone 1 whole, and the memory 19 in which various kinds of informations mentioned later are stored.

[0041] CPU11 of the portable telephone mainframe 10 controls the transceiver section

13, the display 15, the loudspeaker 17, the vibrator 18, and the memory 19 based on the alter operation by the control program about a control of the portable telephone 1 whole, and the operation input section 12. Moreover, it connects with the communications department 41 of the transponder 4 mentioned later, and CPU11 of the portable telephone mainframe 10 controls each part based on the signal inputted from the communications department 41.

[0042] For example, by the portable telephone mainframe 10, if the telephone number of the telephone of a called party which should be connected is inputted based on the alter operation by the operation input section 12, the concerned telephone number will be displayed on a display 15 by control of CPU11, and the radio signal for the line connection with a called party will be transmitted by it, through the antenna 14 connected to the transceiver section 13 and the transceiver section 13. A host computer 3 receives this radio signal transmitted from the portable telephone 1, and performs processing which aims at connection with the telephone of a called party.

[0043] And if the telephone and circuit of a called party are connected, by the portable telephone mainframe 10, by control of CPU11, the vocal sound which the vocal sound from the telephone of a called party is outputted as vocal sound from a loudspeaker 17, and the user by the side of the call origination to this utters is changed into an electrical signal through a microphone 16, and by the transceiver section 13, predetermined processing will be performed and it will be transmitted to the telephone of a called party as a radio signal for a telephone call through the antenna 14 and the host computer 3

[0044] When the radio signal for the line connection transmitted through the host computer 3 by the portable telephone mainframe 10 from the telephone of the other party which becomes a call origination side on the other hand is received in the transceiver section 13 through an antenna 14, by control of CPU11 If arrival-of-the-mail sound is outputted from a loudspeaker 17, or vibrator 18 vibrates according to the established state based on the alter operation of the operation input section 12 and the predetermined key of the operation input section 12 is operated by the user of a called party A circuit is connected a call origination side and it will be in the status in which the telephone call with the telephone of the other party is possible like ****.

[0045] Furthermore, by the portable telephone mainframe 10, if the telephone number to the internet which should be connected is inputted based on the alter operation by the operation input section 12, the concerned telephone number will be displayed on a display 15 by control of CPU11, and the radio signal for the line connection to internet will be transmitted by it, through the antenna 14 connected to the transceiver section 13 and the transceiver section 13. Here, a host computer 3 receives this radio signal transmitted from the portable telephone 1, and performs processing which aims at connection with internet.

[0046] And when internet and a circuit are connected, by the portable telephone mainframe 10, it is stored in memory 19 based on the alter operation by the operation input section 12 about the data which the image data sent from an internet side, the alphabetic data about a mail, etc. are displayed on a display 15 by control of CPU11, and it is outputted from a loudspeaker 17 about voice data, among these an user needs by it.

[0047] The operation input section 12 of the portable telephone mainframe 10 is operated in case various setup in the case of performing the communication with the interrogator 5 of a personal computer 2 through a transponder 4 is performed in addition to this.

[0048] The memory 19 of the portable telephone mainframe 10 memorizes the information about the communication result which mentions later the detail sent from an interrogator 5 side, after performing the communication with the interrogator 5 of a personal computer 2 through a transponder 4.
[0049] Moreover, the data (henceforth a telephone number information) of the telephone number about a portable telephone 1 and the data (henceforth the content information of a control) about the content of a control transferred to a child terminal (personal computer 2) side are stored, each of these informations are read by control of CPU11, and memory 19 is transmitted to the interrogator 5 side of a personal computer 2.
[0050] That is, the transponder 4 of a portable telephone 1 has the communications department 41 which performs transmission and reception of the interrogator 5 of a personal computer 2, and data, CPU11 of the portable telephone mainframe 10 reads the telephone number information and the content information of a control in memory 19, and each [these] information is outputted with the gestalt of a radio signal from the communications department 41 by supplying each [these] information to the communications department 41 with a control signal. In addition, as gestalt of a radio signal, a Hertzian wave, infrared radiation, etc. are usable.
[0051] Furthermore, in the transponder 4 of a portable telephone 1, it precedes transmitting a telephone number information and the content information of a control, and based on a control of CPU11 of the portable telephone mainframe 10, the connection signal for establishing the connection with the interrogator 5 of a personal computer 2 outputs from the communications department 41, and mentions later about this processing.
[0052] (Circuit arrangement of a child terminal) Next, the circuit arrangement of the personal computer 2 by the side of a child terminal are explained. As shown in drawing 2 , the mainframe 20 of a personal computer of a personal computer 2 CPU21 which controls this mainframe of personal computer 20 whole, and the operation input section 22 explained by drawing 1 , The transceiver section 23 equipped with the modem for transmitting and receiving data by connecting by the host computer 3, the cable, or the radio etc., The display 24 explained by drawing 1 , and the hard disk drive 25 in which various data are stored (HDD), It has the interface section (I / F section) 26 for aiming at connection with external instruments, such as a printer, external storage, a card modem, and other personal computers, and the loudspeaker 27 which outputs vocal sound.
[0053] CPU21 of the mainframe 20 of a personal computer controls the transceiver section 23, the display 24, HDD25, the I / F section 26, and the loudspeaker 27 based on the alter operation by a predetermined control program and the predetermined operation input section 22. Moreover, it connects with the communications department 51 of the interrogator 5 mentioned later, and CPU21 of the mainframe 20 of a personal computer controls each part based on the signal inputted from the communications department 51.
[0054] For example, by the mainframe 20 of a personal computer, where the telephone line 28 and the transceiver section 23 which stand in a row to a host computer 3 are connected with a cable, if the telephone number to the internet which should be connected is inputted by the alter operation by the operation input section 22, the concerned telephone number will be displayed on a display 24 by control of CPU21, and the signal for the line connection to internet will be transmitted to a host computer 3 through the transceiver section 23 and the aforementioned telephone line 28. A host

computer 3 will perform processing which aims at connection with internet, if this signal transmitted from the mainframe 2 of a personal computer is received.
[0055] And by the mainframe 20 of a personal computer, when internet and a circuit are connected, about the data which the image data sent from internet through a host computer 3, the alphabetic data about a mail, etc. are displayed on a display 24 by control of CPU21, and are outputted as vocal sound from a loudspeaker 27 about voice data, among these an user needs, it is stored in HDD25 based on the alter operation by the operation input section 22 (down load).
[0056] The operation input section 22 of the mainframe 20 of a personal computer is operated in case various setup in the case of in addition to this performing the communication with the transponder 4 of the cellular-phone machine 1 through the interrogator 5 mentioned later is performed.
[0057] It connects with CPU21 of the mainframe 20 of a personal computer, and the interrogator 5 of a personal computer 2 has the communications department 51 which performs transmission and reception of the transponder 4 of a portable telephone 1, and data.
[0058] In the interrogator 5 of a personal computer 2, based on the control signal outputted from CPU21 of the mainframe 20 of a personal computer, the acknowledge signal for establishing the connection with the transponder 4 of a portable telephone 1 outputs from the communications department 51, and mentions later about this processing.
[0059] (Transfer of the control to a child terminal from a parent terminal) two or more personal computer 2A whose portable telephones 1 which are a parent terminal in the portable telephone 1 and the personal computer 2 which were considered as such a configuration are child terminals, 2B, and ... by transferring a control as follows 2n, so to speak, each personal computer 2 executes by proxy processing which a portable telephone 1 originally performs, or a portable telephone 1 and each personal computer 2 communicate with a host computer 3 simultaneously
[0060] Hereafter, processing of this control transfer is explained with reference to the flow chart of drawing 3 . in addition, personal computer 2A of the transponder 4 of a portable telephone 1 and a plurality, 2B, and ... it is a flow chart for explaining processing performed between each 2n interrogator 5 and the host computer 3 [drawing 3]
[0061] With the gestalt of this enforcement, first, the transponder 4 of a portable telephone 1 is close brought into predetermined distance to each personal computers [2A-2n] interrogator 5, and the predetermined key switch of the operation input section 12 is pushed. At this time, a connection signal is transmitted from the communications department 41 of a transponder 4 in a portable telephone 1, and each personal computers 2A-2n as a child terminal receive the connection signal from the portable telephone 1 which is a parent terminal (step S1).
[0062] At the following step S2, personal computers 2A-2n transmit an acknowledge signal to a portable telephone 1. this acknowledge signal -- each personal computer 2 -- it considers as the signal which is different every A-2n, respectively, for example, is made to include a child ID information peculiar to the concerned personal computer 2 Here, a host computer 3 is an identifiable information, for example, a child ID information peculiar to the concerned personal computer 2 is an information about the bank account of the information about the part number of a personal computer 2, the information about

the owner of a personal computer 2, and the owner of a personal computer 2 etc. Moreover, when it has the telephone number with the concerned original personal computer 2, you may include the information about the telephone number.
[0063] The portable telephone 1 which received this acknowledge signal from each personal computers 2A-2n is the following step S3, it urges an user to operate the operation input section 12, shifts to step S4, and waits for the input of the operation input section 12 so that the list about each child terminal (personal computers 2A-2n) may be displayed on a display 15 and the child terminal used as the object which transfers a control may be chosen. In addition, this example explains the case where personal computers [each / 2A-2n] all are chosen in the operation input section 12.
[0064] If the input of the operation input section 12 is performed by step S4 and selection of a child terminal is performed, it will shift to step S5 and only a selected number of a child terminal of parts will publish child terminal ID. This child terminal ID is taken as ID which can recognize that the portable telephone 1 whose host computer 3 is a parent terminal publishes, and can discriminate each of two or more child terminals. Suppose that a telephone number information which serves as the telephone number which added the predetermined sign to the telephone number of the portable telephone 1 which is a parent terminal, and is different for every child terminal as a child terminal ID is published with the gestalt of this enforcement.
[0065] To the 2nd set of "090-1234-5678 -01" and child terminals, it is [as opposed to / the 1st set of a child terminal / when the telephone number of a portable telephone 1 is specifically "090-1234 -5678"] "090-1234-5678 -02"... A branch number number is added and assigned.
[0066] In addition, if it is ID which can recognize that the portable telephone 1 whose host computer 3 is a parent terminal publishes as gestalt of enforcement of child terminal ID, and can discriminate each of two or more child terminals, it will not be restricted to this.
[0067] At the following step S6, the telephone number information as a generated child terminal ID is individually transmitted to each child terminal. With the gestalt of this enforcement, the authentication information on the portable telephone 1 which is a parent terminal, and the content information of a control about the content of a control transferred to a child terminal are individually transmitted to each child terminal with a telephone number information by step S6. Here, with the authentication information on a portable telephone 1, it considers as the password information which the user of a portable telephone 1 set up, and the user of a portable telephone 1 considers as the information which can be changed suitably by operation of the operation input section 12.
[0068] In addition, in this example, it shall consider as the control which accesses to the internet which is an information communication network, and downloads predetermined charged data as content of a control transferred to each personal computers 2A-2n, and the content information of a control which shows the purport which transfers this content of a control shall be transmitted to each personal computers [2A-2n] communications department 51 from the communications department 41 of a portable telephone 1. Here, the content information of a control is stored in memory 19, displays the list on the display 15 of a portable telephone 1 in advance of sending, when an user chooses from the list as which the operation input section 12 is operated and it was displayed, reads the information to which CPU11 corresponds from memory 19, and transmits it as a radio

signal from the communications department 41 of a transponder 4.
[0069] Although the same content information of a control is transmitted to each personal computers 2A-2n in this example in order to transfer the same content of a control to each personal computers 2A-2n which are child terminals, the content different for every child terminal of a control may be transferred, and the content information of a control which is mutually different to personal computers 2A-2n in that case will be transmitted. For example, the content information of a control which is different to each personal computers 2A-2n, respectively is transmitted by operation of the operation input section 12 to set up the transmission speed which is mutually different to personal computers 2A-2n. Moreover, the content information different only to personal computer 2A of a control is transmitted by operation of the operation input section 12 to set up only the transmission speed which personal computer 2A uses, for example.
[0070] If the signal including the telephone number information, the authentication information, and the content information of a control from a portable telephone 1 is received at step S7, each personal computers 2A-2n are the following step S8, will add the aforementioned child ID information to each [these] information, and will transmit it to a host computer 3. If each information from each personal computers 2A-2n is received by step S9, a host computer 3 is the following step S10, and the aforementioned authentication section will be step S11 which attests and continues by collating a telephone number information and an authentication information, and it will perform processing which connects each child terminal (personal computers 2A-2n) and internet.
[0071] Here, by the aforementioned transmission-speed allocation section, when the information on a purport that transmission speed is specified to be the content information of a control received from each personal computers 2A-2n is included, a host computer 3 assigns transmission speed to each personal computers 2A-2n so that each personal computers 2A-2n may communicate at the specified concerned speed.
[0072] And after this, a host computer 3 supervises the connection status of each personal computers 2A-2n and internet at the aforementioned transmission-speed Monitoring Department, it supervises it so that the sum of the transmission speed which is communicating with each personal computers 2A-2n may not exceed the transmission speed (for example, 2Mbpses) which a parent terminal has, and when it exceeds, it adjusts.
[0073] Here, as the adjustment technique when the sum of the transmission speed which is communicating with each personal computers 2A-2n exceeds the transmission speed (for example, 2Mbpses) which the portable telephone 1 as a parent terminal has, a host computer 3 is adjusted at the aforementioned transmission-speed Monitoring Department so that it may decrease according to the rate of the transmission speed currently used in each transceiver section 23 of each n personal computers 2A-2n. Moreover, as other adjustment technique, a host computer 3 is adjusted so that the transmission speed about the personal computer 2 with which transmission speed is not specified from a portable telephone 1 in the case of a transfer of the control to each n personal computers 2A-2n (in the case of sending of the content information of a control) may be reduced.
[0074] Furthermore, a host computer 3 performs accounting in the aforementioned accounting section so that the user who has the royalty of the telephone number of a portable telephone 1 may be burdened with the connection charge gold (telephone rate) to the connection with the internet about each personal computers 2A-2n.

[0075] And each personal computers 2A-2n perform the control which downloads predetermined charged data to HDD25 of each mainframe 20 of a personal computer at continuing step S12. By this, the user who has the royalty of the telephone number of a portable telephone 1 will be burdened with the service charge gold (accounting) to a down load of charged data by the accounting section of a host computer 3.
[0076] After processing of a down load is completed, it transmits to the transponder 4 of a portable telephone 1, a series of processing ends the radio signal which included the various informations about a communication result at step S13, and the control transfer to each personal computers 2A-2n ends the personal computers [each / 2A-2n] interrogator 5 from a portable telephone 1. Here, as an information about a communication result, the information about the communication time which is a connect time to internet, a telephone rate, the service charge gold (accounting) to a down load of charged data, the down-load amount of data, etc. is included, for example.
[0077] In addition, the user of a portable telephone 1 is made to perform predetermined operation in the operation input section 12 to end these processings by each personal computers 2A-2n on the way. If the control transfer termination signal of the purport which stops a control transfer from the communications department 41 of a transponder 4 is transmitted by this operation based on a control of CPU11 of a portable telephone 1 and the communications department 51 which are each personal computers 2A-2n receives this Based on a control of CPU21, the command of a connection end is transmitted to a host computer 3 from the transceiver section 23, and the control transfer to each personal computers 2A-2n is completed from a portable telephone 1 by cutting the connection with internet by processing of a host computer 3.
[0078] With the gestalt of this enforcement, it is canceled from the burden which becomes unnecessary to set up the peculiar telephone number to each personal computers 2A-2n by the side of a child terminal, and pays the minimum charge about the royalty of the new telephone number by performing such a control transfer to two or more child terminals from a parent terminal.
[0079] Moreover, about the connection with the host computer 3 and internet, even if it is the case where the telephone number peculiar to each personal computers 2A-2n by the side of a child terminal is set up, since it is carried out nothing with regards to a setup of the concerned telephone number based on the telephone number of the portable telephone 1 by the side of a parent terminal, in advance of connection, it is not necessary to change a setup of the telephone number by the side of each personal computer 2A-2n. Namely, even if who a personal computers [which are child terminals / each / 2A-2n] owner is according to the gestalt of this enforcement Accounting about a telephone rate or service charge gold will be imposed to the user of the portable telephone 1 by the side of a parent terminal. for example, even when each personal computers 2A-2n are installed in the locations (for example, showroom etc.) where many and unspecified men gather It is enabled to carry out accounting of the telex-rate gold which acquisition of a specific service took, the service-provision tariff, etc. pertinently to a personal computers [each / 2A-2n] user (for it to be the user of a portable telephone 1 in this case) etc. irrespective of a personal computers [each / 2A-2n] possession name.
[0080] Moreover, since the data to download are saved at each personal computers [by the side of a child terminal / 2A-2n] HDD25, it is not necessary to enlarge storage capacity of memory 19 in the portable telephone 1 by the side of a parent terminal, and

since it is not necessary to increase the capacity of a non-illustrated power cell, it is enabled to maintain small [of equipment], and lightweight-ization. Furthermore, since the downloaded data are read from HDD25 and displayed by the display 24 of the mainframe 20 of a personal computer, in the portable telephone 1 by the side of a parent terminal, there is no need of enlarging area of the display 15 of the portable telephone mainframe 10, and it is enabled to maintain small [of equipment], and lightweight-ization.

[0081] Further again, since there are few amounts of the data exchanged by the transponder 4 by the side of a parent terminal and the interrogator 5 by the side of a child terminal, it is enabled to constitute the communications departments 41 and 51 in transponder 4 and interrogator 5 both sides using a simple interface.

[0082] In addition, although the gestalt of enforcement mentioned above explained the example for which the transceiver section 23 of the personal computer 2 by the side of a child terminal downloads the data from internet through a cable signal from a host computer 3, when each child terminal downloads data through a radio signal, it is possible to carry out by the same processing.

[0083] Although the gestalt of enforcement mentioned above explained the example which made the configuration of a parent terminal the portable telephone 1 which consists of a transponder 4 and a portable telephone mainframe 10, the configuration by the side of a parent terminal cannot be limited to this, and a transponder 4 can attach it, or it can be applied to the various terminals which can be built in. A transponder 4 attaches or it can apply as a terminal which can be built in suitable for various mobile communication terminals, such as PHS (Personal Handyphone System) or PDA (Personal Digital Assistant). Moreover, with the gestalt of enforcement mentioned above, since a parent terminal side does not need to communicate with a host computer 3, as a configuration of a parent terminal, it is suitably applicable also to a product like the so-called remote controller or an IC card.

[0084] In addition, it is an example when the portable telephone 1 of a parent terminal transfers all of the transmission speed (2Mbps) which oneself has with the gestalt of enforcement mentioned above to the personal computers 2A-2n which are child terminals. In this case, during a communication of the personal computers 2A-2n which are child terminals, since the transmission speed which oneself has is lost, the communication of the portable telephone 1 of a parent terminal to the host computer 3 by the transceiver section 13 and the antenna 14 of a portable telephone 1 becomes impossible.

[0085] The portable telephone 1 is able to transfer a part of transmission speed (2Mbps) (for example, 1Mbps) which oneself has to personal computers 2A-2n. on the other hand, in this case It is enabled to perform the communication to a host computer 3 simultaneously with the portable telephone 1 of a parent terminal, and the personal computers 2A-2n of a child terminal, and is enabled to perform data communication through the host computer 3 of a portable telephone 1 and personal computers [2A-2n] between etc.

[0086] In addition, it is possible to carry out by the same processing as **** in this case to the portable telephone 1 and the personal computers 2A-2n about the accounting by monitoring of the transmission speed by authentication by the aforementioned authentication section of a host computer 3, assignment of the transmission speed by the

aforementioned transmission-speed allocation section, and the aforementioned transmission-speed Monitoring Department and adjustment, and the aforementioned accounting section.

[0087] Although the gestalt of enforcement mentioned above explained the example which used the configuration of a child terminal as the personal computer 2 which consists of an interrogator 5 and a mainframe 20 of a personal computer, the configuration by the side of a child terminal cannot be limited to this, and an interrogator 5 can attach it, or it can be applied to the various electric appliances which can be built in.

[0088] An interrogator 5 attaches. as an example of the various electric appliances which can be built in Not to mention the portable telephone which has the same configuration as the parent terminal 1, television, Radio, a camera, the record regenerative apparatus of a picture image or voice, an air conditioning machine (air-conditioner), Home use, such as a microwave oven and facsimile apparatus, or the electronic equipment for offices, By mentioning the public common device used for many and unspecified persons still like various vending machines, and giving the communication facility to a host computer 3 to these various electric appliances Various services can be received through a host computer 3, without setting up the original telephone number etc.

[0089] The content of the control transferred from a parent terminal to a child terminal is not limited to an above-mentioned example, and when a child terminal is [for example,] a portable telephone, it wears and it can transfer [the control only for arrival of the mail, the control only for dispatch, and] a control of both sides of dispatch etc.

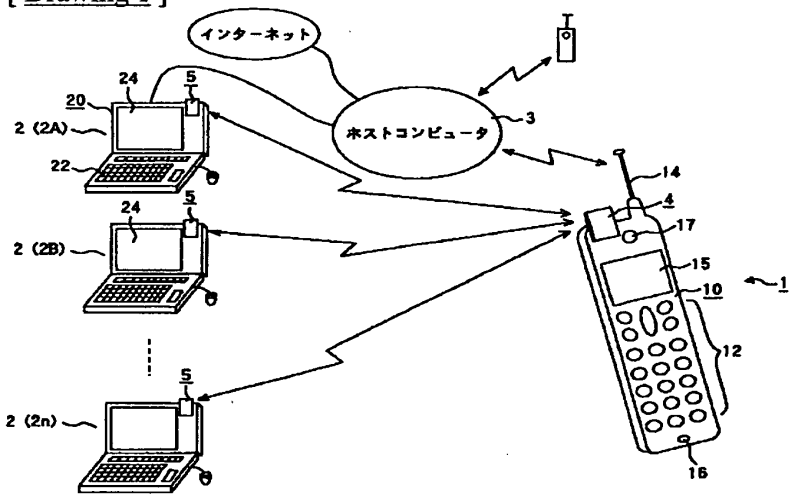
[0090] Moreover, although [the gestalt of above-mentioned enforcement] transmission and reception of the data between a parent terminal and a child terminal are performed through a radio signal, it is not limited to this but, of course, you may carry out through a cable signal.

DESCRIPTION OF DRAWINGS

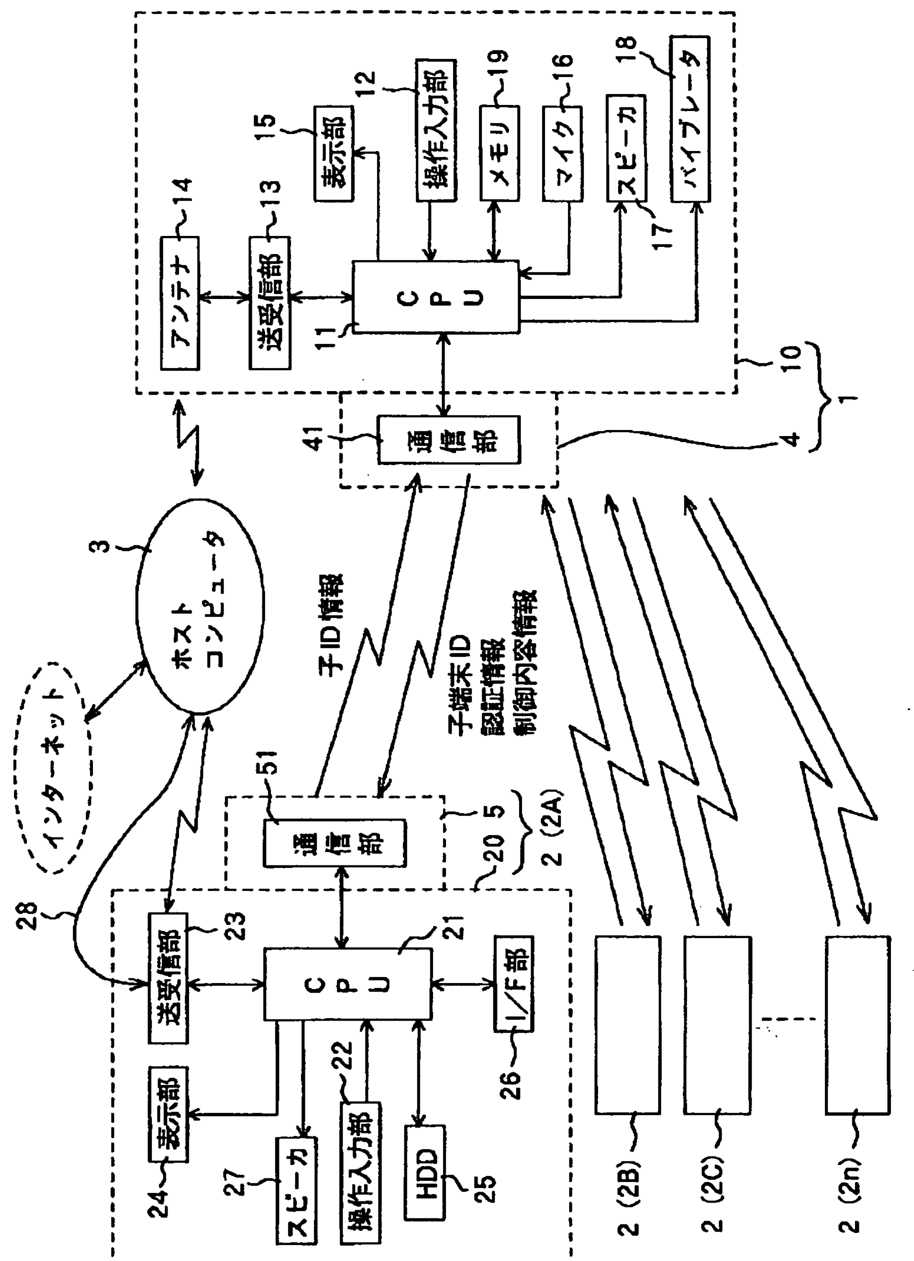
[An easy explanation of a drawing]
[Drawing 1] It is drawing explaining the schema of the gestalt of enforcement of the control transfer system of the telephone line which applied this invention.
[Drawing 2] It is a block diagram for explaining the portable telephone (parent terminal) of drawing 1 , and the circuit arrangement of a personal computer (child terminal).
[Drawing 3] It is a flow chart for explaining processing performed when a parent terminal transfers a control to each child terminal.
[An explanation of a sign]
1 Portable Telephone (Parent Terminal)
2 Personal Computer (Child Terminal)
3 Host Computer
4 Transponder
41 Communications Department (1st Means of Communications)
10 Portable Telephone Mainframe
11 CPU (Control Means)
12 Operation Input Section (Operation Input Means)
13 Transceiver Section (2nd Means of Communications)
14 Antenna
15 Display (Display Means)
16 Microphone
17 Loudspeaker
18 Vibrator
19 Memory
20 Mainframe of Personal Computer
21 CPU (Control Means)
22 Operation Input Section
23 Transceiver Section (2nd Means of Communications)
24 Display
25 HDD
5 Interrogator
51 Communications Department (1st Means of Communications)

DRAWINGS

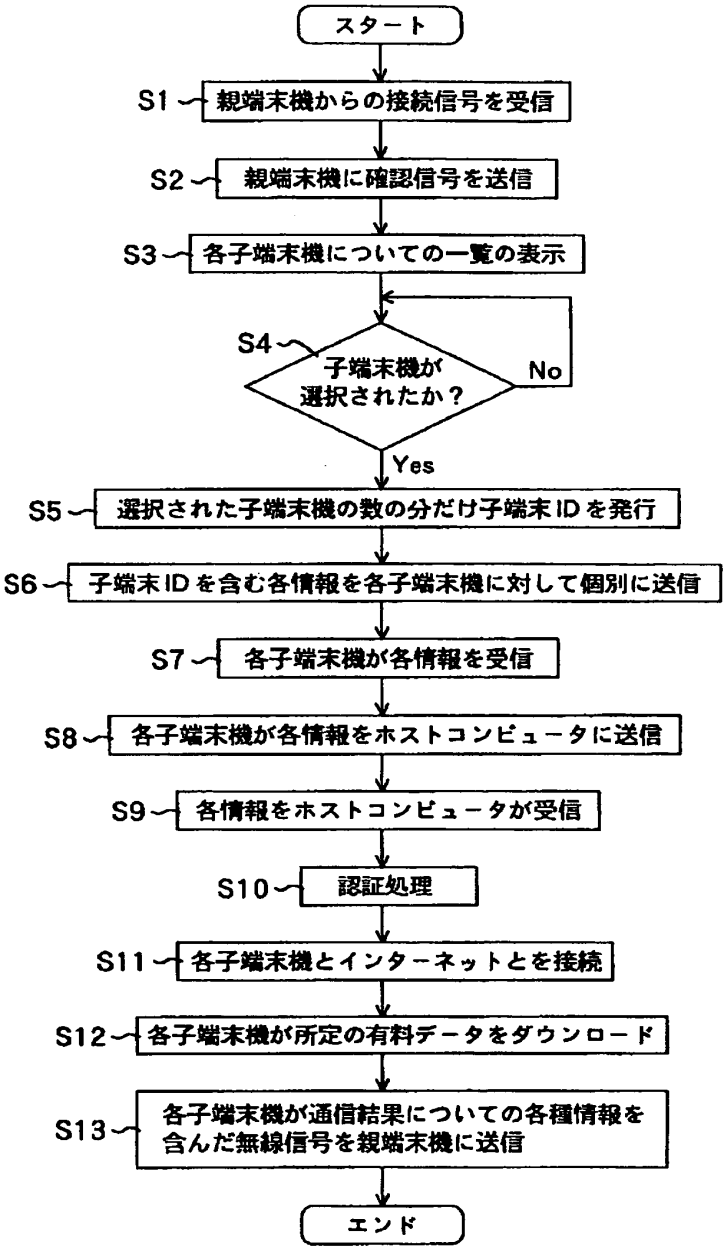
[Drawing 1]



[Drawing 2]


アンテナ
送受信部
CPU
表示部
操作入力部
メモリ
マイク
スピーカ
バイブレータ
通信部
ホスト
コンピュータ
インターネット
子ID情報
子端末ID
認証情報
制御内容情報
HDD
I/F部
2 (2A)
2 (2B)
2 (2C)
2 (2n)

[Drawing 3]


スタート
S1
親端末機からの接続信号を受信
S2
親端末機に確認信号を送信
S3
各子端末機についての一覧の表示
S4
子端末機が
選択されたか？
No
Yes
S5
選択された子端末機の数の分だけ子端末IDを発行
S6
子端末IDを含む各情報を各子端末機に対して個別に送信
S7
各子端末機が各情報を受信
S8
各子端末機が各情報をホストコンピュータに送信
S9
各情報をホストコンピュータが受信
S10
認証処理
S11
各子端末機とインターネットとを接続
S12
各子端末機が所定の有料データをダウンロード
S13
各子端末機が通信結果についての各種情報を
含んだ無線信号を親端末機に送信
エンド

Sector V59 #3

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application		) PATENT APPLICATION
Inventors:	Amit Haller, et al.	)
Appl. No.:	09/850,399	)
Filed:	May 7, 2001	)
Title:	A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	) **Customer No. 28554**

CERTIFICATE OF MAILING UNDER 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited in the United States Postal Service with sufficient postage as first class mail in an envelope addressed to **Box Missing Parts, Commissioner for Patents, Washington, DC 20231**, on August 10, 2001.

Kirk J. DeNiro 8/10/01

Kirk J. DeNiro, Reg. No. 35,854
Signature Date: August 10, 2001

RESPONSE TO NOTICE TO FILE MISSING PARTS

Box Missing Parts
Commissioner for Patents
Washington, DC 20231

Sir:

In response to the Notice to File Missing Parts of Nonprovisional Application, dated July 3, 2001, enclosed are the following documents in connection with the above-identified application:

X Copy of Notice to File Missing Parts of Nonprovisional Application

X Declaration for Patent Application

___ Assignment and Assignment Recordation Form Cover Sheet

X Power of Attorney

Attorney Docket No.: IXIM-01000US0
ixim/1000/1000res-001

Total Fee

The Total Fee associated with this communication has been calculated as shown below:

__	Patent application filing fee		$
__	Net fee for extension of time		$
__	Assignment recording fee ($40.00)		$
X	Surcharge under 37 C.F.R. §1.16(e) for late filing of filing fee or declaration:		
	__ Large Entity	$130.00	$
	X Small Entity	$ 65.00	$65.00
TOTAL FEE DUE:			$65.00

Method of Payment of Fees

X A check in the amount of the TOTAL FEE DUE is enclosed.

X The Commissioner is hereby authorized to charge underpayment of any additional fees associated with this communication or credit any overpayment to Deposit Account No. 501826. A duplicate copy of this authorization is enclosed.

Respectfully submitted,

Date: 8/10/01

By: _____
Kirk J. DeNiro
Reg. No. 35,854

VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 Market Street, Suite 540
San Francisco, California 94105-4206
Telephone (415) 369-9660

UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
09/850,399	05/07/2001	Amit Haller	IXIM-01000US0

CONFIRMATION NO. 2705

28554
VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 MARKET STREET, SUITE 540
SAN FRANCISCO, CA 94105

FORMALITIES LETTER

OC000000006254014

Date Mailed: 07/03/2001

NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

Filing Date Granted

An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

- The oath or declaration is missing.
  A properly signed oath or declaration in compliance with 37 CFR 1.63, identifying the application by the above Application Number and Filing Date, is required.
- To avoid abandonment, a late filing fee or oath or declaration surcharge as set forth in 37 CFR 1.16(e) of $65 for a small entity in compliance with 37 CFR 1.27, must be submitted with the missing items identified in this letter.
- **The balance due by applicant is $ 65.**

A copy of this notice MUST be returned with the reply.

Customer Service Center
Initial Patent Examination Division (703) 308-1202
PART 2 - COPY TO BE RETURNED WITH RESPONSE

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01 FC:205 65.00 OP

#3.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application	)	PATENT APPLICATION
	)	
Inventor(s): Amit Haller, et al.	)	
	)	
SC/Serial No.: 09/850,399	)	
	)	
Filed: May 7, 2001	)	
	)	
Title: A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS	)	**Customer No. 28554**

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name; I believe that I am the original, first and joint inventor of the subject matter which is claimed and for which a patent is sought on the invention entitled:

A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

the specification of which was filed with the above-identified "Filed" date and "SC/Serial No."

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment(s) referred to above. I acknowledge the duty to disclose information which is material to the examination of the application in accordance with Title 37, Code of Federal Regulations, §1.56.

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 §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 issuing thereon.

Attorney Docket No.: IXIM-01000US0
IXIM/1000/1000.DEC.DOC

(1) Full name of sole
or first inventor: Amit Haller

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(1) Post Office Address: P.O. Box 2073
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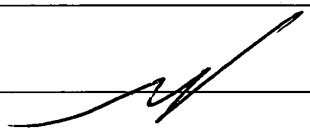
Israel

(1) Citizenship: Israel

(1) Inventor's signature: 

(1) Date: 6-27-01

****

(2) Full name of second
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(2) Citizenship: Sweden

(2) Inventor's signature: 

(2) Date: 6/27/01

****

(3) Full name of third joint inventor: Avraham Itzchak

(3) Residence: Havered 19 Street
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(3) Post Office Address: Same

(3) Citizenship: Israel

(3) Inventor's signature: [signature]

(3) Date: July 3, 2001

****

(4) Full name of fourth joint inventor: Amir Glick

(4) Residence: Tahkemoni 2 Street
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(4) Post Office Address: Same

(4) Citizenship: Israel

(4) Inventor's signature: [signature]

(4) Date: July 9, 2001

****

(5) Full name of fifth joint inventor: Ziv Haparnas

(5) Residence: 3 Bergson Street
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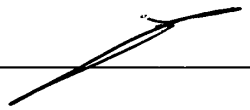
Israel

(5) Post Office Address: Same

(5) Citizenship: Israel

(5) Inventor's signature: 

(5) Date: July 3, 2001

****

Title 37, Code of Federal Regulations, §1.56

SECTION 1.56. DUTY TO DISCLOSE INFORMATION MATERIAL TO PATENTABILITY

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned. Information material to the patentability of a claim that is cancelled or withdrawn from consideration need not be submitted if the information is not material to the patentability of any claim remaining under consideration in the application. There is no duty to submit information which is not material to the patentability of any existing claim. The duty to disclose all information known to be material to patentability is deemed to be satisfied if all information known to be material to patentability of any claim issued in a patent was cited by the Office or submitted to the Office in the manner prescribed by §§1.97(b)-(d) and 1.98.* However, no patent will be granted on an application in connection with which fraud on the Office was practiced or attempted or the duty of disclosure was violated through bad faith or intentional misconduct. The Office encourages applicants to carefully examine:

(1) prior art cited in search reports of a foreign patent office in a counterpart application, and

(2) the closest information over which individuals associated with the filing or prosecution of a patent application believe any pending claim patentably defines, to make sure that any material information contained therein is disclosed to the Office.

(b) Under this section, information is material to patentability when it is not cumulative to information already of record or being made of record in the application, and

(1) It establishes, by itself or in combination with other information, a prima facie case of unpatentability of a claim; or

(2) It refutes, or is inconsistent with, a position the applicant takes in:

(i) Opposing an argument of unpatentability relied on by the Office; or

(ii) Asserting an argument of patentability.

A prima facie case of unpatentability is established when the information compels a conclusion that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability.

(c) Individuals associated with the filing or prosecution of a patent application within the meaning of this section are:

(1) Each inventor named in the application;

(2) Each attorney or agent who prepares or prosecutes the application; and

(3) Every other person who is substantively involved in the preparation or prosecution of the application and who is associated with the inventor, with the assignee or with anyone to whom there is an obligation to assign the application.

(d) Individuals other than the attorney, agent or inventor may comply with this section by disclosing information to the attorney, agent, or inventor.

*** §§1.97(b)-(d) and 1.98 relate to the timing and manner in which information is to be submitted to the Office.**

****

#3.

Please type a plus sign (+) inside this box → [+]

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POWER OF ATTORNEY OR AUTHORIZATION OF AGENT

Application Number	09/850,399
Filing Date	May 7, 2001
First Named Inventor	Amit Haller
Group Art Unit	Unknown
Examiner Name	Unknown
Attorney Docket Number	IXIM-01000 US0

I hereby appoint:

☑ Practitioners at Customer Number 28554 → *Place Customer Number Bar Code Label here*

OR

☐ Practitioner(s) named below:

Name	Registration 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.

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

☐ The above-mentioned Customer Number.

OR

☑ Firm *or* Individual Name	Kirk J. DeNiro				
Address	Vierra Magen Marcus Harmon & DeNiro LLP				
Address	685 Market Street, Suite 540				
City	San Francisco	State	California	Zip	94105
Country	United States of America				
Telephone	(415) 369-9660	Fax	(415) 369-9665		

I am the:

☑ Applicant/Inventor.

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed. (Form PTO/SB/96).

SIGNATURE of Applicant or Assignee of Record

Name	Amit Haller
Signature	
Date	June 27, 2001

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 _____ forms are submitted.

Burden Hour Statement: This form is estimated to take 3 minutes to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

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UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
09/850,399	05/07/2001	Amit Haller	IXIM-01000US0

CONFIRMATION NO. 2705

28554
VIERRA MAGEN MARCUS HARMON & DENIRO LLP
685 MARKET STREET, SUITE 540
SAN FRANCISCO, CA 94105

FORMALITIES LETTER

OC000000006254014

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NOTICE TO FILE MISSING PARTS OF NONPROVISIONAL APPLICATION

FILED UNDER 37 CFR 1.53(b)

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An application number and filing date have been accorded to this application. The item(s) indicated below, however, are missing. Applicant is given **TWO MONTHS** from the date of this Notice within which to file all required items and pay any fees required below to avoid abandonment. Extensions of time may be obtained by filing a petition accompanied by the extension fee under the provisions of 37 CFR 1.136(a).

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09/850,599 U.S. PTO 05/07/01 JC986

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	IXIM-01000US0
First Inventor	Amit Haller
Title	A System, Device and Computer Readable
Express Mail Label No.	EL 798 533 779 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. ☑ Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. ☑ Applicant claims small entity status. See 37 CFR 1 27.
3. ☑ Specification [Total Pages 39] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. ☑ Drawing(s) *(35 U.S.C. 113)* [Total Sheets 9]
5. Oath or Declaration [Total Pages]
   a. ☐ Newly executed (original or copy)
   b. ☐ Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed)*
   i ☐ DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1 63(d)(2) and 1 33(b)
6. ☐ Application Data Sheet. See 37 CFR 1.76

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7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. ☐ Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. ☐ CD-ROM or CD-R (2 copies); or
      ii. ☐ paper
   c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement *(when there is an assignee)* ☐ Power of Attorney
11. ☐ English Translation Document *(if applicable)*
12. ☐ Information Disclosure Statement (IDS)/PTO-1449 ☐ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☑ Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. ☐ Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. ☐ Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
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☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No. _____/_____

Prior application information Examiner _____ Group Art Unit _____

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19. CORRESPONDENCE ADDRESS

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Signature		Date	May 7, 2001

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FEE TRANSMITTAL for FY 2001

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TOTAL AMOUNT OF PAYMENT ($) 768.00

Complete if Known	
Application Number	Unknown
Filing Date	Herewith
First Named Inventor	Amit Haller
Examiner Name	
Group Art Unit	
Attorney Docket No.	IXIM-01000US0

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1. ☑ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:
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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	$355.00
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 355.00

2. EXTRA CLAIM FEES

		Extra Claims		Fee from below	Fee Paid
Total Claims	57	-20** = 37	X	$9	=$333
Independent Claims	5	- 3** = 2	X	$40	=$80
Multiple Dependent					=

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 413.00

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FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1 129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	

Other fee (specify) _____

*Reduced by Basic Filing Fee Paid **SUBTOTAL (3)** ($) 0.00

SUBMITTED BY				Complete *(if applicable)*	
Name *(Print/Type)*	Kirk J. DeNiro, Esq.	Registration No *(Attorney/Agent)*	35,854	Telephone	(415) 369-9660
Signature		5/7/01		Date	May 7, 2001

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A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

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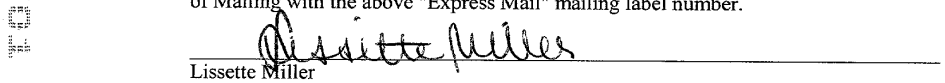

Lissette Miller
Signature Date: May 7, 2001

PREPARED BY
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CUSTOMER ID: 000028554

A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

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Field of the Invention

This invention relates generally to wireless devices in a wireless network using short-range radio signals.

Background of the Invention

A user has numerous wireless devices for accessing and processing information. For example, a user may have a cellular telephone for communicating with others, a personal digital assistant ("PDA") for storing contact information, a laptop computer for storing and processing files, a digital camera for obtaining images and a pager for being contacted. Each one of these devices also may access remote information on a private or public network, such as the Internet. However, this system suffers from several disadvantages.

First, typically only a single device originates and can access the Internet at a time.

Second, Internet protocol ("IP") addresses are held while connected to the Internet. This can be expensive and use scarce IP address resources.

Third, each device requires its own security management, such as a Virtual Private Network ("VPN") and firewall software component.

Fourth, there is no ability to share, add to or manage the services of the numerous wireless devices. In particular, there is no communication between wireless devices. If a user obtains a wireless device having an additional service, such as extra persistence storage, other wireless devices typically are not capable of using the extra persistence storage.

Bluetooth™ technology (www.bluetooth.com) provides wireless communications between devices. Yet, Bluetooth™ technology also suffers from many disadvantages. Bluetooth™ technology does not allow for a "plug and play" capability at a wireless device application level. In other words, a wireless device cannot merely be turned on and Bluetooth™ technology recognizes it and establishes a communication protocol. If a user desires a wireless device to communicate with a Bluetooth™ technology device, the added wireless device must have software drivers and applications loaded to operate. Otherwise, the Bluetooth™ technology device is not able to communicate with the newly added wireless device. This makes it difficult to add new functionality or types of wireless devices. Bluetooth™ technology does not provide an open environment for software programmers to provide application software components for wireless devices. Further, Bluetooth™ technology does not allow devices to share information and resources at an application level.

Therefore, it is desirable to provide a system of wireless devices which can effectively communicate with each other and access information on the Internet. The system of wireless devices should efficiently use IP resources and security management. The wireless devices should effectively share and manage services and allow for seamless plug and play capability. The system should allow for new functionality and types of wireless devices.

SUMMARY OF THE INVENTION

A system, coupled to a cellular network, provides access to the Internet according to an embodiment of the present invention. The system comprises a wireless gateway device, coupled to the cellular network, having a network manager software component for accessing information from the Internet responsive to a first short-range radio signal. A first wireless device is coupled to the wireless gateway device. The first wireless device provides the first short-range radio signal.

According to an embodiment of the present invention, the first wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a printer, a pager, a watch, digital camera and an equivalent thereof.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Global System for Mobile communications ("GSM") protocol.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol.

According to an embodiment of the present invention, the first wireless device is a thin terminal.

According to an embodiment of the present invention, the first wireless device includes a Bluetooth™ processor having a 2.4 GHZ transmitter.

According to an embodiment of the present invention, the wireless gateway device includes a Bluetooth™ processor having a 2.4 GHZ transmitter.

According to an embodiment of the present invention, the network manager software component includes a plug and play software component for loading and executing software for the first wireless device.

According to an embodiment of the present invention, the network manager software component includes a PIN number management software component for obtaining and supplying PIN numbers.

According to embodiment of the present invention, the network manager software component includes a service repository software component for obtaining and providing an availability of a service from the first wireless device.

According to an embodiment of the present invention, the first wireless device includes an application software component for providing a service. The network manager software component includes a management software component for accessing the service.

According to an embodiment of the present invention, the system further comprises a second wireless device coupled to the wireless gateway device. The second wireless device provides a short-range signal. The first wireless device communicates with the second wireless device through the wireless gateway device.

According to an embodiment of the present invention, the system further comprises a second wireless device coupled to the wireless gateway device. The wireless gateway device provides access to the Internet for the first and second wireless devices.

According to an embodiment of the present invention, the network manager software component operates with an operating system software component.

According to an embodiment of the present invention, the operating system component is a Linux, EPOC or a PocketPC operating system.

According to an embodiment of the present invention, the wireless gateway device includes 1) an application software component for providing a service, and 2) an application server software component coupled to the network management software component.

According to an embodiment of the present invention, the wireless gateway device further includes a firewall software component.

According to an embodiment of the present invention, the wireless gateway device includes a VPN software component.

According to an embodiment of the present invention, a hand-held device for providing a personal area network is provided. The hand-held device comprises a storage device coupled to a processor. The storage device stores a software component for controlling the processor. The processor operates with the component to provide a short-range radio Internet protocol communication between the first hand-held wireless device and a second hand-held wireless device.

According to an embodiment of the present invention, a Bluetooth™ transmitter is coupled to the processor.

According to an embodiment of the present invention, a GSM transmitter is coupled to the processor.

According to an embodiment of the present invention, a wireless hand-held device accesses a router in a personal network. The wireless hand-held device comprises a storage device coupled to a processor. The storage device stores a software component for controlling the processor. The processor operates with the component to provide a first short-range radio signal to the router for accessing the

Internet and a second short-range radio signal to the router for accessing another wireless hand-held device.

According to an embodiment of the present invention, an article of manufacture, including a computer readable medium is provided. The article of manufacture comprises an application software component for providing a service. An application server software component provides the application software component. The article of manufacture also includes an Internet protocol network manager software component and an operating system software component. Also, a short-range radio software component for providing a short-range radio signal and a cellular software component for providing a communications signal to a cellular network is included with the article of manufacture.

Other aspects and advantages of the present invention can be seen upon review of the figures, the detailed description, and the claims that follow.

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 illustrates a system according to an embodiment of the present invention.

Fig. 2 illustrates thin terminals and a wireless gateway device according to an embodiment of the present invention.

Figs. 3a-b are hardware block diagrams of a wireless gateway device and wireless handheld device according to an embodiment of the present invention.

Figs. 4 and 5a-b are software block diagrams for a wireless gateway device according to an embodiment of the present invention.

Fig. 6 illustrates network management software interfaces according to an embodiment of the present invention.

Fig. 7 illustrates network management software components according to an embodiment of the present invention.

Figs. 8a-b illustrate multiple wireless devices coupled to a wireless gateway device according to an embodiment of the present invention.

DETAILED DESCRIPTION

I. System Overview

The following description and claims relate to a system that accesses information from a wide area network ("WAN"), such as the Internet, and local wireless devices in response to short-range radio signals. The network may also be an IP based public or private network, such as a corporate secured network using VPN.

Fig. 1 illustrates system 100 according to an embodiment of the present invention. System 100 includes terminals 107 coupled to wireless gateway device 106. In an embodiment of the present invention, gateway device 106 and one or more terminals 107 communicate to form a personal area network ("PAN"). In an embodiment of the present invention, terminals 107 are coupled to gateway device 106 by short-range radio signals 110. In an embodiment of the present invention, terminals 107 are a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, thin terminal, digital camera or an equivalent thereof. In an embodiment of the present invention, terminals 107 include a Bluetooth™ 2.4 GHz transmitter/receiver. Likewise, gateway device 106 includes a Bluetooth™ 2.4 GHZ transmitter/receiver. In an alternate embodiment of the

present invention, a Bluetooth™ 5.7 GHZ transmitter/receiver is used. Gateway device 106 and terminals 107 hardware are illustrated in Figs 3a-b.

In alternate embodiments of the present invention, other local wireless technologies such as 802.11 or HomeRF signals are used to communicate between gateway device 106 and terminals 107

In an embodiment of the present invention, gateway device 106 is coupled to cellular network 105 by cellular signals 111 using a protocol, such as a Global and System for Mobile communications ("GSM ") protocol. In alternate embodiments, a Code Division Multiple Access ("CDMA"), CDMA 2000 or Time Division Multiple Access ("TDMA"), or General Packet Radio Service ("GPRS") protocol is used.

In an alternate embodiment of the present invention, gateway device 106 is coupled to a landline network by an Ethernet, Digital Subscriber Line ("DSL"), or cable modem connection, singly or in combination.

In an embodiment of the present invention, gateway device 106 is a cellular telephone.

Cellular network 105 is coupled to a wireless carrier internal network or carrier backbone 104. In an embodiment of the present invention, server 102 is coupled to carrier backbone 104. In an alternate embodiment of the present invention, carrier backbone 104 is coupled to Internet 103. Server 101 is coupled to Internet 103. In an embodiment of the present invention, server 101 and 102 provides information, such as web pages or application software components to terminals 107 by way of gateway device 106. In an embodiment of the present invention, terminals 107 share services and communicate by way of gateway device 106.

II. Gateway/Handheld Device Hardware

Fig. 2 illustrates terminals 107. In an embodiment of the present invention, there are two types of terminals: 1) Smart terminals and 2) Thin terminals. Smart terminals have a relatively powerful central processor, operating system and applications. Their main needs from a PAN are access to a WAN through TCP/IP and other network services such as storage and execution. For example, a computer notebook and PDA are smart terminals. Thin terminals have a relatively low power central processor and operating system. They are mainly used as peripherals to an Application server in a PAN and their main task is user interaction, rendering output for a user and providing an Application server with a user's input. For example, a watch or a messaging terminal are thin terminals.

Fig 2 illustrates thin terminals. Voice terminal 204 includes a display 204b and a retractable keypad 204a. Messaging Terminal 203 is illustrated in a closed position with a hinge 203a used to open and close terminal 203. Terminal 203 also includes a miniature QWERTY keyboard and display when opened. Gateway device 201 includes clip 202 for a belt

In an embodiment, PMG device 201 is also illustrated in Fig. 2

Fig. 3a illustrates a hardware block diagram of gateway device 106 in an embodiment of the present invention. Gateway device 106 includes both internal and removable memory. In particular, gateway device 106 includes internal FLASH (or Electrically Erasable Programmable Read-Only Memory ("EEPROM") and static Random Access Memory ("SRAM") memory 302 and 303, respectively. Removable FLASH memory 304 is also used in an embodiment of the present invention. Memories 302, 303, and 304 are coupled to bus 305. In an embodiment of the present invention, bus 305 is an address and data bus. Application processor 301 is

likewise coupled to bus 305. In an embodiment of the present invention, processor 301 is a 32 bit processor.

Bluetooth™ processor 307 is also coupled to bus 305. Bluetooth™ RF circuit 309 is coupled to Bluetooth™ processor 307 and antenna 313. Processor 307, RF circuit 309 and antenna 313 transmit and receive short-range radio signals to and from terminals 107 illustrated in Fig. 1, or device 350 illustrated in Fig. 3b.

Cellular, such as GSM, signals are transmitted and received using digital circuit 306, analog circuit 308, transmitter 310, receiver 311 and antenna 312. Digital circuit 306 is coupled to bus 305. In alternate embodiments, gateway device 106 includes a display, a speaker, a microphone, a keypad and a touchscreen, singly or in combination thereof.

Fig. 3b illustrates device 350 that is a hand-held device in an embodiment of the present invention. Device 350, in an embodiment of the present invention, is one of the terminals 107 illustrated in Fig. 1. Similar to gateway device 106, device 350 includes SRAM and FLASH memory 351 and 352, respectively. Memories 351 and 352 are coupled to bus 357. In an embodiment of the present invention, bus 357 is an address and data bus. Keypad 353 is also coupled to bus 357. Short-range radio signals are transmitted and received using Bluetooth™ processor 354 and Bluetooth™ RF circuit 355. Antenna 356 is coupled to Bluetooth™ RF circuit 355. In an embodiment of the present invention, antenna 356 transmits and receives short-range radio signals from gateway device 300. In alternate embodiments, device 350 includes a display, a speaker, a microphone, a keypad and a touchscreen, singly or in combination thereof.

III. Gateway Software

Fig. 4 illustrates a software architecture 400 for gateway device 106 illustrated in Fig. 3a according to an embodiment of the present invention. Gateway software 400 is stored in FLASH 302. In an embodiment of the present invention, software components referenced in Figs. 4-7 represent a software program, a software object, a software function, a software subroutine, a software method, a software instance, a code fragment, singly or in combination. In an alternate embodiment, functions performed by software components illustrated in Figs. 4-7 are carried out completely or partially by hardware.

In an embodiment of the present invention, gateway software 400, or components of gateway software 400, is stored in an article of manufacture, such as a computer readable medium. For example, gateway software 400 is stored in a magnetic hard disk, an optical disk, a floppy disk, CD-ROM (Compact Disk Read-Only Memory), RAM (Random Access Memory), ROM (Read-Only Memory), or other readable or writeable data storage technologies, singly or in combination. In yet another embodiment, gateway software 400, or components thereof, is downloaded from server 101 illustrated in Fig. 1.

Gateway software 400 includes telecommunication software or physical layer protocol stacks, in particular cellular communications software 401 and short-range radio communications software 402. In an embodiment, communication software 401 is a GPRS baseband software component used with processor 306 to transmit and receive cellular signals. In an embodiment, communication software 402 is a Bluetooth™ baseband software component used with processor 307 to transmit and receive short-range radio signals.

In an embodiment of the present invention, operating system 403 is used to communicate with telecommunications software 401 and 402. In an embodiment of the present invention, operating system 403 is a Linux operating system, EPOC operating system available from Symbian software of London, United Kingdom or a PocketPC or a Stinger operating system available from Microsoft of Redmond, Washington. Operating system 403 manages hardware and enables execution space for gateway device software components.

Network Management software 404 is used to provide a number of functions according to embodiments of the present invention: 1) routing, 2) device plug and play, 3) PIN number management, 4) network device management, and 5) service repository. In an embodiment of the present invention, network management software 404 is programmed in C++ software language.

Smart phone application software 405 communicates with operating system 403 and is used in a cellular telephone embodiment of the present invention.

1st and 2nd software application components 406 communicate with management software 404 and provide additional services to a user. For example, application components 406 may include: 1) a stock quote application for providing stock quotes, 2) a personal information manager application including calendars, to do lists, emails, or contacts, 3) a synchronization software application for synchronizing databases, 4) a telephony application for providing telephone services, or 5) a location application for providing a current location of a gateway device.

Furthermore, Graphics User Interface ("GUI") 407 is provided to allow a user-friendly interface.

Fig. 5a illustrates detailed gateway software architecture 500. In an embodiment of the present invention, network management software 404 illustrated in Fig. 4 includes three software components as illustrated in Fig. 5a: 1) PAN router 404c; 2) PAN server 404b; and 3) Application server 404a. GPRS baseband 503 and Bluetooth™ baseband 502 are software components used to generate communication signals to a cellular network 105 and terminals 107 as illustrated in Fig. 1. In an alternate embodiment, other baseband software components 501 are used to generate communication signals. Media abstraction layer 504 allows operating system 403 to communicate with basebands 503, 502, 501, respectively. Media abstraction layer 504 and other abstraction layers, described herein, translate a particular communication protocol, such as GPRS, into a standard command set used by a gateway device and/or terminal. The purpose of an abstraction layer is to isolate the physical stacks from the rest of the gateway device software components. This enables future usage of different physical stacks without changing any of the upper layer software and allows the gateway device software to work with any communication protocol.

PAN router 404c establishes a PAN network, implementing communication primitives, IP networking, IP services and similar tasks.

PAN server 404b is responsible for implementing PAN oriented services such as plug and play, terminal enumeration, application loading, storage space and other services. In an embodiment, PAN server 404b communicates directly with applications 406 using application drivers.

PAN application server 404a is responsible for implementing user and terminal oriented services and enables thin terminals. In an embodiment of the present invention, PAN application server 404a implements such applications as a

GUI 407, a remote terminal driver application, a location application, a telephony application or an equivalent thereof.

Fig. 5a, like Fig. 4, illustrates 1st and 2nd software component applications 406 and GUI 407.

A. PAN Router

PAN router 404c enables a fully meshed IP based network. In an embodiment of the present invention, each terminal can leverage the existing IP protocol, exchange data with other terminals and gain access to a WAN through PAN router 404c.

Fig. 5b illustrates software components of PAN router 404c. In an embodiment of the present invention, routing component 550, Bluetooth LAN access Profile component 551, Dynamic Host Configuration Protocol/Point-to-Point Protocol ("DHCP/PPP") component 552 and Network Address Translator ("NAT") component 553 are used in PAN router 404c. In an alternate embodiment, Domain Naming Service ("DNS") component 554, Tunneling and Optimization component 555 and Security component 556, singly or in combination are used in PAN router 404c.

1. Routing component

Routing component 550 is implemented in Router 404c in order to realize a fully meshed IP network with access to a WAN. A routing component is responsible for imitating a fully meshed network based on a Master/Slave network.

Routing component 550 enables exchange of IP packets between two terminals, broadcasting of IP packets between all terminals on a PAN and routing of IP packets to and from a WAN.

2. Bluetooth™ LAN Access Profile ("LAP") component

A Bluetooth™ LAN Access Profile ("LAP") component 551 is used in order to enable terminals to seamlessly use IP base networking. LAP component 551 enables terminals to exchange IP packets between themselves and PAN router 404c. LAP component 551 is implemented over a PPP serial Bluetooth™ connection. In an embodiment of the present invention, terminals, such as Smart terminals, include LAP chipsets.

3. DHCP/PPP component

DHCP and PPP components 552 are used in order to enable an IP network. PPP realizes an IP network layered over LAP component 551.

DHCP component manages a PAN's IP address space and IP services, enabling terminals to get IP networking properties, such as an IP address for a terminal, an address of a DNS and an address of a default gateway device.

4. NAT component

NAT component 553 translates a private IP address to and from a real IP address. Since mobile networks are typically capable of only providing a single IP address, the terminals will have to use private IP addresses supplied by NAT component 553.

5. DNS component

DNS component 554 translates services between human readable names and IP addresses. DNS component 554 enables a terminal to query another

terminal's address based on the other terminal's name and to query for the IP address of a named service on a WAN.

6. Tunneling and Optimization component

Tunneling and Optimization component 555 allows terminals to use standard protocols. For example, accessing a WAN through a cellular GPRS/CDMA network using TCP/IP yields poor results because TCP/IP does not behave well over a bandwidth limited, high latency and high packet loss network, such as GPRS/CDMA.

Tunneling and Optimization component 555 is used to enable practical usage of IP in such networks. When using cellular, the tunnel will be between a mobile device having a PAN router and a landline operator's network. The tunneling and optimization network translates IP packets to more efficient transport methods for the specific access technology, and vice versa in a fully transparent fashion.

7. Security component

Accessing a WAN can typically be done in two ways: unsecured when accessing a public network, such as the Internet, or secured when accessing a private network, such as a Enterprise network, file system or Exchange server.

Security component 556 is a centralized managed way for controlling access to a secured private WAN. In order to avoid each one of the terminals from implementing its own security scheme and methods, a centralized security component 556 is used. In an embodiment of the present invention, security component 556 is a firewall 556a, VPN 556b or URL filter 556c, singly or in combination.

8. Usage Scenario

In this scenario, a user is a traveling professional, who has a PDA and needs to synchronize the PDA against a corporate Exchange server while on the road. This synchronization needs to be done securely as the only way to enter the corporate network is via a certified and an information technology ("IT") manager approved VPN.

The user has a gateway device enabled handset with an embedded PAN router 404c and VPN client, which the IT manager installed.

As the user turns on the PDA, which is a Bluetooth™ equipped PDA with a LAP component 551, the PDA connects to a gateway device handset via the LAP. The PDA receives a local PAN IP address.

The user loads the PDA synchronization software, which is configured to synchronize against the corporate Exchange server. When hitting the "Synchronize" button, the PDA opens a TCP connection to the IP address of the corporate network.

The IP packets travel across the Bluetooth™ air interface to the handset using a PPP protocol. At the handset, the packets go through a NAT component and a local IP address is translated to a real Internet IP address. The real IP address goes to the VPN, which identifies the destination as the corporate LAN. The VPN packages the packet over its Internet tunnel, encrypts and signs it. The packet is then sent through the cellular air interface to the operator and the Internet, reaching the corporate VPN and Exchange servers. The PDA is totally unaware of this process.

B. PAN server

PAN server 404b allows code to be downloaded to a PAN and executed in a central way. Similarly, PAN server 404b shares and stores data in a centralized manner.

1. PAN server interfaces

Fig. 6 illustrates software interfaces for PAN server 404b shown in Fig. 5a. PAN server 404b provides application program interfaces ("API") to applications 406. Applications 406 also queries PAN server 404b for specific services and/or terminal attributes in a PAN. Applications 406 provide at least three types of information to PAN server 404b. Applications 406 provide a Personal Identification Number ("PIN") number, network configuration information, service registration and un-registration information. PAN server 404a provides services and devices enumeration information to applications 406. In an embodiment of the present invention, a PIN number is an authorization code to enable a terminal to connect to a PAN.

PAN server 404b uses media abstraction layer 504 in order to communicate with terminals 107. PAN server 404b transfers services and devices enumerations to PAN router 404c; while, a terminal ID number is provided to PAN server 404b from PAN router 404c. A terminal ID is a unique code for identifying a particular terminal. Finally, a PIN number is transferred from PAN server 404b to PAN router 404c.

In an embodiment of the present invention, PAN server 404b loads an executable application software component to a selected terminal. Application server 404a retrieves the application software component locally from gateway device 106 memory or from either server 102 or 103 as illustrated in Fig. 1.

Backend middleware 485 provides a PIN number to router 404c. In an embodiment of the present invention, backend middleware 485 is stored on a server coupled to cellular network 105 shown in Fig. 1. In an embodiment of the present invention, backend middleware 485 is a software component for supplying PIN numbers and accessing application components for a particular terminal.

2. PAN server components

Fig. 7 illustrates software components of PAN server 404a according to an embodiment of the present invention: 1) plug and play software component 701,2) PIN number management software component 702, 3) management software component 703, 4) service repository software component 704, and 5) application loader 705. In alternate embodiments, more or less components are used.

a. Plug and Play Component

When a new terminal is introduced to a PAN, the software to support this terminal needs to be located, downloaded and executed. The Plug and Play component is responsible for identifying the introduction of the new terminal and decide on the software needed to be downloaded.

An example of the Plug and Play usage is when a new thin terminal, like a messaging terminal, is introduced to a PAN. The terminal itself, being thin, has no embedded application code or data. The appropriate software package (messaging software in this case) needs to be found, downloaded and executed. The Plug and Play component will identify the messaging terminal and resolve the needed software to support it.

Fig. 7 illustrates the operation of Plug & Play component 701. In response to a terminal ID from PAN router 404c, Plug and Play component 701 will access the software package for a selected terminal from backend middleware 485 or locally from gateway device 106 memory. If the selected package is not locally available in gateway device 106 memory, a URL is provided from backend middleware 485 for accessing the package remotely. In an embodiment of the present invention, the selected package will install and run on different modules (typically but not necessarily a shell, service/terminal drivers and applications that can run on the terminal.)

b. Application Loader Component

Adding new capabilities to a PAN involves the loading of executable code to a PAN execution environment. Application loading can be a result of many events, plug and play component 701 can generate an application loading for supporting a new terminal on a PAN, a user can decide to actively load an application to a PAN or an operator on a cellular network can decide to load an application to a PAN. Application loader 705 is responsible for application software code transfer and execution.

c. PIN Number Management Component

Whenever gateway device 106 and a terminal become aware of each other, a pairing process takes place between them. For example, gateway device 801 and terminal 802 are paired as illustrated in Fig. 8a. When this pairing takes place for a first time (or when the link key that they were sharing has been lost in one or both sides for any reason), a claimant side (for example, gateway device 801) must know

a PIN number of terminal 802 in order to carry out a successful pairing. PAN server 404b will supply PIN number information to PAN router 404c for that purpose. A PIN number is used to generate an initialization key that is used as an encryption key for the exchange of initial parameters between a gateway device and terminals. In an embodiment of the present invention, PAN server 404b must be able to supply PIN number information according to different criteria. For example, PAN server 404b supplies PIN numbers for only those terminals that are associated with a certain terminal class or ID number.

PAN server 404b will supply a PIN number upon an explicit request of another component, such as PAN router 404c. In an alternate embodiment, Application server 404b will supply PIN number information for terminals in order for them to establish a Bluetooth™ channel with other terminals without a gateway device 107 as a mediator.

In an embodiment of the present invention, PIN numbers are available from backend middleware 485. In alternate embodiments of the present invention, applications 406 provide a PIN number. For example, an application may allow a user to enter a PIN number or an application may cause backend middleware 485 to generate a PIN number. In an embodiment of the present invention, an application that supplies a PIN number states its origin.

There are two methods for obtaining PIN numbers. First, a push method occurs when the source of the PIN number transfers the PIN number when it becomes available. Second, a query method occurs when router 404c queries the source of the PIN number for a PIN number according to a certain criteria. A push method is preferred because it enables an immediate response to a request for a PIN number. However, if the PIN number is not available when a request arrives at

the source of the PIN number, PAN server 404b attempts to obtain the PIN number using the query method. When the push method is used, the stimulus comes from the PIN number information source.

PIN number management software component 702 maintains a local database of PIN numbers with some attributes. An attribute may include a terminal class or terminal ID. PIN number management software component 702 adds, deletes and retrieves PIN numbers from the database. PIN number software component 702 also may retrieve all PIN numbers associated with a screen terminal class. In an embodiment, PIN number management software component 702 will have a persistent database. In an alternate embodiment, PIN number management software component 702 will not have a persistent database.

In alternate embodiments of the present invention, PIN number management 702 is a central storage location for PAN databases and/or caching. The storage component supports implementation of a file system that can be accessed by a terminal. Also, a storage component may have automatic backup to a backend server or transparent storage.

d. Network Management Component

Management software component 703 provides functions to configure a PAN.

First, management software component 703 provides a disconnect service function that forces specific applications to disconnect from a specific service.

Second, management software component 703 provides a disconnect terminal function that forces specific applications to disconnect from all services of a specific terminal.

Third, management software component 703 provides a disable service function that halts any usage of a specific terminal's service.

Fourth, management software component 703 provides a disable terminal function that halts any usage of all services of a specific terminal.

The disconnecting functions described above, allow a high priority application to obtain a service from an application using the service. The disabling functions allow for high priority applications to create personal area network restrictions.

Service repository software component 704 is used to cease offering services. PIN Number management 702 is used to delete a PIN number and abstraction layer I/O is used to halt service's data traffic.

e. Enumeration or Service Repository Component

Service repository software component 704 allows applications 406, which run on a gateway device 106 or terminals 107, to discover what services are offered by a PAN, and to determine the characteristics of the available services. The service could be offered by remote terminal, such as an application in terminal 806 illustrated in Fig. 8b. For example, terminal 806 could be a printer having a printing service. Also, the service could be offered by an application stored on gateway device 106, such as the application in gateway device 801 illustrated in Fig. 8a. For example, gateway device 801 is a cellular telephone having a telephony service provided by a cellular telephone application. Remote services are offered with the assistance of service logical drivers (SLDs) that are stored on gateway device 106. Whenever an application is interested in using a terminal service, the terminal interoperates with the corresponding gateway device SLD. For example, an application on terminal 809, shown in Fig. 8b, accesses a driver in gateway device 805 for a service

provided by an application on terminal 806. Therefore, from an application's point of view, the SLD of the remote service acts the same way as a local application.

Service repository software component 704 offers a plurality of functions.

First, service repository software component 704 provides service registration of a service offered by application, or a hardware capability offered by terminal driver.

Second, service repository software component 704 provides service un-registration that cancels a registered service.

Third, service repository software component 704 provides registered services that suit a specific class.

Fourth, service repository software component 704 also provides searching of services. This function describes whether listed terminals support listed services. This function enables an application to quickly locate a specific service. A search of a general class of service, such as a search for a printer may be performed. Likewise, a search for specific attributes associated with that service, for example laser or color, is provided. Further, a search for specific instance of a service, for example a HP LaserJet model GTI, is also provided.

Fifth, service repository software component 704 provides the capability of describing the participating terminals in a personal area network. The existence of these terminals is derived from a service registration function.

Sixth, service repository software component 704 provides a disabling function that ceases offering an unfriendly service.

Seventh, service repository software component 704 also provides an enabling function that cancels service disabling.

Eighth, service repository software component 704 provides a terminal disabling function that ceases offering all the services associated with an unfriendly terminal.

Ninth, service repository software component 704 provides a terminal enabling function that cancels terminal disabling.

In an embodiment, an application does not have to discover a service in order to connect with a terminal. If an application has previous knowledge of a terminal's service, the application needs to only search for the specific terminal.

In an embodiment of present invention, service repository component 704 describes the terminals and the services that are available at a particular time, but service repository software component 704 does not describe the current status of the services. A service might be available in a PAN but not necessarily accessible since another application is exclusively using the service.

Since service repository software component 704 operates with local and remote applications, a uniform interface is used. In an embodiment of the present invention, remote applications use a Bluetooth™ Service Discovery Protocol ("SDP") to discover what services gateway device 106 offers. Similarly, local applications use SDP in an embodiment of the present invention.

C. Application Server

Application Server component 404a illustrated in Fig. 5a allows for removing redundant capabilities from terminals and consolidate them in a centralized application server. This allows significant added value in minimizing the cost and complexity of the terminals in a PAN, as well as making their design intuitive and easy to use.

In an embodiment of the present invention, application server component 404a includes two components: 1) an execution environment and 2) services for being able to successfully execute software on a multi-terminal PAN, such as a file system.

Thin terminals, being optimized for low cost will not include an IP capability in most cases. Instead, they will use the native protocols offered by the PAN's physical layer. This does not conflict with the PAN router 404c since thin terminals are an extended remote I/O for applications running on a PAN application server 404a. All the logic, protocols and standard compatibility is implemented in the application server, in which standard protocols like IP are implemented and used.

1. Usage Scenario

In an embodiment of the present invention, a thin messaging terminal includes a color Liquid Crystal Display ("LCD"), QWERTY keypad, Bluetooth™ chipset and a small software stack for displaying graphical screens received over the Bluetooth™ air interface and transmit keypad actions back over the Bluetooth™ air interface.

When a terminal is turned on for the first time, a Plug and Play component 701 in the gateway device 106 identifies that this is a new terminal. Gateway device 106 communicates with Plug and Play component 701 in order to retrieve the needed software package to be executed on an application server 404a. In an embodiment of the present invention, a Plug and Play component 701 contains a URL for a chatting application package.

Application loader 705 gets the URL and loads the new package to PAN application server 404a in a gateway device 106 and executes the chatting software application. The chatting application software identifies the messaging device by

enumerating a PAN for terminals and capabilities, and attaches itself to the right remote graphical driver and the remote keypad driver.

Now, all user interactions for the chatting application is displayed on the messaging terminal, and the keypad entries on the terminal are sent to the chatting application.

In this embodiment of the present invention, the terminal is used only for I/0 and user interaction. The actual chatting logic is executed in application server 404a, which is located in gateway device 106.

IV. Gateway Device/ Terminal operations

A. Terminal Joins Personal Area Network

First, PAN router 404c requests a PIN number from PIN number management component 702. Second, if a PIN number is available, PIN number management 702 transfers the PIN number to PAN router 404c. Otherwise, PIN number management 702 attempts to obtain the PIN number from other sources, such as applications 406 or backend middleware 485, and transfers the PIN number to PAN router 404c. Third, PAN router 404c notifies plug and play 701 that a pairing has ended and delivers a terminal ID to plug and play 701. Fourth, plug and play 701 resolves the terminal package URL with backend middleware 485 if a package is not locally available; otherwise, the package is loaded and executed. Finally, if the package contains drivers, the driver's services are offered to service repository 704.

B. Pin Number Received

Backend middleware 485 or an application acquires a PIN number. Second, the acquired PIN number is offered to PIN number management 702 by either

backend middleware 485 or applications 406. In an alternate embodiment of the present invention, a PIN number is offered with additional characteristics of the associated terminal. PIN number information is then accepted and stored with the attributes in a database of PIN number management 702.

C. Gateway Device Application Queries for a Specific Service

There are two methods for a gateway device 106 application to inquire for a specific service. The first terminal method includes the application asking service repository 704 to describe the terminals in the current personal area network and to describe whether any of these terminals provide the requested service. In an embodiment of the present invention, an application sorts the available terminals in order of preference. The application then queries abstraction layer I/O whether the most preferred terminal's service is available.

The second service method includes an application querying service repository 704 to provide the registered services that suite a requested service class. The application then searches the registered services to determine which capabilities are provided by the registered services. In an embodiment of the present invention, an application sorts the available services in order of preference. The application then queries abstract layer I/O whether the most preferred service is available.

D. Terminal Application Queries for a Gateway Device Service

Media abstraction layer 504 obtains a SDP of a remote terminal application. Media abstraction layer 504 passes the SDP call to service repository 704. Service repository 704 answers media abstraction layer 504, using SDP, according to

services that are registered. The abstraction layer 504 then sends the answers to an application on remote terminal.

In an alternate embodiment, service repository 704 pushes new services to a Bluetooth™ stack SDP database. The Bluetooth™ stack replies automatically and generates a SDP request.

E. High Priority Application Prevents Terminal Usage

In response to a network configuration signal from a high priority application in applications 406, management component 703 generates a delete PIN number signal to PIN number management component 702 which deletes the PIN number associated with the selected terminal. Management component 703 generates a disable signal to service repository component 704 to cease offering all the services associated with the selected terminal. Management component 703 generates a disable service signal to abstraction layer I/O in order to halt all the transport to and from the selected terminal's services.

Abstraction layer I/O sends halt notifications to the applications that are currently using the selected terminal's services. Abstraction layer I/O then stops any data transport to and from the selected terminal's services.

V. Conclusion

The foregoing description of the preferred embodiments of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obviously, many modifications and variations will be apparent to practitioners skilled in the art. The embodiments were chosen and described in order to best explain the

principles of the invention and its practical applications, thereby enabling others skilled in the art to understand the invention for various embodiments and with the various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims and their equivalents.

What is claimed is:

1) A system, coupled to a cellular network, for providing access to the internet, comprising:
   (a) a wireless gateway device, coupled to the cellular network, having a network manager software component for accessing information from the internet responsive to a first short-range radio signal; and,
   (b) a first wireless device, coupled the wireless gateway device, for providing the first short-range radio signal.

2) The system of Claim 1, wherein the first wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof.

3) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Global System for Mobile Communications ("GSM") protocol.

4) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol.

5) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a CDMA 2000 protocol.

6) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol.

7) The system of Claim 1, wherein the first wireless device is a thin terminal.

8) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

9) The system of Claim 1, wherein the wireless gateway device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

10) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

11) The system of Claim 1, wherein the wireless gateway device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

12) The system of Claim 1, wherein the network manager software component includes a plug and play software component for loading and executing software for the first wireless terminal.

13) The system of Claim 1, wherein the network manager software component includes a PIN number management software component for obtaining and providing PIN numbers.

14) The system of Claim 1, wherein the network manager software component includes a service repository software component for obtaining an availability of a service from the first wireless terminal.

15) The system of Claim 1, wherein the first wireless device includes an application software component for providing a service; and, wherein the network manager software component includes a management software component for accessing the service.

16) The system of Claim 1, further comprising:
(c) a second wireless device, coupled to the wireless gateway device, for providing a second short-range signal, wherein the first wireless device communicates with the second wireless device through the wireless gateway device.

17) The system of Claim 1, further comprising:

(c) a second wireless device, coupled to the wireless gateway device, for providing a second short-range signal, wherein the wireless gateway device, provides access to the Internet for the first and second wireless device.

18) The system of Claim 1, wherein the network software component operates with an operating system software component.

19) The system of Claim 18, wherein the operating system software component is a Linux operating system.

20) The system of Claim 18, wherein the operating system software component is a EPOC operating system.

21) The system of Claim 18, wherein the operating system software component is a PocketPC operating system.

22) The system of Claim 18, wherein the operating system software component is a Stinger operating system.

23) The system of Claim 1, wherein the wireless gateway device further includes 1) an application software component for providing a service and 2) a server software component, coupled to the network management software component.

24) The system of Claim 1, wherein the wireless gateway device further includes a firewall software component.

25) The system of Claim 1, wherein the wireless gateway device further includes a virtual private network ("VPN") software component.

26) A system for providing access to information on a network, comprising:

(a) a wireless gateway device, coupled to the network, having a network manager software component for accessing the information from the network responsive to a first signal; and,

(b) a first wireless device, coupled the wireless gateway device, for providing the first signal.

27) The system of claim 26, wherein the network is a corporate network.

28) The system of claim 26, wherein the network is a private IP network.

29) The system of claim 26, wherein the first signal is a 802.11 signal.

30) The system of claim 26, wherein the first signal is a HomeRF signal.

31) The system of claim 26, wherein the wireless gateway device is coupled to the network by an Ethernet connection.

32) The system of claim 26, wherein the wireless gateway device is coupled to the network by a DSL connection.

33) The system of claim 26, wherein the wireless gateway device is coupled to the network by a cable modem.

34) The system of claim 26, wherein the wireless gateway device is coupled to the network by a cellular network and a landline network.

35) The system of claim 26, wherein the first wireless device provides execution space for executable software from the wireless gateway device.

36) A handheld device for providing a personal network, comprising:

(a) a storage device;

(b) a processor, coupled to the storage device; and,

(c) the storage device storing a software component for controlling the processor; and, the processor operative with the component to:

(d) provide a short-range radio Internet protocol communication between a first handheld wireless device and a second handheld wireless device.

37) The device of Claim 36, further comprising:

(e) a Bluetooth™ transmitter, coupled to the processor.

38) The device of Claim 36, further comprising:

(e) a GSM transmitter, coupled to the processor.

39) The device of Claim 36, the software component includes a network software component.

40) The device of Claim 36, wherein the network software component includes a plug and play software component.

41) The device of Claim 36, wherein the network software component includes a PIN number management software component.

42) The device of Claim 36, wherein the network software component includes a service repository software component.

43) The device of Claim 36, wherein the network software component includes a management software component.

44) A wireless handheld device for accessing a router in a personal area network, comprising:

(a) a storage device;

(b) a processor, coupled to the storage device; and,

(c) the storage device storing a software component for controlling the processor; and, the processor operative with the component to:

provide a first short-range radio signal to the router for accessing the internet and a second short-range radio signal to the router for accessing another wireless handheld device.

45) The wireless handheld device of Claim 44, wherein the first wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal a digital camera and an equivalent thereof.

46) The wireless handheld device of Claim 44, wherein the first wireless handheld device is a thin terminal.

47) The wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 2.4 GHZ transmitter.

48) The wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 5.7 GHZ transmitter.

49) The wireless handheld device of Claim 44, wherein the software component includes an application software component for providing a service in the personal area network.

50) An article of manufacture, including a computer readable medium, comprising:

(a) an application software component for providing a service;

(b) an application server software component for providing the application software component;

(c) an Internet protocol network manager software component;

(d) an operating system software component;

(e) a short-range radio software component for providing a short-range radio signal; and,

(e) a cellular software component for providing a communication signal to a cellular network.

51) The article of manufacture of Claim 50, wherein the operating system software component is a Linux operating system.

52) The article of manufacture of Claim 50, wherein the operating system software component is a EPOC operating system.

53) The article of manufacture of Claim 50, wherein the operating system software component is a PocketPC operating system.

54) The article of manufacture of Claim 50, wherein the operating system software component is a Stinger operating system.

55) The article of manufacture of Claim 50, wherein the article of manufacture is a memory storage device in a cellular telephone.

56) The article of manufacture of Claim 50, wherein the short-range radio software component is a Bluetooth™ component.

57) The article of manufacture of Claim 50, wherein the cellular software component is a GSM component.

ABSTRACT

A system, a wireless hand-held device, and software component for accessing information responsive to short-range radio signals is provided. The system includes a wireless gateway device coupled to a network, such as a cellular network. The wireless gateway device includes a network manager software component for accessing information from the network responsive to a first short-range radio signal. The network may be a corporate, private or public network, such as the Internet. A first wireless device is coupled to the wireless gateway device. The first wireless device provides the first short-range radio signal. In an embodiment of the present invention, the first wireless device is a cellular telephone, personal digital assistant or thin terminal having a Bluetooth™ processor and transmitter. In an embodiment of the present invention, the network manager software component includes a plug and play software component for loading and executing software for the first wireless device. In an embodiment of the present invention, a second wireless device accesses information on the first wireless device using the wireless gateway device.

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al.
Docket: IXIM-01000US0
Appl. No.: Unknown
Atty: Kirk J. DeNiro
Filing Date: Herewith
Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

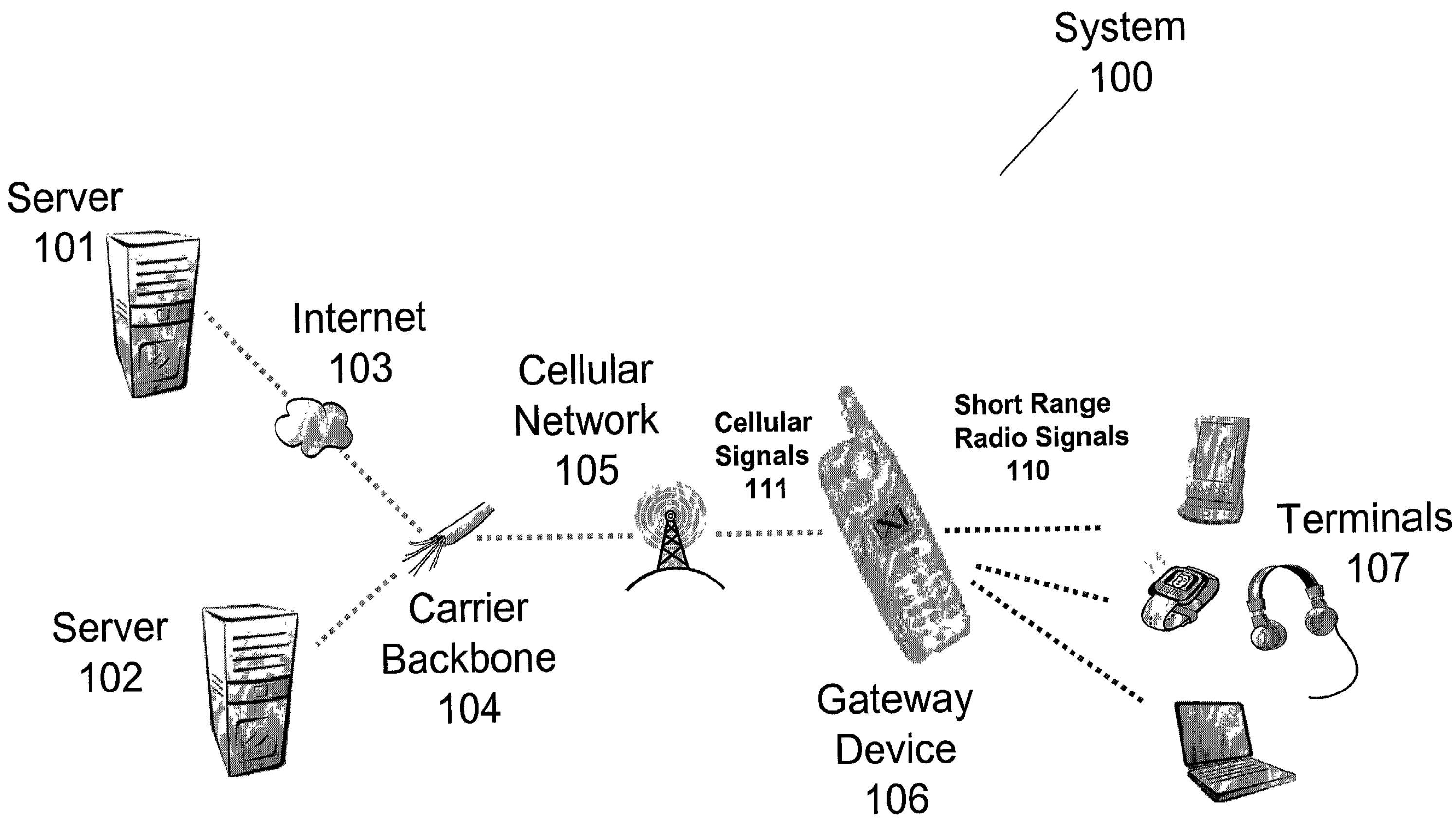

Fig. 1

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al.
Appl. No.: Unknown
Filing Date: Herewith
Express Mail No.: EL 798 533 779 US
Docket: IXIM-01000US0
Atty: Kirk J. DeNiro
Phone: (415) 369-9660

Fig. 2

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.. EL 798 533 779 US

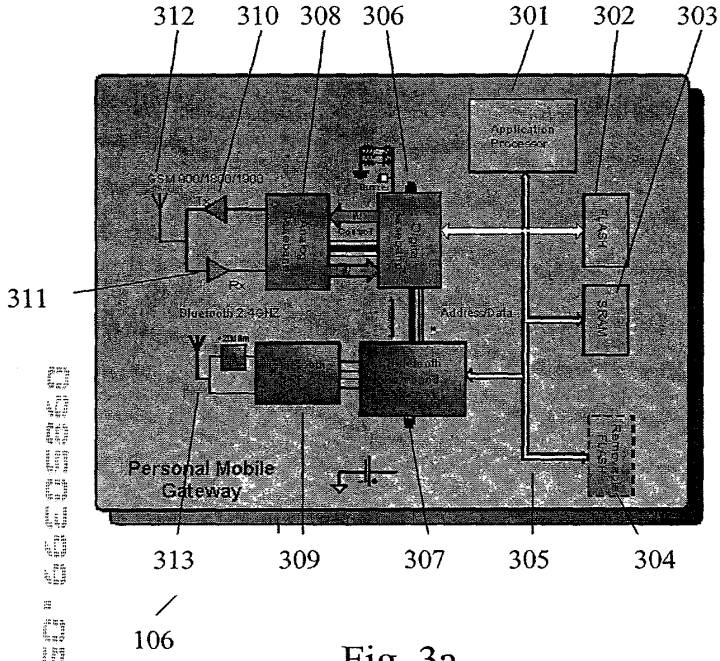

Fig. 3a

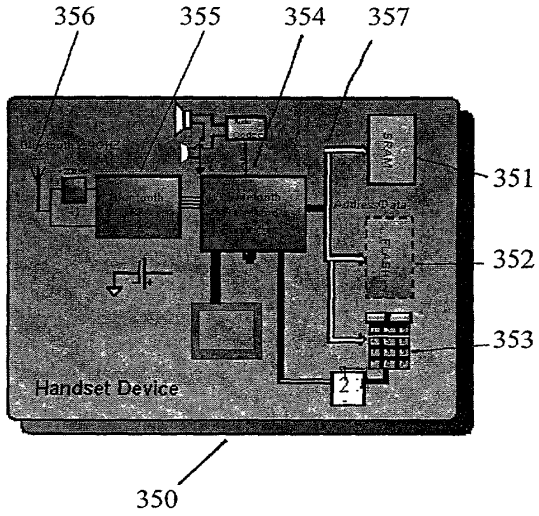

Fig. 3b

400
407
405
403
402
406
GUI
Smart Phone Application
OS (i.e EPOC, Linux)
Bluetooth™ Baseband
2nd App
Network Management Software
1st App
GPRS Baseband
404
401

Fig. 4

748

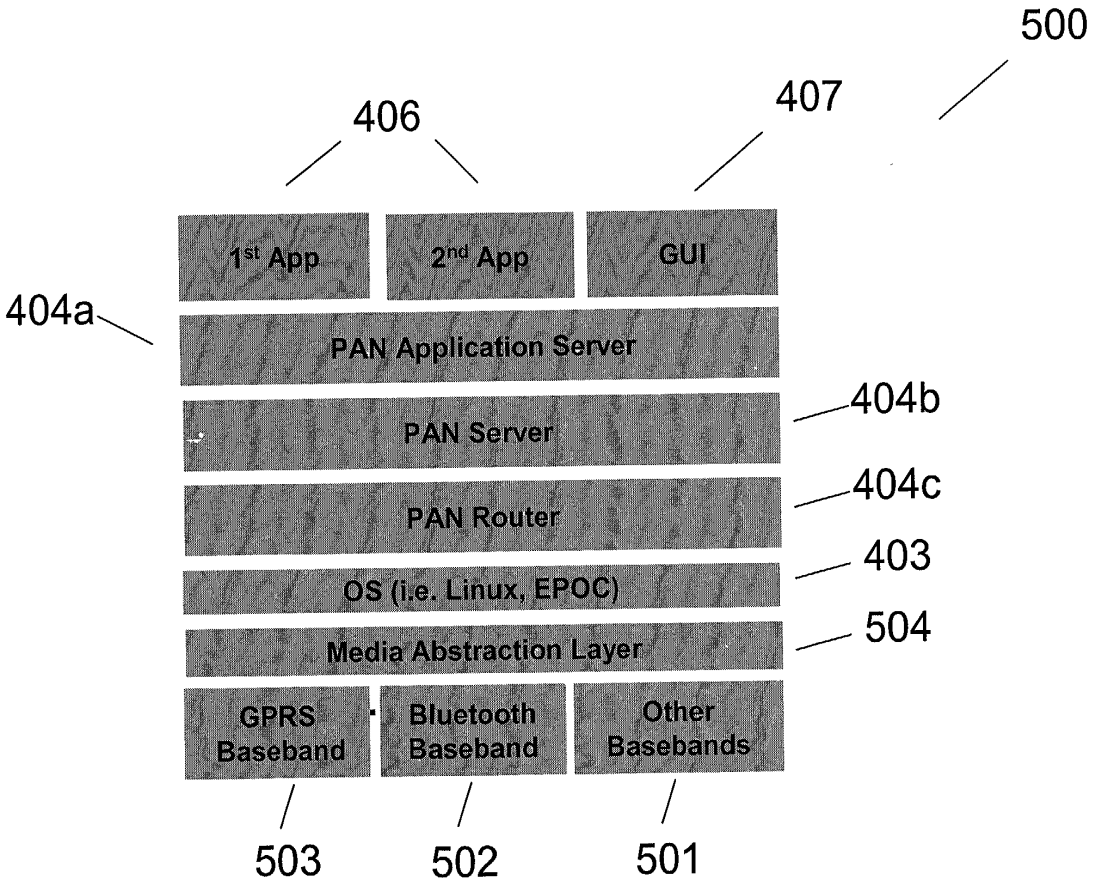

Fig. 5a

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al.
Appl. No.: Unknown
Filing Date: Herewith
Express Mail No : EL 798 533 779 US
Docket: IXIM-01000US0
Atty: Kirk J. DeNiro
Phone: (415) 369-9660

Fig. 5b

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No · Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.. EL 798 533 779 US

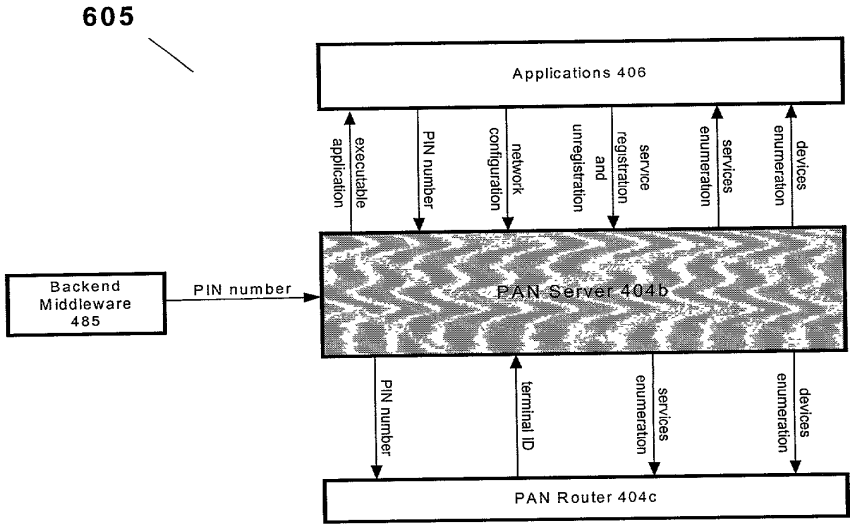

Fig. 6

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

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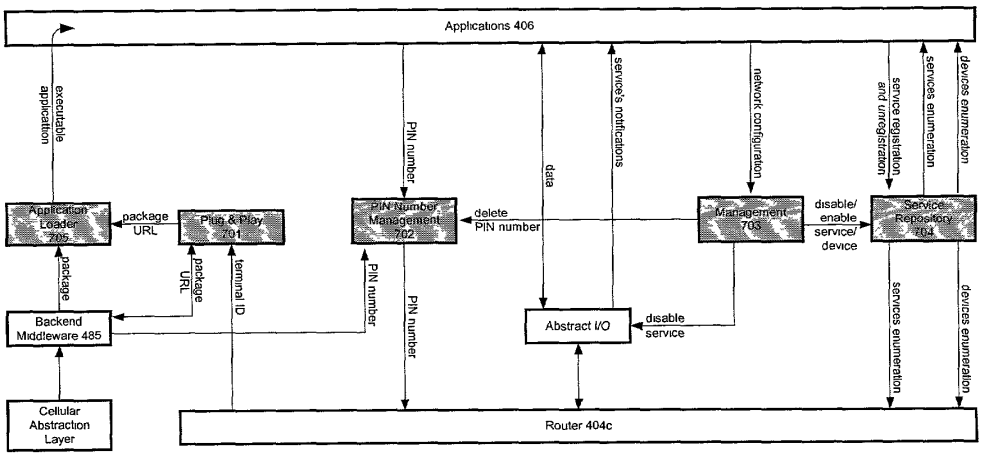

Fig. 7

Title. A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

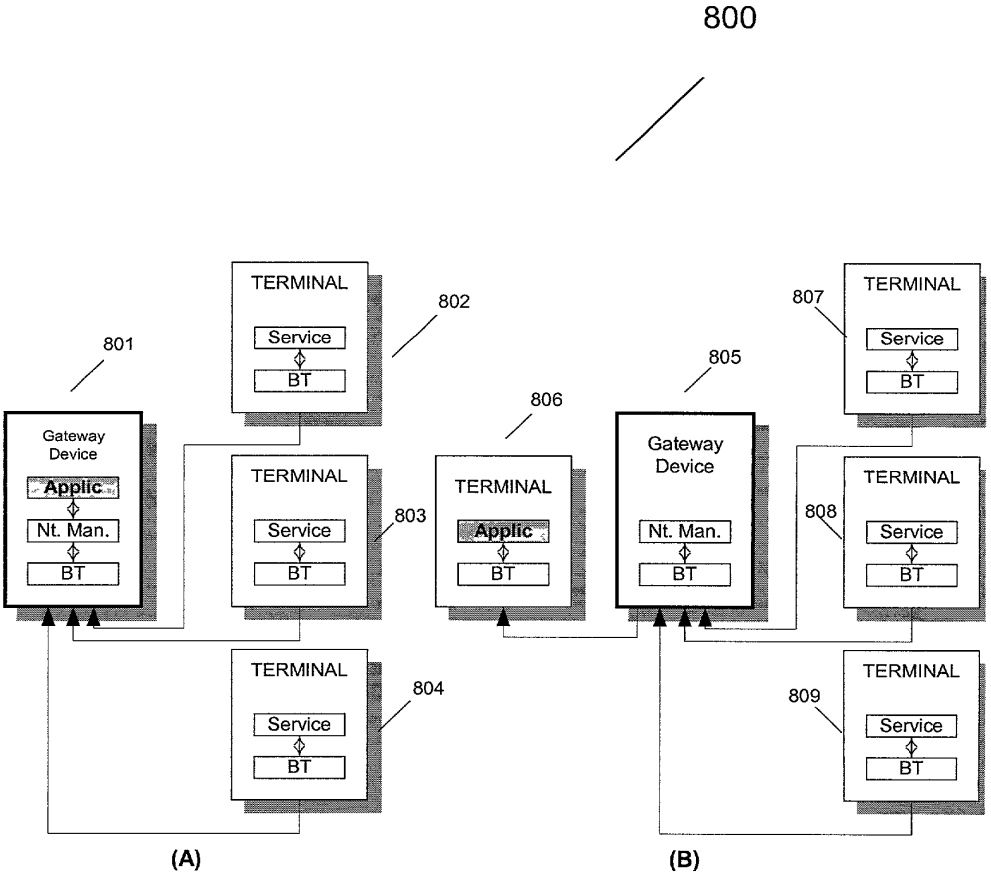

Fig. 8

JC986 U.S. PTO
09/850399
05/07/01

Subclass	ISSUE CLASSIFICATION
Class	

PATENT NUMBER

U.S. **UTILITY** Patent Application

O.I.P.E.	PATENT DATE
SCANNED QZ IK3 Q.A. VM	

APPLICATION NO.	CONT/PRIOR	CLASS	SUBCLASS	ART UNIT	EXAMINER
09/850399		370	335	2661	

APPLICANTS

TITLE

PTO-2040
12/99

ISSUING CLASSIFICATION

ORIGINAL		CROSS REFERENCE(S)	
CLASS	SUBCLASS	CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)
INTERNATIONAL CLASSIFICATION			
			☐ Continued on Issue Slip Inside File Jacket

☐ TERMINAL DISCLAIMER	DRAWINGS			CLAIMS ALLOWED	
	Sheets Drwg.	Figs. Drwg.	Print Fig.	Total Claims	Print Claim for O.G.
☐ The term of this patent subsequent to _____ (date) has been disclaimed.				NOTICE OF ALLOWANCE MAILED	
☐ The term of this patent shall not extend beyond the expiration date of U.S Patent. No. _____				ISSUE FEE	
				Amount Due	Date Paid
☐ The terminal ____months of this patent have been disclaimed.				ISSUE BATCH NUMBER	

(Assistant Examiner) (Date)

(Primary Examiner) (Date)

(Legal Instruments Examiner) (Date)

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SEARCHED

Class	Sub.	Date	Exmr.
370	259	3/27/03	FD
	260		
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455	403	3/28/03	FD
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709	203		
	208		
~~UPDATED~~	~~SEARCHES~~	11/25/03	FD
~~UPDATED~~	~~SEARCHES~~	6/25/04	FD

INTERFERENCE SEARCHED

Class	Sub.	Date	Exmr.

SEARCH NOTES
(INCLUDING SEARCH STRATEGY)

	Date	Exmr.
IEEE/Internet search	3/27/03	FD

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ISSUE SLIP STAPLE AREA (for additional cross references)

POSITION	INITIALS	ID NO.	DATE
FEE DETERMINATION			
O.I.P.E. CLASSIFIER		15	5-29-01
FORMALITY REVIEW	S-A	1082	07/02/01
RESPONSE FORMALITY REVIEW	M	905	9/24/01

INDEX OF CLAIMS

✓	.... Rejected	N	.... Non-elected
=	.... Allowed	I	.... Interference
—	(Through numeral)... Canceled	A	.... Appeal
÷	.... Restricted	O	.... Objected

Claim Final	Claim Original	Date 1	Date 2	Date 3
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If more than 150 claims or 10 actions
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10/24/01

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05/07/01 JC867 U.S. PTO

09/850399 JC986 05/07/01

PTO/SB/05 (11-00)
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UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	IXIM-01000US0
First Inventor	Amit Haller
Title	A System, Device and Computer Readable
Express Mail Label No.	EL 798 533 779 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

1. [✔] Fee Transmittal Form (e.g., PTO/SB/17) *(Submit an original and a duplicate for fee processing)*
2. [✔] Applicant claims small entity status. See 37 CFR 1.27.
3. [✔] Specification [*Total Pages* 39] *(preferred arrangement set forth below)*
   - Descriptive title of the invention
   - Cross Reference to Related Applications
   - Statement Regarding Fed sponsored R & D
   - Reference to sequence listing, a table, or a computer program listing appendix
   - Background of the Invention
   - Brief Summary of the Invention
   - Brief Description of the Drawings *(if filed)*
   - Detailed Description
   - Claim(s)
   - Abstract of the Disclosure
4. [✔] Drawing(s) *(35 U.S.C. 113)* [*Total Sheets* 9]
5. Oath or Declaration [*Total Pages*]
   a. [ ] Newly executed (original or copy)
   b. [ ] Copy from a prior application (37 CFR 1.63 (d)) *(for continuation/divisional with Box 18 completed)*
      i. [ ] DELETION OF INVENTOR(S) Signed statement attached deleting inventor(s) named in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. [ ] Application Data Sheet. See 37 CFR 1.76
7. [ ] CD-ROM or CD-R in duplicate, large table or Computer Program *(Appendix)*
8. Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all necessary)*
   a. [ ] Computer Readable Form (CRF)
   b. Specification Sequence Listing on:
      i. [ ] CD-ROM or CD-R (2 copies); or
      ii. [ ] paper
   c. [ ] Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. [ ] Assignment Papers (cover sheet & document(s))
10. [ ] 37 CFR 3.73(b) Statement *(when there is an assignee)* [ ] Power of Attorney
11. [ ] English Translation Document *(if applicable)*
12. [ ] Information Disclosure Statement (IDS)/PTO-1449 [ ] Copies of IDS Citations
13. [ ] Preliminary Amendment
14. [✔] Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
15. [ ] Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
16. [ ] Request and Certification under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. [ ] Other: ....

18. If a CONTINUING APPLICATION, *check appropriate box, and supply the requisite information below and in a preliminary amendment, or in an Application Data Sheet under 37 CFR 1.76:*

[ ] Continuation [ ] Divisional [ ] Continuation-in-part (CIP) of prior application No.: ______/______

Prior application information: Examiner ______ Group Art Unit: ______

For CONTINUATION OR DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

[✔] *Customer Number or Bar Code Label* 28554 *(Insert Customer No. or Attach bar code label here)* or [ ] *Correspondence address below*

Name	Kirk J. DeNiro, Esq.				
Address	Vierra Magen Marcus Harmon & DeNiro, LLP 685 Market Street, Suite 540				
City	San Francisco	*State*	California	*Zip Code*	94105-4206
Country	U.S.A.	*Telephone*	(415) 369-9660	*Fax*	(415) 369-9665

Name (Print/Type)	Kirk J. DeNiro, Esq.	*Registration No. (Attorney/Agent)*	35,854
Signature	[signature] 5/7/01	*Date*	May 7, 2001

PTO/SB/17 (11-00)
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FEE TRANSMITTAL for FY 2001

Patent fees are subject to annual revision.

TOTAL AMOUNT OF PAYMENT	($) 768.00

Complete if Known	
Application Number	Unknown
Filing Date	Herewith
First Named Inventor	Amit Haller
Examiner Name	
Group Art Unit	
Attorney Docket No.	IXIM-01000US0

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1. ☑ The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:

Deposit Account Number: 501826

Deposit Account Name: Vierra Magen Marcus Harmon & DeNiro LLP

☑ Charge Any Additional Fee Required Under 37 CFR 1.16 and 1.17

☑ Applicant claims small entity status. See 37 CFR 1.27

2. ☑ **Payment Enclosed:**

☑ Check ☐ Credit card ☐ Money Order ☐ Other

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
101	710	201	355	Utility filing fee	$355.00
106	320	206	160	Design filing fee	
107	490	207	245	Plant filing fee	
108	710	208	355	Reissue filing fee	
114	150	214	75	Provisional filing fee	

SUBTOTAL (1) ($) 355.00

2. EXTRA CLAIM FEES

			Extra Claims		Fee from below	=	Fee Paid
Total Claims	57	-20** =	37	X	$9	=	$333
Independent Claims	5	- 3** =	2	X	$40	=	$80
Multiple Dependent						=	

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description
103	18	203	9	Claims in excess of 20
102	80	202	40	Independent claims in excess of 3
104	270	204	135	Multiple dependent claim, if not paid
109	80	209	40	** Reissue independent claims over original patent
110	18	210	9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) ($) 413.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code	Large Entity Fee ($)	Small Entity Fee Code	Small Entity Fee ($)	Fee Description	Fee Paid
105	130	205	65	Surcharge - late filing fee or oath	
127	50	227	25	Surcharge - late provisional filing fee or cover sheet	
139	130	139	130	Non-English specification	
147	2,520	147	2,520	For filing a request for *ex parte* reexamination	
112	920*	112	920*	Requesting publication of SIR prior to Examiner action	
113	1,840*	113	1,840*	Requesting publication of SIR after Examiner action	
115	110	215	55	Extension for reply within first month	
116	390	216	195	Extension for reply within second month	
117	890	217	445	Extension for reply within third month	
118	1,390	218	695	Extension for reply within fourth month	
128	1,890	228	945	Extension for reply within fifth month	
119	310	219	155	Notice of Appeal	
120	310	220	155	Filing a brief in support of an appeal	
121	270	221	135	Request for oral hearing	
138	1,510	138	1,510	Petition to institute a public use proceeding	
140	110	240	55	Petition to revive - unavoidable	
141	1,240	241	620	Petition to revive - unintentional	
142	1,240	242	620	Utility issue fee (or reissue)	
143	440	243	220	Design issue fee	
144	600	244	300	Plant issue fee	
122	130	122	130	Petitions to the Commissioner	
123	50	123	50	Processing fee under 37 CFR 1.17(q)	
126	180	126	180	Submission of Information Disclosure Stmt	
581	40	581	40	Recording each patent assignment per property (times number of properties)	
146	710	246	355	Filing a submission after final rejection (37 CFR § 1.129(a))	
149	710	249	355	For each additional invention to be examined (37 CFR § 1.129(b))	
179	710	279	355	Request for Continued Examination (RCE)	
169	900	169	900	Request for expedited examination of a design application	
Other fee (specify)					

*Reduced by Basic Filing Fee Paid SUBTOTAL (3) ($) 0.00

SUBMITTED BY				Complete (if applicable)	
Name (Print/Type)	Kirk J. DeNiro, Esq.	Registration No. (Attorney/Agent)	35,854	Telephone	(415) 369-9660
Signature		5/7/01		Date	May 7, 2001

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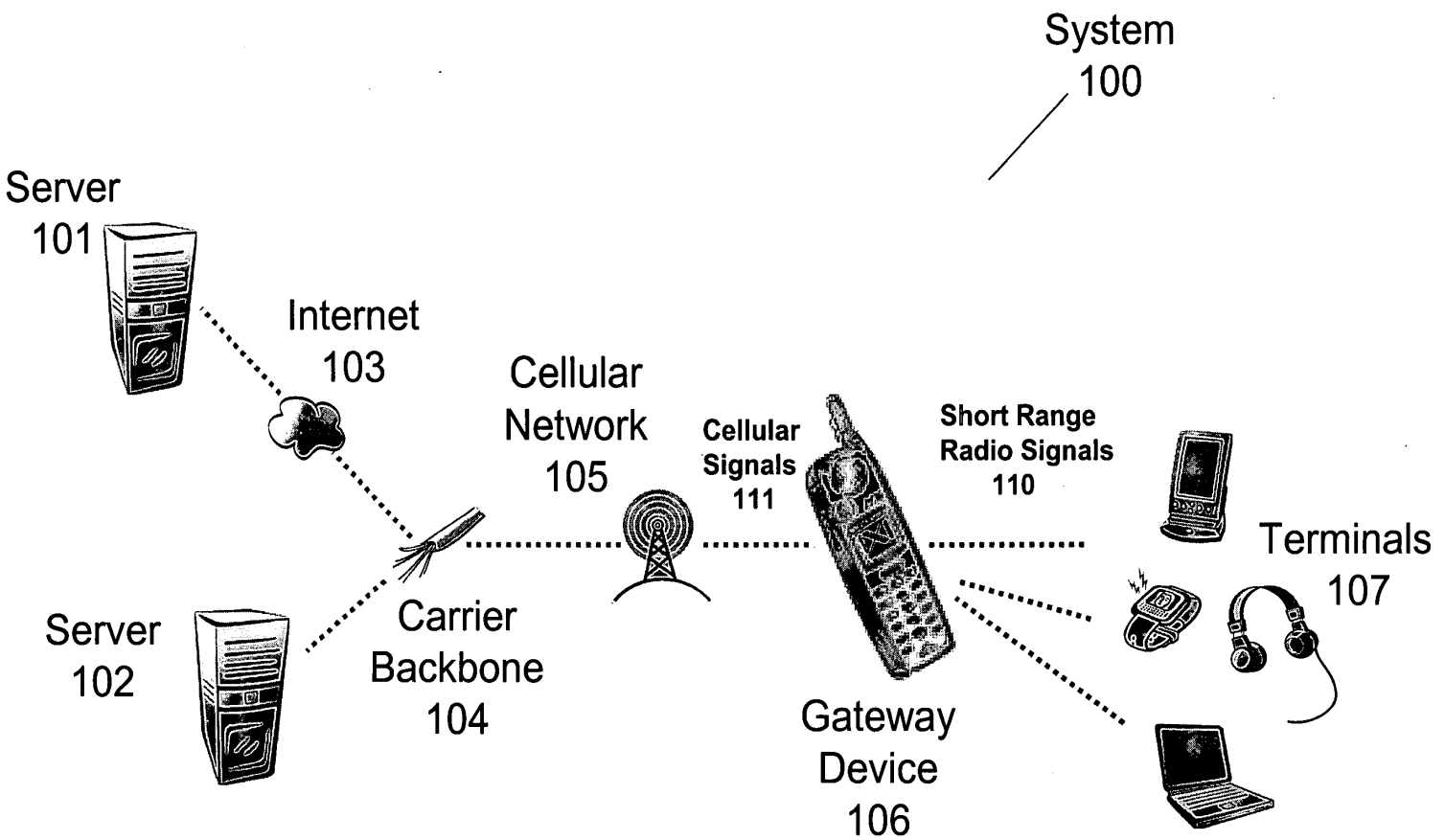

Fig. 1

Fig. 2

Title: A Sys[redacted]Device, And Computer Readable Medium For Providing [redacted]anaged Wireless Ne[redacted]Using Short-Range Radio Signals
Applicant: [redacted]mit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

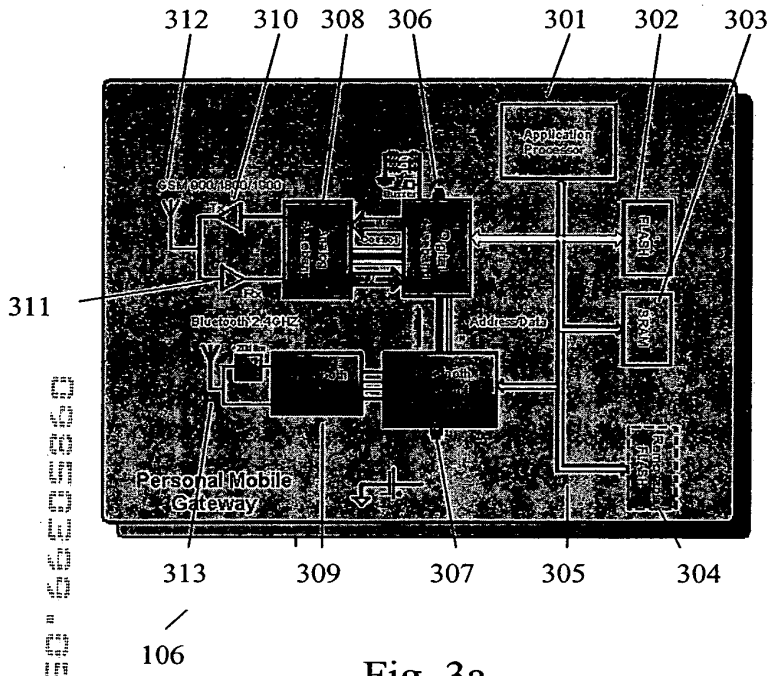

Fig. 3a

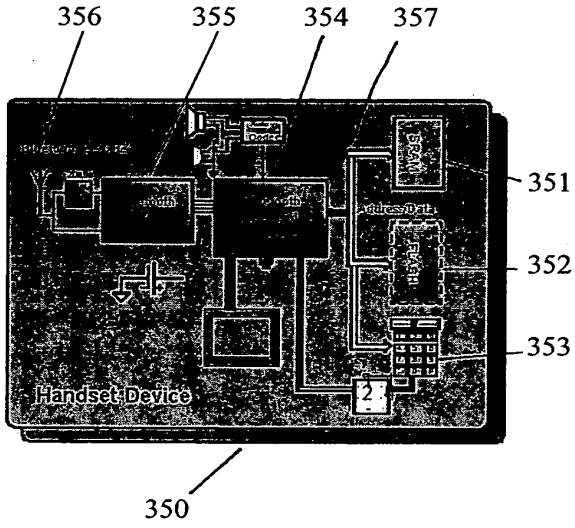

Fig. 3b

Fig. 4

Sheet 4 of 9
Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

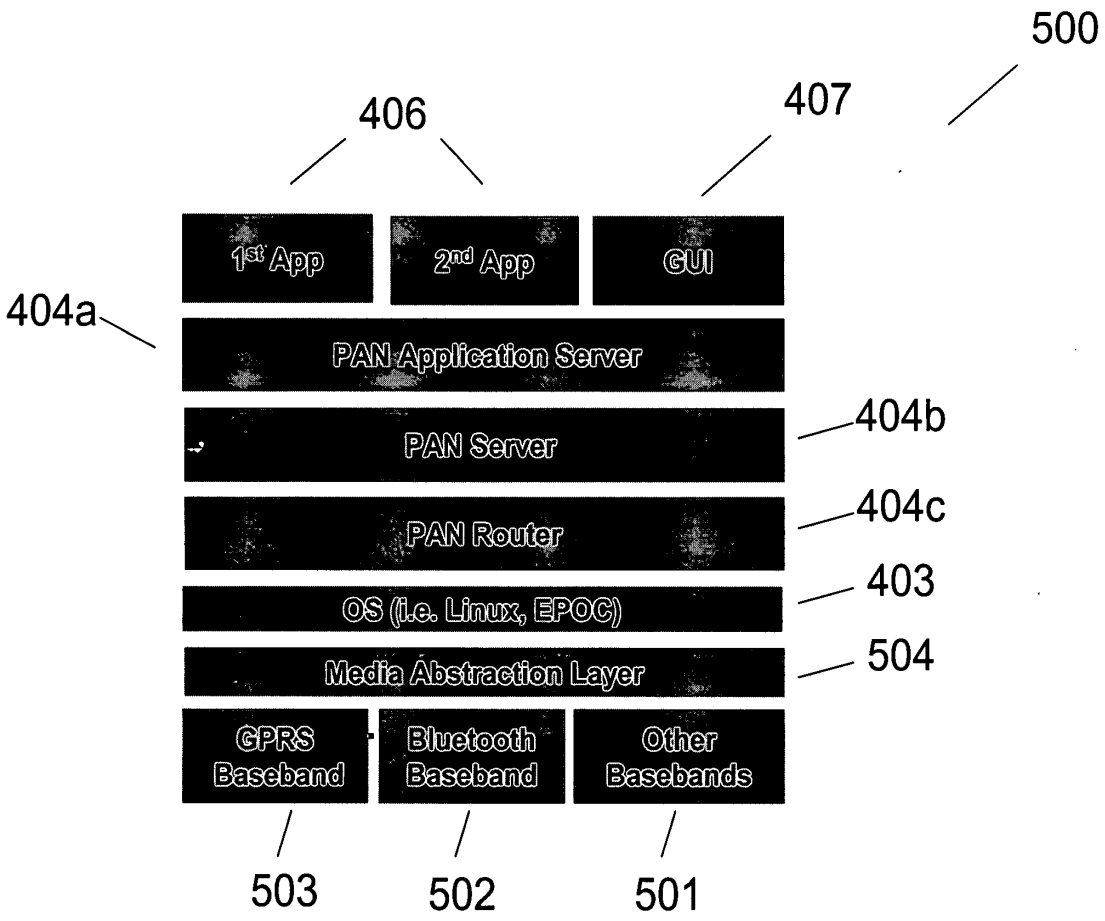

Fig. 5a

Fig. 5b

Title: A System, Device, And Computer Readable Medium For Providing A Managed Wireless Network Using Short-Range Radio Signals
Applicant: Amit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
Express Mail No.: EL 798 533 779 US

Title: A Syst[illegible], Device, And Computer Readable Medium For Providing [illegible] Managed Wireless N[illegible] Using Short-Range Radio Signals
Applicant: [illegible]iit Haller et al.
Appl. No.: Unknown
Filing Date: Herewith
Express Mail No.: EL 798 533 779 US
Docket: IXIM-01000US0[illegible]
Atty: Kirk J. DeNiro
Phone: (415) 369-9660

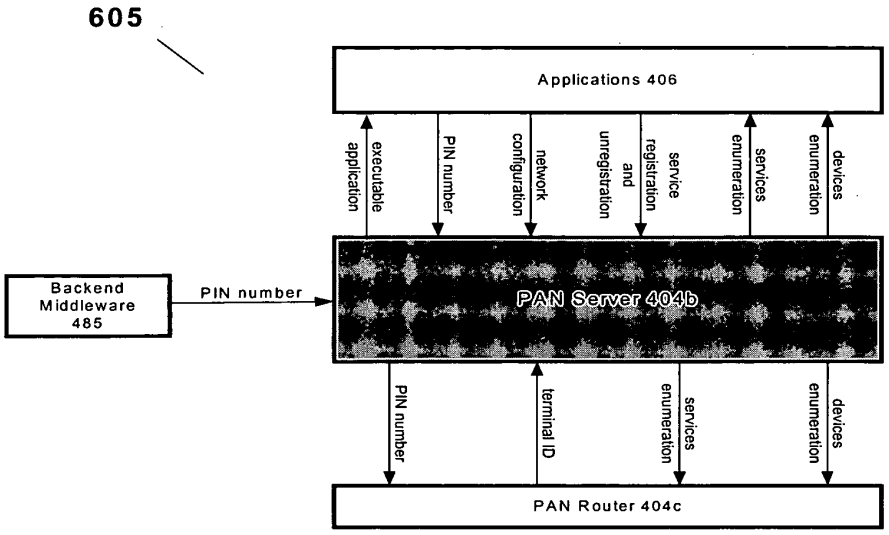

Fig. 6

Title: A Sys[redacted] Device, And Computer Readable Medium For Providing [redacted] Managed Wireless N[redacted] Using Short-Range Radio Signals
Applicant: [redacted]nit Haller et al. Docket: IXIM-01000US0
Appl. No.: Unknown Atty: Kirk J. DeNiro
Filing Date: Herewith Phone: (415) 369-9660
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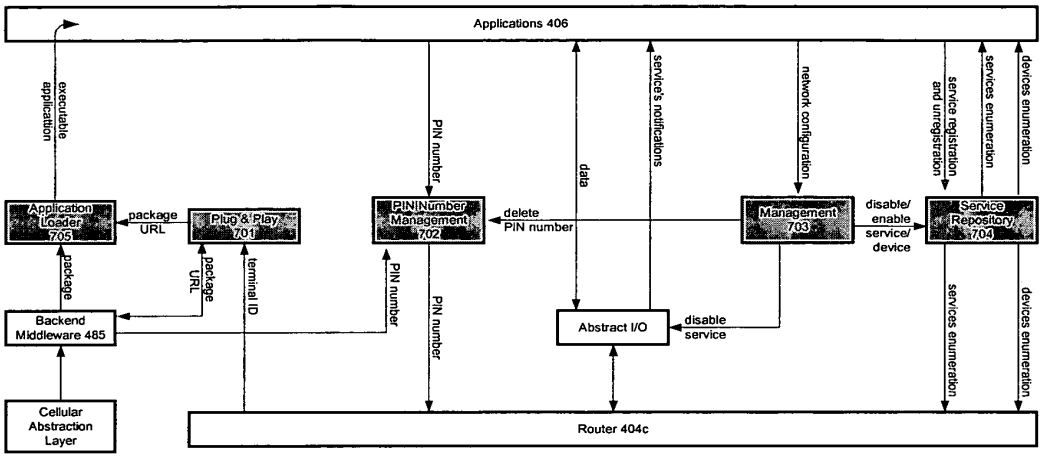

Fig. 7

Title: A Syst[redacted]evice, And Computer Readable Medium For Providing A[redacted]naged Wireless Ne[redacted]Using Short-Range Radio Signals
Applicant: [redacted]it Haller et al.
Appl. No.: Unknown
Filing Date: Herewith
Express Mail No.: EL 798 533 779 US
Docket: IXIM-01000US0
Atty: Kirk J. DeNiro
Phone: (415) 369-9660

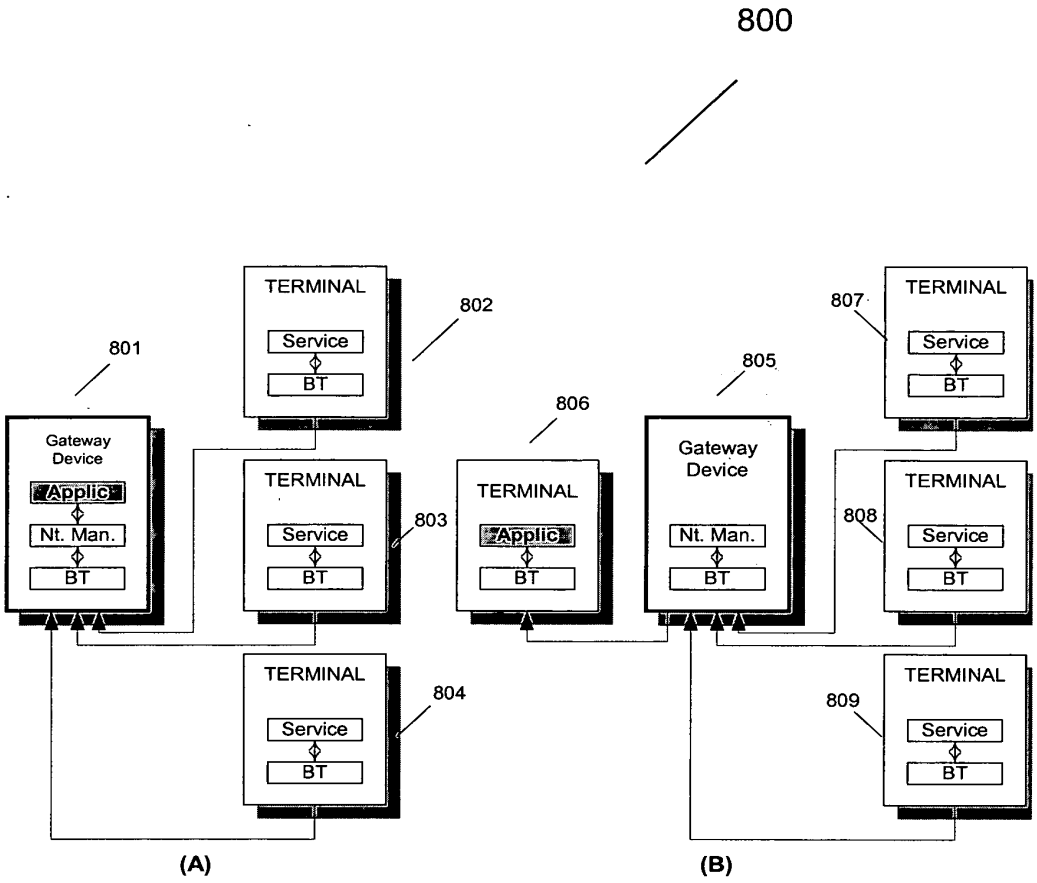

Fig. 8

A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Inventors

Amit Haller
Peter Fornell
Avraham Itzchak
Amir Glick
Ziv Haparnas

CERTIFICATE OF MAILING BY "EXPRESS MAIL" UNDER 37 C.F.R. '1.10

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Lissette Miller
Signature Date: May 7, 2001

PREPARED BY
VIERRA MAGEN MARCUS HARMON & DENIRO LLP
CUSTOMER ID: 000028554

A SYSTEM, DEVICE AND COMPUTER READABLE MEDIUM FOR PROVIDING A MANAGED WIRELESS NETWORK USING SHORT-RANGE RADIO SIGNALS

Inventors

Amit Haller
Peter Fornell
Avraham Itzchak
Amir Glick
Ziv Haparnas

Field of the Invention

This invention relates generally to wireless devices in a wireless network using short-range radio signals.

Background of the Invention

A user has numerous wireless devices for accessing and processing information. For example, a user may have a cellular telephone for communicating with others, a personal digital assistant ("PDA") for storing contact information, a laptop computer for storing and processing files, a digital camera for obtaining images and a pager for being contacted. Each one of these devices also may access remote information on a private or public network, such as the Internet. However, this system suffers from several disadvantages.

First, typically only a single device originates and can access the Internet at a time.

Second, Internet protocol ("IP") addresses are held while connected to the Internet. This can be expensive and use scarce IP address resources.

Third, each device requires its own security management, such as a Virtual Private Network ("VPN") and firewall software component.

Fourth, there is no ability to share, add to or manage the services of the numerous wireless devices. In particular, there is no communication between wireless devices. If a user obtains a wireless device having an additional service, such as extra persistence storage, other wireless devices typically are not capable of using the extra persistence storage.

Bluetooth™ technology (www.bluetooth.com) provides wireless communications between devices. Yet, Bluetooth™ technology also suffers from many disadvantages. Bluetooth™ technology does not allow for a "plug and play" capability at a wireless device application level. In other words, a wireless device cannot merely be turned on and Bluetooth™ technology recognizes it and establishes a communication protocol. If a user desires a wireless device to communicate with a Bluetooth™ technology device, the added wireless device must have software drivers and applications loaded to operate. Otherwise, the Bluetooth™ technology device is not able to communicate with the newly added wireless device. This makes it difficult to add new functionality or types of wireless devices. Bluetooth™ technology does not provide an open environment for software programmers to provide application software components for wireless devices. Further, Bluetooth™ technology does not allow devices to share information and resources at an application level.

Therefore, it is desirable to provide a system of wireless devices which can effectively communicate with each other and access information on the Internet. The system of wireless devices should efficiently use IP resources and security management. The wireless devices should effectively share and manage services and allow for seamless plug and play capability. The system should allow for new functionality and types of wireless devices.

SUMMARY OF THE INVENTION

A system, coupled to a cellular network, provides access to the Internet according to an embodiment of the present invention. The system comprises a wireless gateway device, coupled to the cellular network, having a network manager software component for accessing information from the Internet responsive to a first short-range radio signal. A first wireless device is coupled to the wireless gateway device. The first wireless device provides the first short-range radio signal.

According to an embodiment of the present invention, the first wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a printer, a pager, a watch, digital camera and an equivalent thereof.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Global System for Mobile communications ("GSM") protocol.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol.

According to an embodiment of the present invention, the wireless gateway device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol.

According to an embodiment of the present invention, the first wireless device is a thin terminal.

According to an embodiment of the present invention, the first wireless device includes a Bluetooth™ processor having a 2.4 GHZ transmitter.

According to an embodiment of the present invention, the wireless gateway device includes a Bluetooth™ processor having a 2.4 GHZ transmitter.

According to an embodiment of the present invention, the network manager software component includes a plug and play software component for loading and executing software for the first wireless device.

According to an embodiment of the present invention, the network manager software component includes a PIN number management software component for obtaining and supplying PIN numbers.

According to embodiment of the present invention, the network manager software component includes a service repository software component for obtaining and providing an availability of a service from the first wireless device.

According to an embodiment of the present invention, the first wireless device includes an application software component for providing a service. The network manager software component includes a management software component for accessing the service.

According to an embodiment of the present invention, the system further comprises a second wireless device coupled to the wireless gateway device. The second wireless device provides a short-range signal. The first wireless device communicates with the second wireless device through the wireless gateway device.

According to an embodiment of the present invention, the system further comprises a second wireless device coupled to the wireless gateway device. The wireless gateway device provides access to the Internet for the first and second wireless devices.

According to an embodiment of the present invention, the network manager software component operates with an operating system software component.

According to an embodiment of the present invention, the operating system component is a Linux, EPOC or a PocketPC operating system.

According to an embodiment of the present invention, the wireless gateway device includes 1) an application software component for providing a service, and 2) an application server software component coupled to the network management software component.

According to an embodiment of the present invention, the wireless gateway device further includes a firewall software component.

According to an embodiment of the present invention, the wireless gateway device includes a VPN software component.

According to an embodiment of the present invention, a hand-held device for providing a personal area network is provided. The hand-held device comprises a storage device coupled to a processor. The storage device stores a software component for controlling the processor. The processor operates with the component to provide a short-range radio Internet protocol communication between the first hand-held wireless device and a second hand-held wireless device.

According to an embodiment of the present invention, a Bluetooth™ transmitter is coupled to the processor.

According to an embodiment of the present invention, a GSM transmitter is coupled to the processor.

According to an embodiment of the present invention, a wireless hand-held device accesses a router in a personal network. The wireless hand-held device comprises a storage device coupled to a processor. The storage device stores a software component for controlling the processor. The processor operates with the component to provide a first short-range radio signal to the router for accessing the

Internet and a second short-range radio signal to the router for accessing another wireless hand-held device.

According to an embodiment of the present invention, an article of manufacture, including a computer readable medium is provided. The article of manufacture comprises an application software component for providing a service. An application server software component provides the application software component. The article of manufacture also includes an Internet protocol network manager software component and an operating system software component. Also, a short-range radio software component for providing a short-range radio signal and a cellular software component for providing a communications signal to a cellular network is included with the article of manufacture.

Other aspects and advantages of the present invention can be seen upon review of the figures, the detailed description, and the claims that follow.

BRIEF DESCRIPTION OF THE FIGURES

Fig. 1 illustrates a system according to an embodiment of the present invention.

Fig. 2 illustrates thin terminals and a wireless gateway device according to an embodiment of the present invention.

Figs. 3a-b are hardware block diagrams of a wireless gateway device and wireless handheld device according to an embodiment of the present invention.

Figs. 4 and 5a-b are software block diagrams for a wireless gateway device according to an embodiment of the present invention.

Fig. 6 illustrates network management software interfaces according to an embodiment of the present invention.

Fig. 7 illustrates network management software components according to an embodiment of the present invention.

Figs. 8a-b illustrate multiple wireless devices coupled to a wireless gateway device according to an embodiment of the present invention.

DETAILED DESCRIPTION

I. System Overview

The following description and claims relate to a system that accesses information from a wide area network ("WAN"), such as the Internet, and local wireless devices in response to short-range radio signals. The network may also be an IP based public or private network, such as a corporate secured network using VPN.

Fig. 1 illustrates system 100 according to an embodiment of the present invention. System 100 includes terminals 107 coupled to wireless gateway device 106. In an embodiment of the present invention, gateway device 106 and one or more terminals 107 communicate to form a personal area network ("PAN"). In an embodiment of the present invention, terminals 107 are coupled to gateway device 106 by short-range radio signals 110. In an embodiment of the present invention, terminals 107 are a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, thin terminal, digital camera or an equivalent thereof. In an embodiment of the present invention, terminals 107 include a Bluetooth™ 2.4 GHz transmitter/receiver. Likewise, gateway device 106 includes a Bluetooth™ 2.4 GHZ transmitter/receiver. In an alternate embodiment of the

present invention, a Bluetooth™ 5.7 GHZ transmitter/receiver is used. Gateway device 106 and terminals 107 hardware are illustrated in Figs 3a-b.

In alternate embodiments of the present invention, other local wireless technologies such as 802.11 or HomeRF signals are used to communicate between gateway device 106 and terminals 107

In an embodiment of the present invention, gateway device 106 is coupled to cellular network 105 by cellular signals 111 using a protocol, such as a Global and System for Mobile communications ("GSM ") protocol. In alternate embodiments, a Code Division Multiple Access ("CDMA"), CDMA 2000 or Time Division Multiple Access ("TDMA"), or General Packet Radio Service ("GPRS") protocol is used.

In an alternate embodiment of the present invention, gateway device 106 is coupled to a landline network by an Ethernet, Digital Subscriber Line ("DSL"), or cable modem connection, singly or in combination.

In an embodiment of the present invention, gateway device 106 is a cellular telephone.

Cellular network 105 is coupled to a wireless carrier internal network or carrier backbone 104. In an embodiment of the present invention, server 102 is coupled to carrier backbone 104. In an alternate embodiment of the present invention, carrier backbone 104 is coupled to Internet 103. Server 101 is coupled to Internet 103. In an embodiment of the present invention, server 101 and 102 provides information, such as web pages or application software components to terminals 107 by way of gateway device 106. In an embodiment of the present invention, terminals 107 share services and communicate by way of gateway device 106.

II. Gateway/Handheld Device Hardware

Fig. 2 illustrates terminals 107. In an embodiment of the present invention, there are two types of terminals: 1) Smart terminals and 2) Thin terminals. Smart terminals have a relatively powerful central processor, operating system and applications. Their main needs from a PAN are access to a WAN through TCP/IP and other network services such as storage and execution. For example, a computer notebook and PDA are smart terminals. Thin terminals have a relatively low power central processor and operating system. They are mainly used as peripherals to an Application server in a PAN and their main task is user interaction, rendering output for a user and providing an Application server with a user's input. For example, a watch or a messaging terminal are thin terminals.

Fig 2 illustrates thin terminals. Voice terminal 204 includes a display 204b and a retractable keypad 204a. Messaging Terminal 203 is illustrated in a closed position with a hinge 203a used to open and close terminal 203. Terminal 203 also includes a miniature QWERTY keyboard and display when opened. Gateway device 201 includes clip 202 for a belt

In an embodiment, PMG device 201 is also illustrated in Fig. 2

Fig. 3a illustrates a hardware block diagram of gateway device 106 in an embodiment of the present invention. Gateway device 106 includes both internal and removable memory. In particular, gateway device 106 includes internal FLASH (or Electrically Erasable Programmable Read-Only Memory ("EEPROM") and static Random Access Memory ("SRAM") memory 302 and 303, respectively. Removable FLASH memory 304 is also used in an embodiment of the present invention. Memories 302, 303, and 304 are coupled to bus 305. In an embodiment of the present invention, bus 305 is an address and data bus. Application processor 301 is

likewise coupled to bus 305. In an embodiment of the present invention, processor 301 is a 32 bit processor.

Bluetooth™ processor 307 is also coupled to bus 305. Bluetooth™ RF circuit 309 is coupled to Bluetooth™ processor 307 and antenna 313. Processor 307, RF circuit 309 and antenna 313 transmit and receive short-range radio signals to and from terminals 107 illustrated in Fig. 1, or device 350 illustrated in Fig. 3b.

Cellular, such as GSM, signals are transmitted and received using digital circuit 306, analog circuit 308, transmitter 310, receiver 311 and antenna 312. Digital circuit 306 is coupled to bus 305. In alternate embodiments, gateway device 106 includes a display, a speaker, a microphone, a keypad and a touchscreen, singly or in combination thereof.

Fig. 3b illustrates device 350 that is a hand-held device in an embodiment of the present invention. Device 350, in an embodiment of the present invention, is one of the terminals 107 illustrated in Fig. 1. Similar to gateway device 106, device 350 includes SRAM and FLASH memory 351 and 352, respectively. Memories 351 and 352 are coupled to bus 357. In an embodiment of the present invention, bus 357 is an address and data bus. Keypad 353 is also coupled to bus 357. Short-range radio signals are transmitted and received using Bluetooth™ processor 354 and Bluetooth™ RF circuit 355. Antenna 356 is coupled to Bluetooth™ RF circuit 355. In an embodiment of the present invention, antenna 356 transmits and receives short-range radio signals from gateway device 300. In alternate embodiments, device 350 includes a display, a speaker, a microphone, a keypad and a touchscreen, singly or in combination thereof.

III. Gateway Software

Fig. 4 illustrates a software architecture 400 for gateway device 106 illustrated in Fig. 3a according to an embodiment of the present invention. Gateway software 400 is stored in FLASH 302. In an embodiment of the present invention, software components referenced in Figs. 4-7 represent a software program, a software object, a software function, a software subroutine, a software method, a software instance, a code fragment, singly or in combination. In an alternate embodiment, functions performed by software components illustrated in Figs. 4-7 are carried out completely or partially by hardware.

In an embodiment of the present invention, gateway software 400, or components of gateway software 400, is stored in an article of manufacture, such as a computer readable medium. For example, gateway software 400 is stored in a magnetic hard disk, an optical disk, a floppy disk, CD-ROM (Compact Disk Read-Only Memory), RAM (Random Access Memory), ROM (Read-Only Memory), or other readable or writeable data storage technologies, singly or in combination. In yet another embodiment, gateway software 400, or components thereof, is downloaded from server 101 illustrated in Fig. 1.

Gateway software 400 includes telecommunication software or physical layer protocol stacks, in particular cellular communications software 401 and short-range radio communications software 402. In an embodiment, communication software 401 is a GPRS baseband software component used with processor 306 to transmit and receive cellular signals. In an embodiment, communication software 402 is a Bluetooth™ baseband software component used with processor 307 to transmit and receive short-range radio signals.

In an embodiment of the present invention, operating system 403 is used to communicate with telecommunications software 401 and 402. In an embodiment of the present invention, operating system 403 is a Linux operating system, EPOC operating system available from Symbian software of London, United Kingdom or a PocketPC or a Stinger operating system available from Microsoft of Redmond, Washington. Operating system 403 manages hardware and enables execution space for gateway device software components.

Network Management software 404 is used to provide a number of functions according to embodiments of the present invention: 1) routing, 2) device plug and play, 3) PIN number management, 4) network device management, and 5) service repository. In an embodiment of the present invention, network management software 404 is programmed in C++ software language.

Smart phone application software 405 communicates with operating system 403 and is used in a cellular telephone embodiment of the present invention.

1st and 2nd software application components 406 communicate with management software 404 and provide additional services to a user. For example, application components 406 may include: 1) a stock quote application for providing stock quotes, 2) a personal information manager application including calendars, to do lists, emails, or contacts, 3) a synchronization software application for synchronizing databases, 4) a telephony application for providing telephone services, or 5) a location application for providing a current location of a gateway device.

Furthermore, Graphics User Interface ("GUI") 407 is provided to allow a user-friendly interface.

Fig. 5a illustrates detailed gateway software architecture 500. In an embodiment of the present invention, network management software 404 illustrated in Fig. 4 includes three software components as illustrated in Fig. 5a: 1) PAN router 404c; 2) PAN server 404b; and 3) Application server 404a. GPRS baseband 503 and Bluetooth™ baseband 502 are software components used to generate communication signals to a cellular network 105 and terminals 107 as illustrated in Fig. 1. In an alternate embodiment, other baseband software components 501 are used to generate communication signals. Media abstraction layer 504 allows operating system 403 to communicate with basebands 503, 502, 501, respectively. Media abstraction layer 504 and other abstraction layers, described herein, translate a particular communication protocol, such as GPRS, into a standard command set used by a gateway device and/or terminal. The purpose of an abstraction layer is to isolate the physical stacks from the rest of the gateway device software components. This enables future usage of different physical stacks without changing any of the upper layer software and allows the gateway device software to work with any communication protocol.

PAN router 404c establishes a PAN network, implementing communication primitives, IP networking, IP services and similar tasks.

PAN server 404b is responsible for implementing PAN oriented services such as plug and play, terminal enumeration, application loading, storage space and other services. In an embodiment, PAN server 404b communicates directly with applications 406 using application drivers.

PAN application server 404a is responsible for implementing user and terminal oriented services and enables thin terminals. In an embodiment of the present invention, PAN application server 404a implements such applications as a

GUI 407, a remote terminal driver application, a location application, a telephony application or an equivalent thereof.

Fig. 5a, like Fig. 4, illustrates 1st and 2nd software component applications 406 and GUI 407.

A. PAN Router

PAN router 404c enables a fully meshed IP based network. In an embodiment of the present invention, each terminal can leverage the existing IP protocol, exchange data with other terminals and gain access to a WAN through PAN router 404c.

Fig. 5b illustrates software components of PAN router 404c. In an embodiment of the present invention, routing component 550, Bluetooth LAN access Profile component 551, Dynamic Host Configuration Protocol/Point-to-Point Protocol ("DHCP/PPP") component 552 and Network Address Translator ("NAT") component 553 are used in PAN router 404c. In an alternate embodiment, Domain Naming Service ("DNS") component 554, Tunneling and Optimization component 555 and Security component 556, singly or in combination are used in PAN router 404c.

1. Routing component

Routing component 550 is implemented in Router 404c in order to realize a fully meshed IP network with access to a WAN. A routing component is responsible for imitating a fully meshed network based on a Master/Slave network.

Routing component 550 enables exchange of IP packets between two terminals, broadcasting of IP packets between all terminals on a PAN and routing of IP packets to and from a WAN.

2. Bluetooth™ LAN Access Profile ("LAP") component

A Bluetooth™ LAN Access Profile ("LAP") component 551 is used in order to enable terminals to seamlessly use IP base networking. LAP component 551 enables terminals to exchange IP packets between themselves and PAN router 404c. LAP component 551 is implemented over a PPP serial Bluetooth™ connection. In an embodiment of the present invention, terminals, such as Smart terminals, include LAP chipsets.

3. DHCP/PPP component

DHCP and PPP components 552 are used in order to enable an IP network. PPP realizes an IP network layered over LAP component 551.

DHCP component manages a PAN's IP address space and IP services, enabling terminals to get IP networking properties, such as an IP address for a terminal, an address of a DNS and an address of a default gateway device.

4. NAT component

NAT component 553 translates a private IP address to and from a real IP address. Since mobile networks are typically capable of only providing a single IP address, the terminals will have to use private IP addresses supplied by NAT component 553.

5. DNS component

DNS component 554 translates services between human readable names and IP addresses. DNS component 554 enables a terminal to query another

terminal's address based on the other terminal's name and to query for the IP address of a named service on a WAN.

6. Tunneling and Optimization component

Tunneling and Optimization component 555 allows terminals to use standard protocols. For example, accessing a WAN through a cellular GPRS/CDMA network using TCP/IP yields poor results because TCP/IP does not behave well over a bandwidth limited, high latency and high packet loss network, such as GPRS/CDMA.

Tunneling and Optimization component 555 is used to enable practical usage of IP in such networks. When using cellular, the tunnel will be between a mobile device having a PAN router and a landline operator's network. The tunneling and optimization network translates IP packets to more efficient transport methods for the specific access technology, and vice versa in a fully transparent fashion.

7. Security component

Accessing a WAN can typically be done in two ways: unsecured when accessing a public network, such as the Internet, or secured when accessing a private network, such as a Enterprise network, file system or Exchange server.

Security component 556 is a centralized managed way for controlling access to a secured private WAN. In order to avoid each one of the terminals from implementing its own security scheme and methods, a centralized security component 556 is used. In an embodiment of the present invention, security component 556 is a firewall 556a, VPN 556b or URL filter 556c, singly or in combination.

8. Usage Scenario

In this scenario, a user is a traveling professional, who has a PDA and needs to synchronize the PDA against a corporate Exchange server while on the road. This synchronization needs to be done securely as the only way to enter the corporate network is via a certified and an information technology ("IT") manager approved VPN.

The user has a gateway device enabled handset with an embedded PAN router 404c and VPN client, which the IT manager installed.

As the user turns on the PDA, which is a Bluetooth™ equipped PDA with a LAP component 551, the PDA connects to a gateway device handset via the LAP. The PDA receives a local PAN IP address.

The user loads the PDA synchronization software, which is configured to synchronize against the corporate Exchange server. When hitting the "Synchronize" button, the PDA opens a TCP connection to the IP address of the corporate network.

The IP packets travel across the Bluetooth™ air interface to the handset using a PPP protocol. At the handset, the packets go through a NAT component and a local IP address is translated to a real Internet IP address. The real IP address goes to the VPN, which identifies the destination as the corporate LAN. The VPN packages the packet over its Internet tunnel, encrypts and signs it. The packet is then sent through the cellular air interface to the operator and the Internet, reaching the corporate VPN and Exchange servers. The PDA is totally unaware of this process.

B. PAN server

PAN server 404b allows code to be downloaded to a PAN and executed in a central way. Similarly, PAN server 404b shares and stores data in a centralized manner.

1. PAN server interfaces

Fig. 6 illustrates software interfaces for PAN server 404b shown in Fig. 5a. PAN server 404b provides application program interfaces ("API") to applications 406. Applications 406 also queries PAN server 404b for specific services and/or terminal attributes in a PAN. Applications 406 provide at least three types of information to PAN server 404b. Applications 406 provide a Personal Identification Number ("PIN") number, network configuration information, service registration and un-registration information. PAN server 404a provides services and devices enumeration information to applications 406. In an embodiment of the present invention, a PIN number is an authorization code to enable a terminal to connect to a PAN.

PAN server 404b uses media abstraction layer 504 in order to communicate with terminals 107. PAN server 404b transfers services and devices enumerations to PAN router 404c; while, a terminal ID number is provided to PAN server 404b from PAN router 404c. A terminal ID is a unique code for identifying a particular terminal. Finally, a PIN number is transferred from PAN server 404b to PAN router 404c.

In an embodiment of the present invention, PAN server 404b loads an executable application software component to a selected terminal. Application server 404a retrieves the application software component locally from gateway device 106 memory or from either server 102 or 103 as illustrated in Fig. 1.

Backend middleware 485 provides a PIN number to router 404c. In an embodiment of the present invention, backend middleware 485 is stored on a server coupled to cellular network 105 shown in Fig. 1. In an embodiment of the present invention, backend middleware 485 is a software component for supplying PIN numbers and accessing application components for a particular terminal.

2. PAN server components

Fig. 7 illustrates software components of PAN server 404a according to an embodiment of the present invention: 1) plug and play software component 701,2) PIN number management software component 702, 3) management software component 703, 4) service repository software component 704, and 5) application loader 705. In alternate embodiments, more or less components are used.

a. Plug and Play Component

When a new terminal is introduced to a PAN, the software to support this terminal needs to be located, downloaded and executed. The Plug and Play component is responsible for identifying the introduction of the new terminal and decide on the software needed to be downloaded.

An example of the Plug and Play usage is when a new thin terminal, like a messaging terminal, is introduced to a PAN. The terminal itself, being thin, has no embedded application code or data. The appropriate software package (messaging software in this case) needs to be found, downloaded and executed. The Plug and Play component will identify the messaging terminal and resolve the needed software to support it.

Fig. 7 illustrates the operation of Plug & Play component 701. In response to a terminal ID from PAN router 404c, Plug and Play component 701 will access the software package for a selected terminal from backend middleware 485 or locally from gateway device 106 memory. If the selected package is not locally available in gateway device 106 memory, a URL is provided from backend middleware 485 for accessing the package remotely. In an embodiment of the present invention, the selected package will install and run on different modules (typically but not necessarily a shell, service/terminal drivers and applications that can run on the terminal.)

b. Application Loader Component

Adding new capabilities to a PAN involves the loading of executable code to a PAN execution environment. Application loading can be a result of many events, plug and play component 701 can generate an application loading for supporting a new terminal on a PAN, a user can decide to actively load an application to a PAN or an operator on a cellular network can decide to load an application to a PAN. Application loader 705 is responsible for application software code transfer and execution.

c. PIN Number Management Component

Whenever gateway device 106 and a terminal become aware of each other, a pairing process takes place between them. For example, gateway device 801 and terminal 802 are paired as illustrated in Fig. 8a. When this pairing takes place for a first time (or when the link key that they were sharing has been lost in one or both sides for any reason), a claimant side (for example, gateway device 801) must know

a PIN number of terminal 802 in order to carry out a successful pairing. PAN server 404b will supply PIN number information to PAN router 404c for that purpose. A PIN number is used to generate an initialization key that is used as an encryption key for the exchange of initial parameters between a gateway device and terminals. In an embodiment of the present invention, PAN server 404b must be able to supply PIN number information according to different criteria. For example, PAN server 404b supplies PIN numbers for only those terminals that are associated with a certain terminal class or ID number.

PAN server 404b will supply a PIN number upon an explicit request of another component, such as PAN router 404c. In an alternate embodiment, Application server 404b will supply PIN number information for terminals in order for them to establish a Bluetooth™ channel with other terminals without a gateway device 107 as a mediator.

In an embodiment of the present invention, PIN numbers are available from backend middleware 485. In alternate embodiments of the present invention, applications 406 provide a PIN number. For example, an application may allow a user to enter a PIN number or an application may cause backend middleware 485 to generate a PIN number. In an embodiment of the present invention, an application that supplies a PIN number states its origin.

There are two methods for obtaining PIN numbers. First, a push method occurs when the source of the PIN number transfers the PIN number when it becomes available. Second, a query method occurs when router 404c queries the source of the PIN number for a PIN number according to a certain criteria. A push method is preferred because it enables an immediate response to a request for a PIN number. However, if the PIN number is not available when a request arrives at

the source of the PIN number, PAN server 404b attempts to obtain the PIN number using the query method. When the push method is used, the stimulus comes from the PIN number information source.

PIN number management software component 702 maintains a local database of PIN numbers with some attributes. An attribute may include a terminal class or terminal ID. PIN number management software component 702 adds, deletes and retrieves PIN numbers from the database. PIN number software component 702 also may retrieve all PIN numbers associated with a screen terminal class. In an embodiment, PIN number management software component 702 will have a persistent database. In an alternate embodiment, PIN number management software component 702 will not have a persistent database.

In alternate embodiments of the present invention, PIN number management 702 is a central storage location for PAN databases and/or caching. The storage component supports implementation of a file system that can be accessed by a terminal. Also, a storage component may have automatic backup to a backend server or transparent storage.

d. Network Management Component

Management software component 703 provides functions to configure a PAN.

First, management software component 703 provides a disconnect service function that forces specific applications to disconnect from a specific service.

Second, management software component 703 provides a disconnect terminal function that forces specific applications to disconnect from all services of a specific terminal.

Third, management software component 703 provides a disable service function that halts any usage of a specific terminal's service.

Fourth, management software component 703 provides a disable terminal function that halts any usage of all services of a specific terminal.

The disconnecting functions described above, allow a high priority application to obtain a service from an application using the service. The disabling functions allow for high priority applications to create personal area network restrictions.

Service repository software component 704 is used to cease offering services. PIN Number management 702 is used to delete a PIN number and abstraction layer I/O is used to halt service's data traffic.

e. Enumeration or Service Repository Component

Service repository software component 704 allows applications 406, which run on a gateway device 106 or terminals 107, to discover what services are offered by a PAN, and to determine the characteristics of the available services. The service could be offered by remote terminal, such as an application in terminal 806 illustrated in Fig. 8b. For example, terminal 806 could be a printer having a printing service. Also, the service could be offered by an application stored on gateway device 106, such as the application in gateway device 801 illustrated in Fig. 8a. For example, gateway device 801 is a cellular telephone having a telephony service provided by a cellular telephone application. Remote services are offered with the assistance of service logical drivers (SLDs) that are stored on gateway device 106. Whenever an application is interested in using a terminal service, the terminal interoperates with the corresponding gateway device SLD. For example, an application on terminal 809, shown in Fig. 8b, accesses a driver in gateway device 805 for a service

provided by an application on terminal 806. Therefore, from an application's point of view, the SLD of the remote service acts the same way as a local application.

Service repository software component 704 offers a plurality of functions.

First, service repository software component 704 provides service registration of a service offered by application, or a hardware capability offered by terminal driver.

Second, service repository software component 704 provides service un-registration that cancels a registered service.

Third, service repository software component 704 provides registered services that suit a specific class.

Fourth, service repository software component 704 also provides searching of services. This function describes whether listed terminals support listed services. This function enables an application to quickly locate a specific service. A search of a general class of service, such as a search for a printer may be performed. Likewise, a search for specific attributes associated with that service, for example laser or color, is provided. Further, a search for specific instance of a service, for example a HP LaserJet model GTI, is also provided.

Fifth, service repository software component 704 provides the capability of describing the participating terminals in a personal area network. The existence of these terminals is derived from a service registration function.

Sixth, service repository software component 704 provides a disabling function that ceases offering an unfriendly service.

Seventh, service repository software component 704 also provides an enabling function that cancels service disabling.

Eighth, service repository software component 704 provides a terminal disabling function that ceases offering all the services associated with an unfriendly terminal.

Ninth, service repository software component 704 provides a terminal enabling function that cancels terminal disabling.

In an embodiment, an application does not have to discover a service in order to connect with a terminal. If an application has previous knowledge of a terminal's service, the application needs to only search for the specific terminal.

In an embodiment of present invention, service repository component 704 describes the terminals and the services that are available at a particular time, but service repository software component 704 does not describe the current status of the services. A service might be available in a PAN but not necessarily accessible since another application is exclusively using the service.

Since service repository software component 704 operates with local and remote applications, a uniform interface is used. In an embodiment of the present invention, remote applications use a Bluetooth™ Service Discovery Protocol ("SDP") to discover what services gateway device 106 offers. Similarly, local applications use SDP in an embodiment of the present invention.

C. Application Server

Application Server component 404a illustrated in Fig. 5a allows for removing redundant capabilities from terminals and consolidate them in a centralized application server. This allows significant added value in minimizing the cost and complexity of the terminals in a PAN, as well as making their design intuitive and easy to use.

In an embodiment of the present invention, application server component 404a includes two components: 1) an execution environment and 2) services for being able to successfully execute software on a multi-terminal PAN, such as a file system.

Thin terminals, being optimized for low cost will not include an IP capability in most cases. Instead, they will use the native protocols offered by the PAN's physical layer. This does not conflict with the PAN router 404c since thin terminals are an extended remote I/O for applications running on a PAN application server 404a. All the logic, protocols and standard compatibility is implemented in the application server, in which standard protocols like IP are implemented and used.

1. Usage Scenario

In an embodiment of the present invention, a thin messaging terminal includes a color Liquid Crystal Display ("LCD"), QWERTY keypad, Bluetooth™ chipset and a small software stack for displaying graphical screens received over the Bluetooth™ air interface and transmit keypad actions back over the Bluetooth™ air interface.

When a terminal is turned on for the first time, a Plug and Play component 701 in the gateway device 106 identifies that this is a new terminal. Gateway device 106 communicates with Plug and Play component 701 in order to retrieve the needed software package to be executed on an application server 404a. In an embodiment of the present invention, a Plug and Play component 701 contains a URL for a chatting application package.

Application loader 705 gets the URL and loads the new package to PAN application server 404a in a gateway device 106 and executes the chatting software application. The chatting application software identifies the messaging device by

enumerating a PAN for terminals and capabilities, and attaches itself to the right remote graphical driver and the remote keypad driver.

Now, all user interactions for the chatting application is displayed on the messaging terminal, and the keypad entries on the terminal are sent to the chatting application.

In this embodiment of the present invention, the terminal is used only for I/0 and user interaction. The actual chatting logic is executed in application server 404a, which is located in gateway device 106.

IV. Gateway Device/ Terminal operations

A. Terminal Joins Personal Area Network

First, PAN router 404c requests a PIN number from PIN number management component 702. Second, if a PIN number is available, PIN number management 702 transfers the PIN number to PAN router 404c. Otherwise, PIN number management 702 attempts to obtain the PIN number from other sources, such as applications 406 or backend middleware 485, and transfers the PIN number to PAN router 404c. Third, PAN router 404c notifies plug and play 701 that a pairing has ended and delivers a terminal ID to plug and play 701. Fourth, plug and play 701 resolves the terminal package URL with backend middleware 485 if a package is not locally available; otherwise, the package is loaded and executed. Finally, if the package contains drivers, the driver's services are offered to service repository 704.

B. Pin Number Received

Backend middleware 485 or an application acquires a PIN number. Second, the acquired PIN number is offered to PIN number management 702 by either

backend middleware 485 or applications 406. In an alternate embodiment of the present invention, a PIN number is offered with additional characteristics of the associated terminal. PIN number information is then accepted and stored with the attributes in a database of PIN number management 702.

C. Gateway Device Application Queries for a Specific Service

There are two methods for a gateway device 106 application to inquire for a specific service. The first terminal method includes the application asking service repository 704 to describe the terminals in the current personal area network and to describe whether any of these terminals provide the requested service. In an embodiment of the present invention, an application sorts the available terminals in order of preference. The application then queries abstraction layer I/O whether the most preferred terminal's service is available.

The second service method includes an application querying service repository 704 to provide the registered services that suite a requested service class. The application then searches the registered services to determine which capabilities are provided by the registered services. In an embodiment of the present invention, an application sorts the available services in order of preference. The application then queries abstract layer I/O whether the most preferred service is available.

D. Terminal Application Queries for a Gateway Device Service

Media abstraction layer 504 obtains a SDP of a remote terminal application. Media abstraction layer 504 passes the SDP call to service repository 704. Service repository 704 answers media abstraction layer 504, using SDP, according to

services that are registered. The abstraction layer 504 then sends the answers to an application on remote terminal.

In an alternate embodiment, service repository 704 pushes new services to a Bluetooth™ stack SDP database. The Bluetooth™ stack replies automatically and generates a SDP request.

E. High Priority Application Prevents Terminal Usage

In response to a network configuration signal from a high priority application in applications 406, management component 703 generates a delete PIN number signal to PIN number management component 702 which deletes the PIN number associated with the selected terminal. Management component 703 generates a disable signal to service repository component 704 to cease offering all the services associated with the selected terminal. Management component 703 generates a disable service signal to abstraction layer I/O in order to halt all the transport to and from the selected terminal's services.

Abstraction layer I/O sends halt notifications to the applications that are currently using the selected terminal's services. Abstraction layer I/O then stops any data transport to and from the selected terminal's services.

V. Conclusion

The foregoing description of the preferred embodiments of the present invention has been provided for the purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Obviously, many modifications and variations will be apparent to practitioners skilled in the art. The embodiments were chosen and described in order to best explain the

principles of the invention and its practical applications, thereby enabling others skilled in the art to understand the invention for various embodiments and with the various modifications as are suited to the particular use contemplated. It is intended that the scope of the invention be defined by the following claims and their equivalents.

What is claimed is:

1) A system, coupled to a cellular network, for providing access to the internet, comprising:

(a) a wireless gateway device, coupled to the cellular network, having a network manager software component for accessing information from the internet responsive to a first short-range radio signal; and,

(b) a first wireless device, coupled the wireless gateway device, for providing the first short-range radio signal.

2) The system of Claim 1, wherein the first wireless device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a printer, a watch, a digital camera and an equivalent thereof.

3) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Global System for Mobile Communications ("GSM") protocol.

4) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Code Division Multiple Access ("CDMA") protocol.

5) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a CDMA 2000 protocol.

6) The system of Claim 1, wherein the wireless gateway device is a cellular telephone using a Time Division Multiple Access ("TDMA") protocol.

7) The system of Claim 1, wherein the first wireless device is a thin terminal.

8) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

9) The system of Claim 1, wherein the wireless gateway device includes a Bluetooth™ processor and a 2.4 GHZ transmitter.

10) The system of Claim 1, wherein the first wireless device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

11) The system of Claim 1, wherein the wireless gateway device includes a Bluetooth™ processor and a 5.7 GHZ transmitter.

12) The system of Claim 1, wherein the network manager software component includes a plug and play software component for loading and executing software for the first wireless terminal.

13) The system of Claim 1, wherein the network manager software component includes a PIN number management software component for obtaining and providing PIN numbers.

14) The system of Claim 1, wherein the network manager software component includes a service repository software component for obtaining an availability of a service from the first wireless terminal.

15) The system of Claim 1, wherein the first wireless device includes an application software component for providing a service; and, wherein the network manager software component includes a management software component for accessing the service.

16) The system of Claim 1, further comprising:
(c) a second wireless device coupled to the wireless gateway device, for providing a second short-range signal, wherein the first wireless device communicates with the second wireless device through the wireless gateway device.

17) The system of Claim 1, further comprising:

(c) a second wireless device, coupled to the wireless gateway device, for providing a second short-range signal, wherein the wireless gateway device, provides access to the Internet for the first and second wireless device.

18) The system of Claim 1, wherein the network software component operates with an operating system software component.

19) The system of Claim 18, wherein the operating system software component is a Linux operating system.

20) The system of Claim 18, wherein the operating system software component is a EPOC operating system.

21) The system of Claim 18, wherein the operating system software component is a PocketPC operating system.

22) The system of Claim 18, wherein the operating system software component is a Stinger operating system.

23) The system of Claim 1, wherein the wireless gateway device further includes 1) an application software component for providing a service and 2) a server software component, coupled to the network management software component.

24) The system of Claim 1, wherein the wireless gateway device further includes a firewall software component.

25) The system of Claim 1, wherein the wireless gateway device further includes a virtual private network ("VPN") software component.

26) A system for providing access to information on a network, comprising:
(a) a wireless gateway device, coupled to the network, having a network manager software component for accessing the information from the network responsive to a first signal; and,
(b) a first wireless device, coupled the wireless gateway device, for providing the first signal.

27) The system of claim 26, wherein the network is a corporate network.

28) The system of claim 26, wherein the network is a private IP network.

29) The system of claim 26, wherein the first signal is a 802.11 signal.

30) The system of claim 26, wherein the first signal is a HomeRF signal.

31) The system of claim 26, wherein the wireless gateway device is coupled to the network by an Ethernet connection.

32) The system of claim 26, wherein the wireless gateway device is coupled to the network by a DSL connection.

33) The system of claim 26, wherein the wireless gateway device is coupled to the network by a cable modem.

34) The system of claim 26, wherein the wireless gateway device is coupled to the network by a cellular network and a landline network.

35) The system of claim 26, wherein the first wireless device provides execution space for executable software from the wireless gateway device.

36) A handheld device for providing a personal network, comprising:
(a) a storage device;

(b) a processor, coupled to the storage device; and,

(c) the storage device storing a software component for controlling the processor; and, the processor operative with the component to:

(d) provide a short-range radio Internet protocol communication between a first handheld wireless device and a second handheld wireless device.

37) The device of Claim 36, further comprising:
(e) a Bluetooth™ transmitter, coupled to the processor.

38) The device of Claim 36, further comprising:
(e) a GSM transmitter, coupled to the processor.

39) The device of Claim 36, the software component includes a network software component.

40) The device of Claim 36, wherein the network software component includes a plug and play software component.

41) The device of Claim 36, wherein the network software component includes a PIN number management software component.

42) The device of Claim 36, wherein the network software component includes a service repository software component.

43) The device of Claim 36, wherein the network software component includes a management software component.

44) A wireless handheld device for accessing a router in a personal area network, comprising:
(a) a storage device;
(b) a processor, coupled to the storage device; and,
(c) the storage device storing a software component for controlling the processor; and, the processor operative with the component to:

provide a first short-range radio signal to the router for accessing the internet and a second short-range radio signal to the router for accessing another wireless handheld device.

45) The wireless handheld device of Claim 44, wherein the first wireless handheld device is selected from a group consisting of a desktop computer, a laptop computer, a personal digital assistant, a headset, a pager, a watch, a thin terminal a digital camera and an equivalent thereof.

46) The wireless handheld device of Claim 44, wherein the first wireless handheld device is a thin terminal.

47) The wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 2.4 GHZ transmitter.

48) The wireless handheld device of Claim 44, wherein the first wireless handheld device includes a 5.7 GHZ transmitter.

49) The wireless handheld device of Claim 44, wherein the software component includes an application software component for providing a service in the personal area network.

50) An article of manufacture, including a computer readable medium, comprising:

(a) an application software component for providing a service;

(b) an application server software component for providing the application software component;

(c) an Internet protocol network manager software component;

(d) an operating system software component;

(e) a short-range radio software component for providing a short-range radio signal; and,

(e) a cellular software component for providing a communication signal to a cellular network.

51) The article of manufacture of Claim 50, wherein the operating system software component is a Linux operating system.

52) The article of manufacture of Claim 50, wherein the operating system software component is a EPOC operating system.

53) The article of manufacture of Claim 50, wherein the operating system software component is a PocketPC operating system.

54) The article of manufacture of Claim 50, wherein the operating system software component is a Stinger operating system.

55) The article of manufacture of Claim 50, wherein the article of manufacture is a memory storage device in a cellular telephone.

56) The article of manufacture of Claim 50, wherein the short-range radio software component is a Bluetooth™ component.

57) The article of manufacture of Claim 50, wherein the cellular software component is a GSM component.

ABSTRACT

A system, a wireless hand-held device, and software component for accessing information responsive to short-range radio signals is provided. The system includes a wireless gateway device coupled to a network, such as a cellular network. The wireless gateway device includes a network manager software component for accessing information from the network responsive to a first short-range radio signal. The network may be a corporate, private or public network, such as the Internet. A first wireless device is coupled to the wireless gateway device. The first wireless device provides the first short-range radio signal. In an embodiment of the present invention, the first wireless device is a cellular telephone, personal digital assistant or thin terminal having a Bluetooth™ processor and transmitter. In an embodiment of the present invention, the network manager software component includes a plug and play software component for loading and executing software for the first wireless device. In an embodiment of the present invention, a second wireless device accesses information on the first wireless device using the wireless gateway device.

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WASHINGTON, D.C. 20231
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BIBDATASHEET

Bib Data Sheet

CONFIRMATION NO. 2705

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09/850,399	05/07/2001 RULE	370	2666	IXIM-01000US0

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

FD none

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

FD none

IF REQUIRED, FOREIGN FILING LICENSE GRANTED
** 07/02/2001

Foreign Priority claimed	STATE OR	SHEETS	TOTAL	INDEPENDENT
☐ yes ☑ no				
35 USC 119 (a-d) conditions met ☐ yes ☑ no ☐ Met after Allowance				
Verified and Acknowledged Examiner's Signature / Initials FD	COUNTRY CA	DRAWING 9	CLAIMS 57	CLAIMS 5

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TITLE
System, device and computer readable medium for providing a managed wireless network using short-range radio signals

FILING FEE RECEIVED	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)

PATENT APPLICATION FEE DETERMINATION RECORD
Effective October 1, 2000

Application or Docket Number: IXIM-01000US0

CLAIMS AS FILED - PART I

	(Column 1)	(Column 2)
TOTAL CLAIMS	57	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	57 minus 20=	* 37
INDEPENDENT CLAIMS	5 minus 3 =	* 2
MULTIPLE DEPENDENT CLAIM PRESENT		☐

* If the difference in column 1 is less than zero, enter "0" in column 2

SMALL ENTITY TYPE ☐		OR	OTHER THAN SMALL ENTITY	
RATE	FEE		RATE	FEE
BASIC FEE	355.00	OR	BASIC FEE	710.00
X$ 9=	333	OR	X$18=	
X40=	80	OR	X80=	
+135=		OR	+270=	
TOTAL	768	OR	TOTAL	

CLAIMS AS AMENDED - PART II

AMENDMENT A	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

SMALL ENTITY		OR	OTHER THAN SMALL ENTITY	
RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X40=		OR	X80=	
+135=		OR	+270=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT B	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X40=		OR	X80=	
+135=		OR	+270=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

AMENDMENT C	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA
Total	*	Minus	**	=
Independent	*	Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM				☐

RATE	ADDITIONAL FEE		RATE	ADDITIONAL FEE
X$ 9=		OR	X$18=	
X40=		OR	X80=	
+135=		OR	+270=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. 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.

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

05/09/2001 MDAMTE1 00000015 09850399

01 FC:201	355.00	OP
02 FC:203	333.00	OP
03 FC:202	80.00	OP

PTO-1556
(5/87)

*U.S. GPO: 2000-468-987/39595

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET
(FOR USE WITH FORM PTO-875)

SERIAL NO. 09850399 | FILING DATE 05-07-01
APPLICANT(S)

CLAIMS

	AS FILED		AFTER 1st AMENDMENT		AFTER 2nd AMENDMENT			*		*		*	
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48		1					98						
49		1					99						
50	1						100						
TOTAL IND.	5						TOTAL IND.						
TOTAL DEP.		52					TOTAL DEP.						
TOTAL CLAIMS	57						TOTAL CLAIMS						

PTO-1360 (3-78)

*MAY BE USED FOR ADDITIONAL CLAIMS OR AMENDMENTS

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