

AO 120 (Rev. 08/10)

<b>TO:</b> <b>Mail Stop 8</b> <b>Director of the U.S. Patent and Trademark Office</b> <b>P.O. Box 1450</b> <b>Alexandria, VA 22313-1450</b>	<b>REPORT ON THE</b> <b>FILING OR DETERMINATION OF</b> <b>AN ACTION REGARDING A PATENT</b> <b>OR TRADEMARK</b>
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In Compliance with 35 U.S.C. § 290 and/or 15 U.S.C. § 1116 you are hereby advised that a court action has been filed in the U.S. District Court Western District of Texas - Waco Division on the following

Trademarks or  Patents. (  the patent action involves 35 U.S.C. § 292.);

DOCKET NO. 6:22-cv-00288	DATE FILED March 17, 2022	U.S. DISTRICT COURT Western District of Texas - Waco Division
PLAINTIFF  Fintiv, Inc.		DEFENDANT  PayPal Holdings, Inc.
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1 8,538,845	September 17, 2013	Fintiv, Inc.
2 9,892,386	February 13, 2018	Fintiv, Inc.
3 11,120,413	September 14, 2021	Fintiv, Inc.
4 9,208,488	December 8, 2015	Fintiv, Inc.
5 10,438,196	October 8, 2019	Fintiv, Inc.

In the above—entitled case, the following patent(s)/ trademark(s) have been included:

DATE INCLUDED	INCLUDED BY <input type="checkbox"/> Amendment <input type="checkbox"/> Answer <input type="checkbox"/> Cross Bill <input type="checkbox"/> Other Pleading	
PATENT OR TRADEMARK NO.	DATE OF PATENT OR TRADEMARK	HOLDER OF PATENT OR TRADEMARK
1		
2		
3		
4		
5		

In the above—entitled case, the following decision has been rendered or judgement issued:

DECISION/JUDGEMENT
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CLERK	(BY) DEPUTY CLERK	DATE
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Copy 1—Upon initiation of action, mail this copy to Director Copy 3—Upon termination of action, mail this copy to Director  
 Copy 2—Upon filing document adding patent(s), mail this copy to Director Copy 4—Case file copy

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 9,892,386 B2  
APPLICATION NO. : 15/201152  
DATED : February 13, 2018  
INVENTOR(S) : Liberty et al.

Page 1 of 1

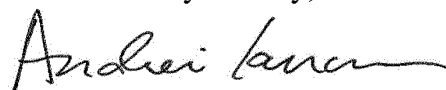
It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the Title Page

Item (12) "Liberty" should read -- Liberty, et al. --.

Item (72) Inventor is corrected to read:  
-- Michael A. Liberty, Orlando (FL);  
Felipe Fernandes, Austin (TX) --.

Signed and Sealed this  
Fifth Day of May, 2020



Andrei Iancu  
*Director of the United States Patent and Trademark Office*



UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/201,152	07/01/2016	Michael A. Liberty	18756.8.1.1.1.1.1.1	2611
22913	7590	04/13/2020	EXAMINER	
Workman Nydegger 60 East South Temple Suite 1000 Salt Lake City, UT 84111			CHANG, EDWARD	
			ART UNIT	PAPER NUMBER
			3696	
			NOTIFICATION DATE	DELIVERY MODE
			04/13/2020	ELECTRONIC

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

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

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

Docketing@wnlaw.com



UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
www.uspto.gov

Patent No.: 9892386  
Issue Date: 02/13/2018  
Appl. No.: 15/201,152  
Filed: 07/01/2016

**PART (A) RESPONSE FOR CERTIFICATES OF CORRECTION**

This is a decision on the Certificate of Correction request filed \_\_\_\_\_.

The request for issuance of Certificate of Correction for the above-identified correction(s) under the provisions of 37 CFR 1.322 and/or 1.323 is hereby:

(Check one)

Approved       Approved in Part       Denied

Comments: \_\_\_\_\_

**PART (B) PETITION UNDER 37 CFR 1.324 OR 37 CFR 1.48**

This is a decision on the petition filed 20 February 2020 to correct inventorship under 37 CFR 1.324.

This is a decision on the request under 37 CFR 1.48, petition filed \_\_\_\_\_. In view of the fact that the patent has already issued, the request under 37 CFR 1.48 has been treated as a petition to correct inventorship under 37 CFR 1.324.

The petition is hereby:       Granted       Dismissed

Comment: \_\_\_\_\_

The patented filed is being forwarded to Certificate of Corrections Branch for issuance of a certificate naming only the actual inventor or inventors.

/NAMRATA BOVEJA/  
Supervisory Patent Examiner, Art Unit 3696  
Technology Center 3600  
Phone: (571)272-8105

Certificates of Correction Branch email: CustomerServiceCoC@uspto.gov CoC Central Phone Number: (703) 756-1814





# United States Patent and Trademark Office

*Office of the Chief Financial Officer*

Document Code:WFEE

User :65148

Sale Accounting Date:04/08/2020

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Sale Item Reference Number	Effective Date
15201152	02/20/2020

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I202048D03194218	1811	CERTIFICATE OF CORRECTION	\$150.00	Deposit Account

VIA eFILE

Docket No. 18756.8.1.1.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Michael A. Liberty	)
		)
Serial No.:	15/201,152 – Confirmation #2611	)
		)
Filed:	July 1, 2016	)
		)
Patent No:	9892386	)
		)
Granted:	February 3, 2018	)
		)
FOR:	Monetary Transaction System	)
		)
Examiner:	n/a	)
		)
Customer No.:	22913	)

REQUEST TO CORRECT INVENTORSHIP UNDER 37 C.F.R. § 1.324

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

Sir:

The Assignee desires to correct inventorship of the above-identified United States patent under 37 C.F.R. §1.324.

As set forth in 37 C.F.R. § 1.324, Assignee requests to **add** the following named person as an inventor in the above-identified patent application:

Inventor:	Felipe Fernandes
Residence:	US
Citizenship:	US

Enclosed:

X Statement from inventor Felipe Fernandes that he approves of the change in inventorship.

X Statement from inventor Michael A. Liberty that he approves of the change in inventorship.

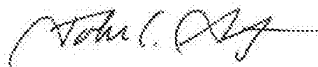
X Consent of Assignee to Correct Inventorship.

X The \$150.00 fee for correction of inventorship of this patent under 37 C.F.R. § 1.20(b).

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: any post issuance fees under 37 CFR § 1.20. In addition, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 20<sup>th</sup> day of February, 2020

Respectfully submitted,



John C. Stringham  
Registration No. 40831  
Attorney for Applicant  
Customer No. 022913

JCS:re  
43381774.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Michael A. Liberty et al.	)	
		)	
Serial No.:	15/201,152	)	
		)	
Filed:	July 1, 2016	)	
		)	Art Unit
Patent No.:	9892386	)	3696
		)	
Issued:	February 13, 2018	)	
		)	
Confirmation No.:	2611	)	
		)	
FOR:	MONETARY TRANSACTION SYSTEM	)	
		)	
Examiner:	Edward Chang	)	
		)	
Customer No.:	22913	)	

STATEMENT AND WRITTEN CONSENT OF  
ASSIGNEE PURSUANT TO 37 C.F.R. § 1.324(b)(2) and 3.73(c)

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

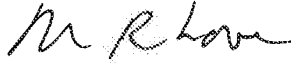
Sir:

The undersigned, Mike Love, declares that he is the President of FINTIV, INC. and that he is authorized to execute this statement on behalf of FINTIV, INC. organized and existing under laws of Delaware and that FINTIV, INC. is the Assignee of the right, title and interest of the above-identified application, as shown in the chain of title from Michael A. Liberty to MOZIDO, LLC. as recorded in the United States Patent and Trademark Office at Reel 039082, Frame 0528; from MOZIDO, LLC to MOZIDO, INC. recorded at Reel 051265, Frame 0352; from MOZIDO, INC. to FINTIV, INC. as recorded by virtue of a name change in the United States Patent and Trademark Office at Reel 051276, Frame 0649.

FINTIV, INC. hereby consents to the change of inventorship set forth in the accompanying request that adds Felipe Fernandes as a joint inventor of the above-identified patent application.

Signed this 1 day of February, 2020.

FINTIV, INC.



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**Mike Love**  
**Title: President**

Via E-File

Docket No. 18756.8.1.1.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Michael A. Liberty et al.	)	
		)	
Serial No.:	15/201,152	)	
		)	
Filed:	July 1, 2016	)	
		)	
Patent No.:	9892386	)	Art Unit
		)	3696
Issued:	February 13, 2018	)	
		)	
Confirmation No.:	2611	)	
		)	
FOR:	MONETARY TRANSACTION SYSTEM	)	
		)	
Examiner:	Edward Chang	)	
		)	
Customer No.:	22913	)	


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

STATEMENT OF ADDED INVENTOR Felipe Fernandes  
under 37 CFR 1.324(b)(1)

Sir:

I, Felipe Fernandes, joint inventor for the above-identified application, hereby request that I be added as a joint inventor on the above-referenced application and I have no disagreement in regard to the requested change.

Dated this 3 day of FEBRUARY, 2020.

  
\_\_\_\_\_  
Felipe Fernandes

VIA E-File

Docket No. 18756.8.1.1.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Michael A. Liberty et al.	)	
		)	
Serial No.:	15/201,152	)	
		)	
Filed:	July 1, 2016	)	
		)	
Patent No.:	9892386	)	Art Unit
		)	3696
		)	
Issued:	February 13, 2018	)	
		)	
Confirmation No.:	2611	)	
		)	
FOR:	MONETARY TRANSACTION SYSTEM	)	
		)	
Examiner:	Edward Chang	)	
		)	
Customer No.:	22913	)	

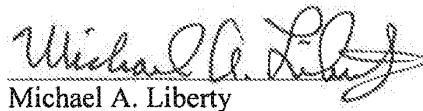
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

STATEMENT OF CURRENT INVENTOR-- Michael A. Liberty  
Under 37 CFR 1.324(b)(1)

Sir:

I, Michael A. Liberty, current inventor for the above-identified application, hereby agree to the addition of Felipe Fernandes as an inventor.

Dated this 28 day of Jan, 2020.

  
Michael A. Liberty

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

## POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

<b>Application Number</b>	<b>Filing Date</b>
15/201,152	July 1, 2016

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

- I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 22913
- OR
- I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

**Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:**

- The address associated with the above-mentioned Customer Number
- OR
- The address associated with Customer Number:
- OR

<input type="checkbox"/> Firm or Individual Name			
Address			
City	State		Zip
Country			
Telephone		Email	

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

**FINTIV, INC.**

- Inventor or Joint Inventor (title not required below)
- Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)
- Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)
- Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

**SIGNATURE of Applicant for Patent**

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature	<i>MR Love</i>	Date (Optional)	
Name	Mike Love		
Title	President		

**NOTE:** Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

Total of \_\_\_\_\_ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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



**STATEMENT UNDER 37 CFR 3.73(c)**

Applicant/Patent Owner: FINTIV, INC.  
Application No./Patent No.: 15/201,152 Filed/Issue Date: July 1, 2016  
Titled: Monetary Transaction System  
FINTIV, INC., a Corporation  
(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1.  The assignee of the entire right, title, and interest.
2.  An assignee of less than the entire right, title, and interest (check applicable box):
- The extent (by percentage) of its ownership interest is \_\_\_\_\_%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.
  - There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3.  The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4.  The recipient, via a court proceeding or the like (e.g., bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

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

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

1. From: Michael A. Liberty To: MOZIDO, LLC

The document was recorded in the United States Patent and Trademark Office at Reel 039082, Frame 0528, or for which a copy thereof is attached.

2. From: MOZIDO, LLC To: MOZIDO, INC.

The document was recorded in the United States Patent and Trademark Office at Reel 051265, Frame 0352, or for which a copy thereof is attached.

[Page 1 of 2]

This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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

**STATEMENT UNDER 37 CFR 3.73(c)**

3. From: MOZIDO, INC. To: FINTIV, INC.

The document was recorded in the United States Patent and Trademark Office at Reel 051276, Frame 0649, or for which a copy thereof is attached.

4. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

5. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

6. From: \_\_\_\_\_ To: \_\_\_\_\_

The document was recorded in the United States Patent and Trademark Office at Reel \_\_\_\_\_, Frame \_\_\_\_\_, or for which a copy thereof is attached.

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

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

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

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

/John C. Stringham/

Signature

John C. Stringham

Printed or Typed Name

February 20, 2020

Date

40831

Title or Registration Number

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	15201152				
<b>Filing Date:</b>	01-Jul-2016				
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM				
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty				
<b>Filer:</b>	John C. Stringham/Ralene Eller				
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1				
Filed as Small Entity					
<b>Filing Fees for Utility under 35 USC 111(a)</b>					
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>	
<b>Basic Filing:</b>					
<b>Pages:</b>					
<b>Claims:</b>					
<b>Miscellaneous-Filing:</b>					
<b>Petition:</b>					
<b>Patent-Appeals-and-Interference:</b>					
<b>Post-Allowance-and-Post-Issuance:</b>					
PROCESSING FEE CORRECTING INVENTORSHIP	2816	1	150	150	

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>150</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	38647803
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Ralene Eller
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1
<b>Receipt Date:</b>	20-FEB-2020
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	17:27:46
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$150
RAM confirmation Number	E20202JH28491200
Deposit Account	233178
Authorized User	Ralene Eller

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

**File Listing:**

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request under Rule 48 correcting inventorship	18756-8-1-1-1-1-1-1_2020-02-20_Request-to-Correct-Inventorship.pdf	123203	no	2
			958abb700aa893920cb7397d35ca3f30256104c28		
<b>Warnings:</b>					
<b>Information:</b>					
2	Consent of Assignee accompanying the declaration	18756-8-1-1-1-1-1-1_2020-02-20_Consent-of-Assignee.pdf	101239	no	2
			07fcd8dc94d1edd72ff8e7e5c45c149126a3a9ec		
<b>Warnings:</b>					
<b>Information:</b>					
3	Request under Rule 48 correcting inventorship	18756-8-1-1-1-1-1-1_2020-02-20_Liberty-Stmt.pdf	79492	no	1
			22cfd724c2122cf68016414c3e0b692417af5c49		
<b>Warnings:</b>					
<b>Information:</b>					
4	Request under Rule 48 correcting inventorship	18756-8-1-1-1-1-1-1_2020-02-20_Fernandes-Stmt.pdf	93175	no	1
			c5c84212f078a13bd4fb69f34c1d96189fb47cb1		
<b>Warnings:</b>					
<b>Information:</b>					
5	Power of Attorney	18756-8-1-1-1-1-1-1_2020-02-20_POA.pdf	1333504	no	1
			cfafcd8ba09ee2c3aa148380104a4aef2d4465a2		
<b>Warnings:</b>					
<b>Information:</b>					
6	Assignee showing of ownership per 37 CFR 3.73	18756-8-1-1-1-1-1-1_2020-02-20_373c-stmt.pdf	44256	no	2
			0fc631d2ce647d4ef875f0b72a32ff2685d967ed		
<b>Warnings:</b>					
<b>Information:</b>					

7	Fee Worksheet (SB06)	fee-info.pdf	30046  db5d2b6cdc4a92b75de04d57cb745dcc64673242	no	2
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>				1804915	
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					



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Table with 5 columns: APPLICATION NO., ISSUE DATE, PATENT NO., ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/201,152, 02/13/2018, 9892386, 18756.8.1.1.1.1.1, 2611

22913 7590 01/24/2018
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Mozido, Inc., Austin, TX;
Michael A. Liberty, Orlando, FL;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.



<b>Electronic Acknowledgement Receipt</b>	
<b>EFS ID:</b>	31178318
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Sarah Warcup
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1
<b>Receipt Date:</b>	08-DEC-2017
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	18:57:45
<b>Application Type:</b>	Utility under 35 USC 111(a)

**Payment information:**

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$920
RAM confirmation Number	121117INTEFSW00005340233178
Deposit Account	233178
Authorized User	Lindsey Gifford
<p>The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:</p> <p>37 CFR 1.16 (National application filing, search, and examination fees)</p> <p>37 CFR 1.17 (Patent application and reexamination processing fees)</p>	

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	15201152			
<b>Filing Date:</b>	01-Jul-2016			
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM			
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty			
<b>Filer:</b>	John C. Stringham/Sarah Warcup			
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1			
Filed as Small Entity				
<b>Filing Fees for Utility under 35 USC 111(a)</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
PETITION FEE-37CFR 1.17(H) (GROUP II)	2464	1	70	70
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	850	850
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				

Adjustment date: 01/19/2018 SDIRETA1  
 12/11/2017 INT/FSW 00005340 233178 15201152  
 02 FC:2820 850.00 CR



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Alexandria, Virginia 22313-1450
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Table with columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO. Includes details for application 15/201,152 and 22913, inventor Michael A. Liberty, and examiner Edward Chang.

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

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

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

Docketing@wnlaw.com

<b>Notice of Allowability</b>	<b>Application No.</b> 15/201,152	<b>Applicant(s)</b> Liberty, Michael A.	
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696	<b>AIA Status</b> No

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

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

- 1.  This communication is responsive to response/QPIDS filed on December 8, 2017 .  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_ .
- 2.  An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 3.  The allowed claim(s) is/are 1 and 4-5 . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information , please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to **PPHfeedback@uspto.gov**.
- 4.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a)  All    b)  Some    \*c)  None of the:
  - 1.  Certified copies of the priority documents have been received.
  - 2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .
  - 3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_ .

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

- 5.  CORRECTED DRAWINGS (as "replacement sheets") must be submitted.  
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_ .  
**Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
- 6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1.  Notice of References Cited (PTO-892)
- 2.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date 12/08/2017
- 3.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material \_\_\_\_\_
- 4.  Interview Summary (PTO-413),  
Paper No./Mail Date. \_\_\_\_\_
- 5.  Examiner's Amendment/Comment
- 6.  Examiner's Statement of Reasons for Allowance
- 7.  Other \_\_\_\_\_ .

/EDWARD CHANG/  
Primary Examiner, Art Unit 3696

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Not for submission under 37 CFR 1.99)	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

U.S. PATENTS					
Examiner Initials*	Cite No.	Patent Number	Issue Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	7370017	6-May-2008	Lindeman	

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2	20120131653	24-May-2012	Pasquero	
	3	20100114739	6-May-2010	Johnston	
	4	20120166311	28-Jun-2012	Dwight	
	5	20140014721	16-Jan-2014	Lindeman	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	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 1
	1	Ron White, How Computers Work, October 15, 2003, Paul Boger, Illustrated by Timothy Edward Dwons, 7th Edition (Year: 2003)	<input type="checkbox"/>

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	14/341605	27-Nov-2017	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/EDWARD CHANG/	Date Considered	12/29/2017
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
^Applicant is to place a check mark here if English language translation is attached.			

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	12/7/12
Name/Print	John C. Stringham	Registration Number	40831

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour 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.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Not for submission under 37 CFR 1.99)	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

U.S. PATENTS					
Examiner Initials*	Cite No.	Patent Number	Issue Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	7370017	6-May-2008	Lindeman	

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	2	20120131653	24-May-2012	Pasquero	
	3	20100114739	6-May-2010	Johnston	
	4	20120166311	28-Jun-2012	Dwight	
	5	20140014721	16-Jan-2014	Lindeman	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.	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 1
	1	Ron White, How Computers Work, October 15, 2003, Paul Boger, Illustrated by Timothy Edward Dwons, 7th Edition (Year: 2003)	<input type="checkbox"/>

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	14/341605	27-Nov-2017	Office Action

EXAMINER SIGNATURE			
Examiner Signature			Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
^Applicant is to place a check mark here if English language translation is attached.			

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Not for submission under 37 CFR 1.99)

Application Number	15/201,152
Filing Date	2016-07-01
First Named Inventor	Michael A. Liberty
Art Unit	3696
Examiner Name	Edward Chang
Attorney Docket Number	18756.8.1.1.1.1.1.1

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

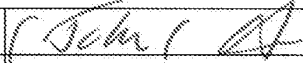
Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	12/7/12
Name/Print	John C. Stringham	Registration Number	40831

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour 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.



Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)

Approved for use through 07/31/2012. OMB 0651-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)							
Application Number	15201152	Filing Date	2016-07-01	Docket Number (if applicable)	18756.8.1.1.1.1.1.1	Art Unit	3696
First Named Inventor	Michael A. Liberty			Examiner Name	Edward Chang		
<p><b>This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.</b>            Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV</p>							
SUBMISSION REQUIRED UNDER 37 CFR 1.114							
<p>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).</p>							
<p><input type="checkbox"/> 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.</p> <p style="padding-left: 40px;"><input type="checkbox"/> Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____</p> <p style="padding-left: 40px;"><input type="checkbox"/> Other _____</p> <p><input checked="" type="checkbox"/> Enclosed</p> <p style="padding-left: 40px;"><input type="checkbox"/> Amendment/Reply</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> Information Disclosure Statement (IDS)</p> <p style="padding-left: 40px;"><input type="checkbox"/> Affidavit(s)/ Declaration(s)</p> <p style="padding-left: 40px;"><input type="checkbox"/> Other _____</p>							
MISCELLANEOUS							
<p><input type="checkbox"/> 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)</p> <p><input type="checkbox"/> Other _____</p>							
FEES							
<p><input checked="" type="checkbox"/> The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.            The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to            Deposit Account No <u>233178</u></p>							
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED							
<p><input checked="" type="checkbox"/> Patent Practitioner Signature</p> <p><input type="checkbox"/> Applicant Signature</p>							

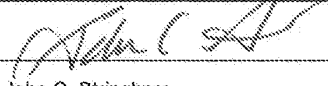
Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)

Approved for use through 07/31/2012. OMB 0851-0031  
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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

Signature of Registered U.S. Patent Practitioner			
Signature		Date (YYYY-MM-DD)	2017-12-02
Name	John C. Stringham	Registration Number	40831

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

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

## Privacy Act Statement

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

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

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

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	15201152			
<b>Filing Date:</b>	01-Jul-2016			
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM			
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty			
<b>Filer:</b>	John C. Stringham/Sarah Warcup			
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1			
Filed as Small Entity				
<b>Filing Fees for Utility under 35 USC 111(a)</b>				
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>
<b>Basic Filing:</b>				
PETITION FEE-37CFR 1.17(H) (GROUP II)	2464	1	70	70
RCE- 2ND AND SUBSEQUENT REQUEST	2820	1	850	850
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Post-Allowance-and-Post-Issuance:</b>				
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>920</b>



## UNITED STATES PATENT AND TRADEMARK OFFICE

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Commissioner for Patents  
United States Patent and Trademark Office  
P.O. Box 1450  
Alexandria, VA 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

Decision Date : December 8, 2017

In re Application of :

Michael Liberty

DECISION ON PETITION

UNDER CFR 1.313(c)(2)

Application No : 15201152

Filed : 01-Jul-2016

Attorney Docket No : 18756.8.1.1.1.1.1

This is an electronic decision on the petition under 37 CFR 1.313(c)(2), filed December 8, 2017, to withdraw the above-identified application from issue after payment of the issue fee.

The petition is **GRANTED**.

The above-identified application is withdrawn from issue for consideration of a submission under 37 CFR 1.114 (request for continued examination). See 37 CFR 1.313(c)(2).

**Petitioner is advised that the issue fee paid in this application cannot be refunded. If, however, this application is again allowed, petitioner may request that it be applied towards the issue fee required by the new Notice of Allowance.**

Telephone inquiries concerning this decision should be directed to the Patent Electronic Business Center (EBC) at 866-217-9197.

This application file is being referred to Technology Center AU 3696 for processing of the request for continuing examination under 37 CFR 1.114 .

Office of Petitions

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	31178318
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Sarah Warcup
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1
<b>Receipt Date:</b>	08-DEC-2017
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	18:57:45
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$920
RAM confirmation Number	121117INTEFSW00005340233178
Deposit Account	233178
Authorized User	Lindsey Gifford

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)  
 37 CFR 1.20 (Post Issuance fees)  
 37 CFR 1.21 (Miscellaneous fees and charges)

**File Listing:**

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition automatically granted by EFS	petition-request.pdf	31500 b15f5f2687182873d1f74e8f77bc842d9e066118	no	2

**Warnings:**

**Information:**

2	Information Disclosure Statement (IDS) Form (SB08)	18756-8-1-1-1-1-1_2017-12-08_IDS.pdf	750236 c4206043cd2d97983f242ef76a4d688c57d39c98	no	2
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**Warnings:**

**Information:**

This is not an USPTO supplied IDS fillable form

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

3	Quick Path Information Disclosure Statement	18756-8-1-1-1-1-1_2017-12-08_QPIDS.pdf	820205 1a1a3379ec7e3516caa676a0ff0f8ad35a408b71	no	2
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**Warnings:**

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

**Information:**

4	Request for Continued Examination (RCE)	18756-8-1-1-1-1-1_2017-12-08_RCE.pdf	600835 570a3248ec0cb1256cb90b6aa2e1ccf20a43e7df	no	3
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**Warnings:**

This is not a USPTO supplied RCE SB30 form.

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

**Information:**

5	Non Patent Literature	1_NPL_Ron_White.pdf	1007058 37348c04fe2f66bc439ec18f92e53637ce65995b	no	23
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**Warnings:**



Information:					
6	Non Patent Literature	2_NPL_OA_2017-11-27.pdf	696634	no	24
			465be10e74b0b0309615ece5aa9078d9389490f3		
Warnings:					
Information:					
7	Fee Worksheet (SB06)	fee-info.pdf	32508	no	2
			817eb0ebb204e6c0f90075481dc37f42ecb81f0		
Warnings:					
Information:					
Total Files Size (in bytes):				3938976	
<p>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</p>					

Electronic Petition Request	<b>PETITION TO WITHDRAW AN APPLICATION FROM ISSUE AFTER PAYMENT OF THE ISSUE FEE UNDER 37 CFR 1.313(c)</b>
Application Number	15201152
Filing Date	01-Jul-2016
First Named Inventor	Michael Liberty
Art Unit	3696
Examiner Name	EDWARD CHANG
Attorney Docket Number	18756.8.1.1.1.1.1
Title	MONETARY TRANSACTION SYSTEM

An application may be withdrawn from issue for further action upon petition by the applicant. To request that the Office withdraw an application from issue, applicant must file a petition under this section including the fee set forth in § 1.17(h) and a showing of good and sufficient reasons why withdrawal of the application from issue is necessary.

APPLICANT HEREBY PETITIONS TO WITHDRAW THIS APPLICATION FROM ISSUE UNDER 37 CFR 1.313(c).

A grantable petition requires the following items:

- (1) Petition fee; and
- (2) One of the following reasons:
  - (a) Unpatentability of one or more claims, which must be accompanied by an unequivocal statement that one or more claims are unpatentable, an amendment to such claim or claims, and an explanation as to how the amendment causes such claim or claims to be patentable;
  - (b) Consideration of a request for continued examination in compliance with § 1.114 (for a utility or plant application only); or
  - (c) Express abandonment of the application. Such express abandonment may be in favor of a continuing application, but not a CPA under 37 CFR 1.53(d).

Petition Fee
<input checked="" type="radio"/> Small Entity
<input type="radio"/> Micro Entity
<input type="radio"/> Regular Undiscounted
Reason for withdrawal from issue

- One or more claims are unpatentable
- Consideration of a request for continued examination (RCE) (List of Required Documents and Fees)
- Applicant hereby expressly abandons the instant application (any attorney/agent signing for this reason must have power of attorney pursuant to 37 CFR 1.32(b)).

RCE request, submission, and fee.

- I certify, in accordance with 37 CFR 1.4(d)(4) that :
- The RCE request ,submission, and fee have already been filed in the above-identified application on
  - Are attached.

THIS PORTION MUST BE COMPLETED BY THE SIGNATORY OR SIGNATORIES

I certify, in accordance with 37 CFR 1.4(d)(4) that I am:

- An attorney or agent registered to practice before the Patent and Trademark Office who has been given power of attorney in this application.
- An attorney or agent registered to practice before the Patent and Trademark Office, acting in a representative capacity.
- A sole inventor
- A joint inventor; I certify that I am authorized to sign this submission on behalf of all of the inventors as evidenced by the power of attorney in the application
- A joint inventor; all of whom are signing this e-petition

Signature	/John C. Stringham/
Name	John C. Stringham
Registration Number	40831

Document code: WFEE

United States Patent and Trademark Office  
Sales Receipt for Accounting Date: 12/27/2017

EDANTZLE	SALE	#00000005	Mailroom Dt:	12/08/2017	233178	15201152
		01	FC : 2806	90.00	DA	



UNITED STATES PATENT AND TRADEMARK OFFICE

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

Table with 5 columns: APPLICATION NO., ISSUE DATE, PATENT NO., ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 15/201,152, 12/12/2017, 9842325, 18756.8.1.1.1.1.1, 2611

22913 7590 11/21/2017
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

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

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

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

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

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

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

Mozido, Inc., Austin, TX;
Michael A. Liberty, Orlando, FL;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

Change(s) applied  
to document,  
/R.S/  
8/29/2017

265	20130017784	17-Jan-2013	Fisher	
266	20130013501	10-Jan-2013	Rackley	
267	20130013499	<sup>01/2013</sup> <del>10-Oct-2013</del>	Kalgi	
268	20130013498	10-Jan-2013	Fisher	
269	20130013490	10-Jan-2013	Keller	
270	20130013434	10-Jan-2013	Fisher	
271	20130013432	10-Jan-2013	Fisher	
272	20130013355	10-Jan-2013	Fisher	
273	20130013353	10-Jan-2013	Fisher	
274	20130013352	10-Jan-2013	Fisher	
275	20130012131	10-Jan-2013	Fisher	
276	20130012126	10-Jan-2013	Fisher	
277	20130012125	10-Jan-2013	Fisher	
278	20120330792	27-Dec-2012	Kashanian	
279	20120329394	27-Dec-2012	Fisher	
280	20120323670	20-Dec-2012	Fisher	
281	20120323664	20-Dec-2012	Klems	
282	20120323653	20-Dec-2012	Fisher	
283	20120317019	13-Dec-2012	Carnes	
284	20120316992	13-Dec-2012	Oborne	
285	20120316951	13-Dec-2012	Fisher	
286	20120316950	13-Dec-2012	LaPorte	
287	20120310826	6-Dec-2012	Chatterjee	
288	20120310824	6-Dec-2012	Liberty	
289	20120310760	6-Dec-2012	Phillips	
290	20120310720	6-Dec-2012	Balsan	
291	20120303425	29-Nov-2012	Katzin	
292	20120302204	29-Nov-2012	Gupta	
293	20120297204	22-Nov-2012	Buer	
294	20120296741	22-Nov-2012	Dykes	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

235	20130035970	7-Feb-2013	Fisher	
236	20130035969	7-Feb-2013	Fisher	
237	20130035968	7-Feb-2013	Fisher	
238	20130035967	7-Feb-2013	Fisher	
239	20130035087	7-Feb-2013	Fisher	
240	20130035072	7-Feb-2013	Fisher	
241	20130035071	7-Feb-2013	Fisher	
242	20130035070	7-Feb-2013	Fisher	
243	20130035069	7-Feb-2013	Fisher	
244	20130035068	7-Feb-2013	Fisher	
245	20130035037	7-Feb-2013	Fisher	
246	20130035036	7-Feb-2013	Fisher	
247	20130035035	7-Feb-2013	Fisher	
248	20130030997	31-Jan-2013	Spodak	
249	20130030960	31-Jan-2013	Kashanian	
250	20130030828	31-Jan-2013	Pourfallah	
251	20130029646	31-Jan-2013	Chowdhury	
252	20130024372	24-Jan-2013	Spodak	
253	20130024371	24-Jan-2013	Hariramani	
254	20130024364	24-Jan-2013	<del>Fisher</del>	Shrivastava et al.
255	20130024280	24-Jan-2013	Fisher	
256	20130024223	24-Jan-2013	Thomas	
257	20130024221	24-Jan-2013	Fisher	
258	20130024220	24-Jan-2013	Fisher	
259	20130023294	24-Jan-2013	Singh	
260	20130023209	24-Jan-2013	Fisher	
261	20130018793	17-Jan-2013	Wong	
262	20130018742	17-Jan-2013	Fisher	
263	20130018740	17-Jan-2013	Fisher	
264	20130018738	17-Jan-2013	Faires	

Change(s) applied  
to document,  
/R.S./  
8/29/2017

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

U.S. PATENTS					
Examiner Initials*	Cite No.	Patent Number	Issue Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	8538845	<del>6-Dec-2012</del> 09/2013	Liberty, Michael A.	
Change(s) applied to document, /R.S./ 8/29/2017	2	9208488	8-Dec-2015	Liberty, Michael A.	
	3	8041338	18-Oct-2011	Chen	
	4	6873974	29-Mar-2005	Schutzer	
	5	7248855	24-Jul-2007	Joyce	
	6	7275685	2-Oct-2007	Gray	
	7	7822688	26-Oct-2010	Labrou	
	8	7699218	20-Apr-2010	Garcia	
	9	6714797	30-Mar-2004	Rautila	
	10	7461010	2-Dec-2008	Kwan	
	11	7107247	12-Sep-2006	Kinoshita	
	12	6185545	6-Feb-2001	Resnick	
	13	7100821	5-Sep-2006	Rasti	
	14	8016185	13-Sep-2011	Modi	
	15	7677973	16-Mar-2010	Van Luchene	
	16	6957342	18-Oct-2005	Vantanen	
	17	7774231	10-Aug-2010	Pond	
	18	5828739	27-Oct-1998	Nakanishi	
	19	7240836	10-Jul-2007	Vrotsos	
	20	6415156	2-Jul-2002	Stadelmann	
	21	7069001	27-Jun-2006	Rupp	
	22	7089208	8-Aug-2006	Levchin	
	23	7099850	29-Aug-2006	Mann	
	24	7347361	25-Mar-2008	Lovett	
	25	7494055	24-Feb-2009	Fernandes	
	26	7461028	2-Dec-2008	Wronski	
	27	7657489	2-Feb-2010	Stambaugh	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/



<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

	88	7527194	5-May-2009	Truitt	
	89	7512098	31-Mar-2009	Jiang	
	90	7325132	29-Jan-2008	Takayama	
	91	7322043	22-Jan-2008	Letsinger	
	92	7255264	14-Aug-2007	De Leon	
	93	7221939	22-May-2007	Ylitalo	
	94	7054430	30-May-2006	Lynam	
	95	6840448	11-Jan-2005	Fukushima	
	96	6819219	16-Nov-2004	Bolle	
	97	6697839	24-Feb-2004	Sini	
	98	6622015	16-Sep-2003	Himmel	
	99	6250557	26-Jun-2001	Forslund	
	100	6736322	18-May-2004	Gobburu	
	101	8333319	18-Dec-2012	Roth	
	102	8380177	19-Feb-2013	Laracey	
	103	7016532	21-Mar-2006	Boncyk	
	104	7477780	13-Jan-2009	Boncyk	
	105	7680324	16-Mar-2010	Boncyk	
Change(s) applied to document, /R.S./ 9/8/2017	106	7403652	22-Jul-2008	Boncyk	
	107	6622015	16-Sep-2003	Himmel	
	108	7565008	21-Jul-2009	Boncyk	
	109	7899243	1-Mar-2011	Boncyk	
	110	7881529	1-Feb-2011	Boncyk	
	111	7899252	1-Mar-2011	Boncyk	
Change(s) applied to document, /R.S./ 8/29/2017	112	7564469	21-Jul-2009	<del>Boncyk</del>	Cohen
	113	8130242	6-Mar-2012	<del>Boncyk</del>	Cohen
	114	7775437	17-Aug-2010	<del>Boncyk</del>	Cohen
	115	8218873	10-Jul-2012	Boncyk	
	116	8632000	21-Jan-2014	Laracey	
	117	8612325	12/2013 <del>26-Nov-2013</del>	<del>Laracey</del>	Stacy et al.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

118	7548915	16-Jun-2009	Ramer
119	6175823	16-Jan-2001	Van Dusen
120	7334720	26-Feb-2008	Hulst et al.
121	7942317	17-May-2011	Racz et al.
122	8033458	11-Oct-2011	Hulst et al.
123	8061598	22-Nov-2011	Racz et al.
124	8118221	21-Feb-2012	Racz et al.
125	8336772	25-Dec-2012	Racz et al.
126	8577803	5-Nov-2013	Chatterjee et al.
127	8487771	16-Jul-2013	Hsieh et al.
128	6862575	1-Mar-2005	Antilla et al.
129	6021397	1-Feb-2000	Jones et al.
130	7689506	30-Mar-2010	Fei et al.
131	7694876	13-Apr-2010	Barnes et al.
132	7421410	2-Sep-2008	Schechtman et al.

U.S. PATENT APPLICATION PUBLICATIONS					
Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	133	20120323777	20-Dec-2012	Liberty, Michael A.	
	134	2013032347	12-Dec-2013	Liberty, Michael A.	
	135	20140201070	17-Jul-2014	Liberty, Michael A.	
	136	20140006048	2-Jan-2014	Liberty, Michael A.	
	137	20120330737	27-Dec-2012	Liberty, Michael A.	
	138	20130246141	<del>30-Apr-2013</del> 09/2015	Liberty, Michael A.	
	139	20150039517	5-Feb-2015	Liberty, Michael A.	
	140	20160055583	25-Feb-2016	Liberty, Michael A.	
	141	20160055483	25-Feb-2016	Liberty, Michael A.	
	142	20020052754	2-May-2002	Joyce	
	143	20060179452	10-Aug-2006	Amodeo	
	144	20070244811	18-Oct-2007	Tumminaro	

Change(s) applied to document, /R.S./ 9/8/2017

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

Via E-File

PATENT APPLICATION  
Docket No: 18756.8.1.1.1.1.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: )  
 )  
 Michael A. Liberty )  
 )  
 Serial No: 15/201,152 ) Art Unit  
 ) 3696  
 Filed: July 1, 2016 )  
 )  
 Confirmation No.: 2611 )  
 )  
 For: MONETARY TRANSACTION SYSTEM )  
 )  
 Examiner: Edward Chang )  
 )  
 Customer No.: 22913 )

TRANSMITTAL OF ISSUE FEE PAYMENT

Mail Stop Issue Fee  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Notice of Allowance and Fee(s) Due dated August 8, 2017, please find enclosed herewith the following items for filing in the United States Patent and Trademark Office in connection with the above identified patent application:

X Fee(s) Transmittal (PTOL-85) submitted pursuant to 37 C.F.R. § 1.311.

- A Supplemental Declaration executed by the inventor(s) is submitted pursuant to 37 C.F.R. § 1.67.
- Pursuant to the request for submission of formal drawings, enclosed are the following:
- A Letter to the Official Draftsperson;
  - A set of \_\_\_\_\_ ( ) sheets of formal drawings to replace the corresponding drawings originally filed with the subject application.
  - A duplicate set of the \_\_\_\_\_ ( ) sheets of formal drawings with the changes therein highlighted in red.
- Petition to Excuse Error in Small Entity Status is enclosed.
- Form PTO-2038 submitting Credit Card Payment in the amount of \$ \_\_\_\_\_ is enclosed to cover the fee deficiency for the Petition to Excuse Error.
- Payment by credit card using the payment option in E-Filer with RAM will be used to cover the payment of the fees as follows:
- The \$480.00 government issue fee pursuant to 37 C.F.R. § 1.18.
  - The \$ \_\_\_\_\_ government publication fee pursuant to 37 C.F.R. § 1.18.(d)
- The Commission is hereby authorized to charge payment of any additional fees or credit any overpayment to Deposit Account No. 23-3178.

Please address all future correspondence in connection with the above-identified patent application to the attention of the undersigned.

Dated this 8<sup>th</sup> day of November, 2017.

Respectfully submitted,

/John C. Stringham/

JOHN C. STRINGHAM  
Registration No. 40,831  
WORKMAN NYDEGGER  
Attorneys for Applicant  
Customer No. 022913  
Telephone No. 801.533.9800  
[jstringham@wnlaw.com](mailto:jstringham@wnlaw.com)

**PART B - FEE(S) TRANSMITTAL**

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

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

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

22913 7590 08/08/2017  
 Workman Nydegger  
 60 East South Temple  
 Suite 1000  
 Salt Lake City, UT 84111

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

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/201,152	07/01/2016	Michael A. Liberty	18756.8.1.1.1.1.1.1	2611

TITLE OF INVENTION: MONETARY TRANSACTION SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	11/08/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHANG, EDWARD	3696	705-035000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 <u>Workman Nydegger</u></p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____</p> <p>3 _____</p>
--	---

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

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

(A) NAME OF ASSIGNEE: MOZIDO, INC.

(B) RESIDENCE: (CITY and STATE OR COUNTRY) Austin, Texas

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

<p>4a. The following fee(s) are submitted:</p> <p><input checked="" type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input checked="" type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number <u>23-3178</u> (enclose an extra copy of this form).</p>
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5. Change in Entity Status (from status indicated above)

Applicant certifying micro entity status. See 37 CFR 1.29

Applicant asserting small entity status. See 37 CFR 1.27

Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /John C. Stringham/ Date November 8, 2017

Typed or printed name John C. Stringham Registration No. 40,831

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	15201152				
<b>Filing Date:</b>	01-Jul-2016				
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM				
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty				
<b>Filer:</b>	John C. Stringham/Sue Held				
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1				
Filed as Small Entity					
<b>Filing Fees for Utility under 35 USC 111(a)</b>					
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>	
<b>Basic Filing:</b>					
<b>Pages:</b>					
<b>Claims:</b>					
<b>Miscellaneous-Filing:</b>					
<b>Petition:</b>					
<b>Patent-Appeals-and-Interference:</b>					
<b>Post-Allowance-and-Post-Issuance:</b>					
UTILITY APPL ISSUE FEE	2501	1	480	480	

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>480</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	30896000
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Sue Held
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1
<b>Receipt Date:</b>	08-NOV-2017
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	18:26:47
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$480
RAM confirmation Number	110917INTEFSW18284900
Deposit Account	233178
Authorized User	Sue Held

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)



37 CFR 1.19 (Document supply fees)  
 37 CFR 1.20 (Post Issuance fees)  
 37 CFR 1.21 (Miscellaneous fees and charges)

**File Listing:**

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	18756_8_1_1_1_1_1_1_Transmittal_Of_Issue_Fee.pdf	142106 576d1355bfc86c96aeca697475bfc426bdc445	no	2

**Warnings:**

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

**Information:**

2	Issue Fee Payment (PTO-85B)	18756_8_1_1_1_1_1_1_Fees_Transmittal.pdf	191695 207178c1d8d575act570a8b33cbaf77f119b3ce6	no	1
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**Warnings:**

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

**Information:**

3	Fee Worksheet (SB06)	fee-info.pdf	30216 81270dc84a15a09941e8edcb20d6f611ef29ce2f	no	2
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**Warnings:**

**Information:**

<b>Total Files Size (in bytes):</b>			364017		
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This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

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

**National Stage of an International Application under 35 U.S.C. 371**

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

**New International Application Filed with the USPTO as a Receiving Office**

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

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	13/527466	9-Aug-2017	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/EDWARD CHANG/		Date Considered 08/20/2017
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
<sup>1</sup> Applicant is to place a check mark here if English language translation is attached.			

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Not for submission under 37 CFR 1.99)	Application Number	15/201152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

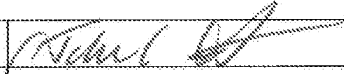
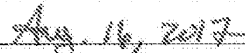
Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	
Name/Print	John C. Stringham	Registration Number	40831

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour 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.

2113423\_1.DOC

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	1	13/527466	9-Aug-2017	Office Action

EXAMINER SIGNATURE			
Examiner Signature			Date Considered
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
<sup>1</sup> Applicant is to place a check mark here if English language translation is attached.			

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Not for submission under 37 CFR 1.99)

Application Number	15/201152
Filing Date	2016-07-01
First Named Inventor	Michael A. Liberty
Art Unit	3696
Confirmation Number	2611
Examiner Name	Edward Chang
Attorney Docket Number	18756.8.1.1.1.1.1

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.



Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	
Name/Print	John C. Stringham	Registration Number	40831

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour 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.

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	15201152				
<b>Filing Date:</b>	01-Jul-2016				
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM				
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty				
<b>Filer:</b>	John C. Stringham/Sarah Warcup				
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1				
Filed as Small Entity					
<b>Filing Fees for Utility under 35 USC 111(a)</b>					
<b>Description</b>	<b>Fee Code</b>	<b>Quantity</b>	<b>Amount</b>	<b>Sub-Total in USD(\$)</b>	
<b>Basic Filing:</b>					
<b>Pages:</b>					
<b>Claims:</b>					
<b>Miscellaneous-Filing:</b>					
<b>Petition:</b>					
<b>Patent-Appeals-and-Interference:</b>					
<b>Post-Allowance-and-Post-Issuance:</b>					
<b>Extension-of-Time:</b>					

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
SUBMISSION- INFORMATION DISCLOSURE STMT	2806	1	90	90
<b>Total in USD (\$)</b>				<b>90</b>



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	30109198
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Sarah Warcup
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1
<b>Receipt Date:</b>	17-AUG-2017
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	14:47:19
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$90
RAM confirmation Number	081817INTEFSW14492900
Deposit Account	233178
Authorized User	Lindsey Gifford

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.16 (National application filing, search, and examination fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)  
 37 CFR 1.20 (Post Issuance fees)  
 37 CFR 1.21 (Miscellaneous fees and charges)

**File Listing:**

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	18756-8-1-1-1-1-1-1_2017-08-17_IDS.pdf	668587	no	2
			739b07116b3680243fbc08245fe1afc1c87aea26		
<b>Warnings:</b>					
<b>Information:</b>					
This is not an USPTO supplied IDS fillable form					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
2	Other Reference-Patent/App/Search documents	1_OA_2017-08-09.pdf	294777	no	8
			faecb90b59e9817bc06d5435f3d699088c82005c		
<b>Warnings:</b>					
<b>Information:</b>					
3	Fee Worksheet (SB06)	fee-info.pdf	30495	no	2
			8ce436f4989925880c16135bd216b5f96157e6aa		
<b>Warnings:</b>					
<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			993859		

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

**New Applications Under 35 U.S.C. 111**

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

**National Stage of an International Application under 35 U.S.C. 371**

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

**New International Application Filed with the USPTO as a Receiving Office**

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

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

U.S. PATENTS					
Examiner Initials*	Cite No.	Patent Number	Issue Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	8538845	6-Dec-2012	Liberty, Michael A.	
	2	9208488	8-Dec-2015	Liberty, Michael A.	
	3	8041338	18-Oct-2011	Chen	
	4	6873974	29-Mar-2005	Schutzer	
	5	7248855	24-Jul-2007	Joyce	
	6	7275685	2-Oct-2007	Gray	
	7	7822688	26-Oct-2010	Labrou	
	8	7699218	20-Apr-2010	Garcia	
	9	6714797	30-Mar-2004	Rautila	
	10	7461010	2-Dec-2008	Kwan	
	11	7107247	12-Sep-2006	Kinoshita	
	12	6185545	6-Feb-2001	Resnick	
	13	7100821	5-Sep-2006	Rasti	
	14	8016185	13-Sep-2011	Modi	
	15	7677973	16-Mar-2010	Van Luchene	
	16	6957342	18-Oct-2005	Vantanen	
	17	7774231	10-Aug-2010	Pond	
	18	5828739	27-Oct-1998	Nakanishi	
	19	7240836	10-Jul-2007	Vrotsos	
	20	6415156	2-Jul-2002	Stadelmann	
	21	7069001	27-Jun-2006	Rupp	
	22	7089208	8-Aug-2006	Levchin	
	23	7099850	29-Aug-2006	Mann	
	24	7347361	25-Mar-2008	Lovett	
	25	7494055	24-Feb-2009	Fernandes	
	26	7461028	2-Dec-2008	Wronski	
	27	7657489	2-Feb-2010	Stambaugh	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

28	7958052	7-Jun-2011	Powell	
29	8095113	10-Jan-2012	Kean	
30	7988060	2-Aug-2011	Killian	
31	7865414	4-Jan-2011	Fung	
32	7024174	4-Apr-2006	Nagy	
33	7784684	31-Aug-2010	Labrou	
34	7606560	20-Oct-2009	Labrou	
35	8073783	6-Dec-2011	Felsted	
36	5991749	23-Nov-1999	Morrill	
37	8052042	8-Nov-2011	Kolinski-Schultz	
38	5717374	10-Feb-1998	Smith	
39	8090945	3-Jan-2012	Singhal	
40	7877605	25-Jan-2011	Labrou	
41	7801826	21-Sep-2010	Labrou	
42	7822688	26-Oct-2010	Labrou	
43	7353382	1-Apr-2008	Labrou	
44	7349871	25-Mar-2008	Labrou	
45	7363261	22-Apr-2008	Whitehead	
46	7729963	1-Jun-2010	Lego	
47	7937302	3-May-2011	Lego	
48	7937305	3-May-2011	Lego	
49	7729987	1-Jun-2010	Wakim	
50	7890424	15-Feb-2011	Wakim	
51	7110972	19-Sep-2006	Handa	
52	7819307	26-Oct-2010	Lyons	
53	8396793	12-Mar-2013	Hill	
54	8374916	12-Feb-2013	White	
55	8360329	29-Jan-2013	Grigg	
56	8359265	22-Jan-2013	Van Rensburg	
57	8355670	15-Jan-2013	White	

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	Attorney Docket Number	18756.8.1.1.1.1.1

58	8352323	1/8/2013	Fisher	
59	8332272	12/11/2012	Fisher	
60	8290433	16-Oct-2012	Fisher	
61	8275312	25-Sep-2012	Fisher	
62	8239325	7-Aug-2012	Schwarz	
63	8213470	3-Jul-2012	Gu	
64	8229354	24-Jul-2012	Sklovsky	
65	8196131	5-Jun-2012	von Behren	
66	8195576	5-Jun-2012	Grigg	
67	8190087	29-May-2012	Fisher	
68	8170485	1-May-2012	Hulvey	
69	8160959	17-Apr-2012	Rackley	
70	8145568	27-Mar-2012	Rackley	
71	8121945	21-Feb-2012	Rackley	
72	8116773	14-Feb-2012	Chitrapu	
73	8116734	14-Feb-2012	Vawter	
74	8077042	13-Dec-2011	Peeters	
75	8060012	15-Nov-2011	Sklovsky	
76	8019365	13-Sep-2011	Fisher	
77	7979026	12-Jul-2011	Hulvey	
78	7967196	28-Jun-2011	Bierbaum	
79	7886962	15-Feb-2011	Vawter	
80	7865431	4-Jan-2011	Takayama	
81	7848504	7-Dec-2010	Lynam	
82	7848500	7-Dec-2010	Lynam	
83	7823772	2-Nov-2010	Vawter	
84	7774076	10-Aug-2010	Skowronek	
85	7748618	6-Jul-2010	Vawter	
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89	7512098	31-Mar-2009	Jiang	
90	7325132	29-Jan-2008	Takayama	
91	7322043	22-Jan-2008	Letsinger	
92	7255264	14-Aug-2007	De Leon	
93	7221939	22-May-2007	Ylitalo	
94	7054430	30-May-2006	Lynam	
95	6840448	11-Jan-2005	Fukushima	
96	6819219	16-Nov-2004	Bolle	
97	6697839	24-Feb-2004	Sini	
98	6622015	16-Sep-2003	Himmel	
99	6250557	26-Jun-2001	Forslund	
100	6736322	18-May-2004	Gobburu	
101	8333319	18-Dec-2012	Roth	
102	8380177	19-Feb-2013	Laracey	
103	7016532	21-Mar-2006	Boncyk	
104	7477780	13-Jan-2009	Boncyk	
105	7680324	16-Mar-2010	Boncyk	
106	7403652	22-Jul-2008	Boncyk	
107	6622015	16-Sep-2003	Himmel	
108	7565008	21-Jul-2009	Boncyk	
109	7899243	1-Mar-2011	Boncyk	
110	7881529	1-Feb-2011	Boncyk	
111	7899252	1-Mar-2011	Boncyk	
112	7564469	21-Jul-2009	Boncyk	
113	8130242	6-Mar-2012	Boncyk	
114	7775437	17-Aug-2010	Boncyk	
115	8218873	10-Jul-2012	Boncyk	
116	8632000	21-Jan-2014	Laracey	
117	8612325	26-Nov-2013	Laracey	

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119	6175823	16-Jan-2001	Van Dusen	
120	7334720	26-Feb-2008	Hulst et al.	
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122	8033458	11-Oct-2011	Hulst et al.	
123	8061598	22-Nov-2011	Racz et al.	
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	144	20070244811	18-Oct-2007	Tumminaro	

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146	20120095856	19-Apr-2012	Sanjeev	
147	20120245986	27-Sep-2012	Regan	
148	20070106564	10-May-2007	Matotek	
149	20090157546	18-Jun-2009	Garcia	
150	20090177578	9-Jul-2009	Garcia	
151	20090177581	9-Jul-2009	Garcia	
152	20090254479	8-Oct-2009	Pharris	
153	20090254440	8-Oct-2009	Pharris	
154	20090281904	12-Nov-2009	Pharris	
155	20120047070	23-Feb-2012	Pharris	
156	20030071115	17-Apr-2003	Horn	
157	20020069123	6-Jun-2002	Soderlind	
158	20030154165	14-Aug-2003	Horn	
159	20070179885	2-Aug-2007	Bird	
160	20060287004	21-Dec-2006	Fuqua	
161	20030001010	2-Jan-2003	Schmidt	
162	20050199709	15-Sep-2005	Linior	
163	20020152177	17-Oct-2002	Wolf	
164	20040248554	9-Dec-2004	Khan	
165	20080011825	17-Jan-2008	Giordano	
166	20020161708	31-Oct-2002	Offer	
167	20020131404	19-Sep-2002	Mehta	
168	20050070265	31-Mar-2005	Korpinen	
169	20070033285	8-Feb-2007	Shiigi	
170	20020042776	11-Apr-2002	Woo	
171	20020065774	30-May-2002	Young	
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174	20060136901	22-Jun-2006	Nichols	

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176	20070125838	7-Jun-2007	Law	
177	20070125840	7-Jun-2007	Law	
178	20070203850	30-Aug-2007	Singh	
179	20080017704	24-Jan-2008	VanDeburg	
180	20080040285	14-Feb-2008	Wankmueller	
181	20080208743	28-Aug-2008	Arthur	
182	20080208744	28-Aug-2008	Arthur	
183	20080208762	28-Aug-2008	Arthur	
184	20080210751	4-Sep-2008	Kim	
185	20080249928	9-Oct-2008	Hill	
186	20080255947	16-Oct-2008	Friedman	
187	20080275779	6-Nov-2008	Lakshminarayanan	
188	20090108015	30-Apr-2009	Kreamer	
189	20090138366	28-May-2009	Bemmel	
190	20090144161	4-Jun-2009	Fisher	
191	20090248537	1-Oct-2009	Sarkeshik	
192	20100044430	25-Feb-2010	Song	
193	20100057619	4-Mar-2010	Weller	
194	20100063895	11-Mar-2010	Dominguez	
195	20090222353	3-Sep-2009	Guest	
196	20090106148	23-Apr-2009	Prada	
197	20050080697	14-Apr-2005	Foss	
198	20110313924	22-Dec-2011	Carrell	
199	20100197326	5-Aug-2010	Ngo	
200	20040235450	25-Nov-2004	Rosenberg	
201	20110145149	16-Jun-2011	Valdes	
202	20080204358	28-Aug-2008	Sato	
203	20130080329	28-Mar-2013	Royyuru	
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205	20130080241	28-Mar-2013	Fisher	
206	20130080240	28-Mar-2013	Fisher	
207	20130080233	28-Mar-2013	Fisher	
208	20130080232	28-Mar-2013	Fisher	
209	20130080231	28-Mar-2013	Fisher	
210	20130080230	28-Mar-2013	Fisher	
211	20130080229	28-Mar-2013	Fisher	
212	20130080228	28-Mar-2013	Fisher	
213	20130073458	21-Mar-2013	Sherwin	
214	20130073373	21-Mar-2013	Fisher	
215	20130060618	7-Mar-2013	Barton	
216	20130057392	7-Mar-2013	Bullock	
217	20130054441	28-Feb-2013	Kamdar	
218	20130054412	28-Feb-2013	Brendell	
219	20130054337	28-Feb-2013	Brendell	
220	20130054336	28-Feb-2013	Graylin	
221	20130052952	28-Feb-2013	Fisher	
222	20130048723	28-Feb-2013	King	
223	20130046645	21-Feb-2013	Grigg	
224	20130046634	21-Feb-2013	Grigg	
225	20130046608	21-Feb-2013	Coppinger	
226	20130041769	14-Feb-2013	Fisher	
227	20130041745	14-Feb-2013	Coppinger	
228	20130041744	14-Feb-2013	Coppinger	
229	20130041743	14-Feb-2013	Coppinger	
230	20130041736	14-Feb-2013	Coppinger	
231	20130041700	14-Feb-2013	Fisher	
232	20130041699	14-Feb-2013	Fisher	
233	20130040569	14-Feb-2013	Fisher	
234	20130040568	14-Feb-2013	Fisher	

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236	20130035969	7-Feb-2013	Fisher	
237	20130035968	7-Feb-2013	Fisher	
238	20130035967	7-Feb-2013	Fisher	
239	20130035087	7-Feb-2013	Fisher	
240	20130035072	7-Feb-2013	Fisher	
241	20130035071	7-Feb-2013	Fisher	
242	20130035070	7-Feb-2013	Fisher	
243	20130035069	7-Feb-2013	Fisher	
244	20130035068	7-Feb-2013	Fisher	
245	20130035037	7-Feb-2013	Fisher	
246	20130035036	7-Feb-2013	Fisher	
247	20130035035	7-Feb-2013	Fisher	
248	20130030997	31-Jan-2013	Spodak	
249	20130030960	31-Jan-2013	Kashanian	
250	20130030828	31-Jan-2013	Pourfallah	
251	20130029646	31-Jan-2013	Chowdhury	
252	20130024372	24-Jan-2013	Spodak	
253	20130024371	24-Jan-2013	Hariramani	
254	20130024364	24-Jan-2013	Fisher	
255	20130024280	24-Jan-2013	Fisher	
256	20130024223	24-Jan-2013	Thomas	
257	20130024221	24-Jan-2013	Fisher	
258	20130024220	24-Jan-2013	Fisher	
259	20130023294	24-Jan-2013	Singh	
260	20130023209	24-Jan-2013	Fisher	
261	20130018793	17-Jan-2013	Wong	
262	20130018742	17-Jan-2013	Fisher	
263	20130018740	17-Jan-2013	Fisher	
264	20130018738	17-Jan-2013	Faires	

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266	20130013501	10-Jan-2013	Rackley	
267	20130013499	10-Oct-2013	Kalgi	
268	20130013498	10-Jan-2013	Fisher	
269	20130013490	10-Jan-2013	Keller	
270	20130013434	10-Jan-2013	Fisher	
271	20130013432	10-Jan-2013	Fisher	
272	20130013355	10-Jan-2013	Fisher	
273	20130013353	10-Jan-2013	Fisher	
274	20130013352	10-Jan-2013	Fisher	
275	20130012131	10-Jan-2013	Fisher	
276	20130012126	10-Jan-2013	Fisher	
277	20130012125	10-Jan-2013	Fisher	
278	20120330792	27-Dec-2012	Kashanian	
279	20120329394	27-Dec-2012	Fisher	
280	20120323670	20-Dec-2012	Fisher	
281	20120323664	20-Dec-2012	Klems	
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283	20120317019	13-Dec-2012	Carnes	
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285	20120316951	13-Dec-2012	Fisher	
286	20120316950	13-Dec-2012	LaPorte	
287	20120310826	6-Dec-2012	Chatterjee	
288	20120310824	6-Dec-2012	Liberty	
289	20120310760	6-Dec-2012	Phillips	
290	20120310720	6-Dec-2012	Balsan	
291	20120303425	29-Nov-2012	Katzin	
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296	20120296720	22-Nov-2012	Pirillo	
297	20120296708	22-Nov-2012	Bachmann	
298	20120293303	22-Nov-2012	Khan	
299	20120290449	15-Nov-2012	Mullen	
300	20120290376	15-Nov-2012	Dryer	
301	20120286928	15-Nov-2012	Mullen	
302	20120284131	8-Nov-2012	Soffer	
303	20120271712	25-Oct-2012	Katzin	
304	20120265685	18-Oct-2012	Brudnicki	
305	20120265677	18-Oct-2012	Rackley	
306	20120259732	11-Oct-2012	Sasankan	
307	20120259698	11-Oct-2012	Yurrow	
308	20120259686	11-Oct-2012	Yurrow	
309	20120253852	4-Oct-2012	Pourfallah	
310	20120232977	13-Sep-2012	Calman	
311	20120232937	13-Sep-2012	Calman	
312	20120231425	13-Sep-2012	Calman	
313	20120231424	13-Sep-2012	Calman	
314	20120229657	13-Sep-2012	Calman	
315	20120229647	13-Sep-2012	Calman	
316	20120226610	6-Sep-2012	Gill	
317	20120221475	31-Aug-2012	Grigg	
318	20120221421	30-Aug-2012	Hammad	
319	20120215701	23-Aug-2012	Mehta	
320	20120209749	16-Aug-2012	Hammad	
321	20120209688	16-Aug-2012	Lamothe	
322	20120203632	9-Aug-2012	Blum	
323	20120197787	2-Aug-2012	Grigg	
324	20120197745	2-Aug-2012	Fisher	

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325	20120197743	2-Aug-2012	Grigg	
326	20120197740	2-Aug-2012	Grigg	
327	20120197691	2-Aug-2012	Grigg	
328	20120196586	2-Aug-2012	Grigg	
329	20120191612	26-Jul-2012	Spodak	
330	20120191557	26-Jul-2012	Fisher	
331	20120174189	5-Jul-2012	Lim	
332	20120172089	5-Jul-2012	Bae	
333	20120172026	5-Jul-2012	Kwon	
334	20120171992	5-Jul-2012	Cheong	
335	20120158589	21-Jun-2012	Katzin	
336	20120150669	14-Jun-2012	Langley	
337	20120143752	7-Jun-2012	Wong	
338	20120123937	17-May-2012	Spodak	
339	20120123935	17-May-2012	Brudnicki	
340	20120123880	17-May-2012	Craft	
341	20120123868	17-May-2012	Brudnicki	
342	20120123841	17-May-2012	Taveau	
343	20120122447	17-May-2012	Craft	
344	20120095855	19-Apr-2012	Sterling	
345	20120084203	5-Apr-2012	Mehew	
346	20120078735	29-Mar-2012	Bauer	
347	20120074232	29-Mar-2012	Spodak	
348	20120029990	2-Feb-2012	Fisher	
349	20120028612	2-Feb-2012	Hurst	
350	20120011063	12-Jan-2012	Killian	
351	20110320345	29-Dec-2011	Taveau	
352	20110320294	29-Dec-2011	Votaw	
353	20110320293	29-Dec-2011	Khan	
354	20110320243	29-Dec-2011	Khan	

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356	20110302016	8-Dec-2011	Haddad	
357	20110295750	1-Dec-2011	Rammal	
358	20110276417	10-Nov-2011	Campbell	
359	20110258115	20-Oct-2011	Mulhim	
360	20110251941	13-Oct-2011	Dunwoody	
361	20110250866	13-Oct-2011	Fisher	
362	20110246284	6-Oct-2011	Chaikin	
363	20110218911	8-Sep-2011	Spodak	
364	20110179113	21-Jul-2011	Thomas	
365	20110145049	16-Jun-2011	Hertel	
366	20110113473	12-May-2011	Corda	
367	20110105022	5-May-2011	Vawter	
368	20110087610	14-Apr-2011	Batada	
369	20110087529	14-Apr-2011	Angell	
370	20110057025	10-Mar-2011	Denzer	
371	20100260388	14-Oct-2010	Garrett	
372	20100250436	30-Sep-2010	Loevenguth	
373	20100248710	30-Sep-2010	Sklovsky	
374	20100235283	16-Sep-2010	Gerson	
375	20100223110	2-Sep-2010	Slavin	
376	20100125510	20-May-2010	Smith	
377	20100125495	20-May-2010	Smith	
378	20100088188	8-Apr-2010	Kumar	
379	20100057624	4-Mar-2010	Hurt	
380	20100057614	4-Mar-2010	Rainey	
381	20100051685	4-Mar-2010	Royyuru	
382	20100049599	25-Feb-2010	Owen	
383	20100048226	25-Feb-2010	Owen	
384	20100023449	28-Jan-2010	Skowronek	

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386	20090307132	10-Dec-2009	Phillips	
387	20090288012	19-Nov-2009	Hertel	
388	20090222358	3-Sep-2009	Bednarek	
389	20090210308	20-Aug-2009	Toomer	
390	20090156190	18-Jun-2009	Fisher	
391	20090132392	21-May-2009	Davis	
392	20090132362	21-May-2009	Fisher	
393	20090104888	23-Apr-2009	Cox	
394	20090098854	16-Apr-2009	Park	
395	20090063312	5-Mar-2009	Hurst	
396	20090055322	26-Feb-2009	Bykov	
397	20090037326	5-Feb-2009	Chitti	
398	20080281737	13-Nov-2008	Fajardo	
399	20080249933	9-Oct-2008	Rethorn	
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

415	20070123305	31-May-2007	Chen	
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Attorney Docket Number	18756.8.1.1.1.1.1

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

FOREIGN PATENT DOCUMENTS							
Examiner Initials*	Cite No.	Foreign Patent Document	Country Code	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T 1
	470	102073958	CN	25-May-2011	Tianjin ZTE Software Corp.		<input type="checkbox"/>
	471	0171627	WO	27-Sep-2001	Qualcomm Incorporated		
	472	2003012717	WO	13-Feb-2003	C-SAM, Inc.		
	473	2004010393	WO	29-Jan-2004	Partner Communications Company Ltd.		
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<small>ALL REFERENCES CONSIDERED EXCEPT WHERE LINKED THROUGH</small>						/E.C/	

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

	495	2012025824	WO	1-Mar-2012	Yang		<input type="checkbox"/>
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	499	2013009446	WO	17-Jan-2013	Liberty		
	500	2013078176	WO	30-May-2013	Liberty		

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No.	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 1
	501	Chen, Jiajun Jim et al, Short-Range Wireless Technologies with Mobile Payments Systems. Proceedings of the 6th International Conference on Electronic Commerce [Online] 2004, pp. 649-656	<input type="checkbox"/>
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	510	International Search Report and Written Opinion for PCT/US2012/058849 dated Jan. 4, 2013	
	511	International Search Report and Written Opinion for PCT/US2012/089100 dated Aug. 23, 2013	

**ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH**

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <small>(Not for submission under 37 CFR 1.99)</small>	Application Number	15/201,152
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	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

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516	International Search Report and Written Opinion for PCT/US2012/43458 dated August 17, 2012.
517	International Search Report and Written Opinion for PCT/US2015/58886 dated February 4, 2016
518	European Search Report for EP12851211 dated February 18, 2016

**OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS**

Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	519	13/484199	26-Dec-2012	Office Action
	520	13/484199	7-Jun-2013	Notice of Allowance
	521	13/527466	15-Apr-2013	Office Action
	522	13/527466	4-Dec-2013	Final Office Action
	523	13/964707	24-Feb-2014	Office Action
	524	14/213543	6-May-2014	Office Action
	525	13/680824	16-Jun-2014	Office Action
	526	13/528720	25-Jun-2014	Office Action
	527	13/964707	10-Jul-2014	Office Action
	528	13/527466	1-Aug-2014	Office Action
	529	14/012822	7-Aug-2014	Office Action
	530	13/528720	10-Dec-2014	Final Office Action
	531	14/012,822	7-Jan-2015	Final Office Action
	532	13/680,824	6-Feb-2015	Final Office Action

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /E.C/

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Not for submission under 37 CFR 1.99)	Application Number	15/201,152
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	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1.1

533	13/964707	16-Mar-2015	Final Office Action
534	14/213543	8-Apr-2015	Office Action
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540	14/213543	6-Jan-2016	Final Office Action
541	13/528720	2-Mar-2016	Final Office Action
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543	13/874192	18-Apr-2016	Final Office Action
544	14/012822	6-May-2016	Final Office Action
545	13/527466	14-Dec-2016	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/EDWARD CHANG/	Date Considered	08/16/2017
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.			
<sup>1</sup> Applicant is to place a check mark here if English language translation is attached.			

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (Not for submission under 37 CFR 1.99)	Application Number	15/201,152
	Filing Date	2016-07-01
	First Named Inventor	Michael A. Liberty
	Art Unit	3696
	Confirmation Number	2611
	Examiner Name	Edward Chang
	Attorney Docket Number	18756.8.1.1.1.1.1

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

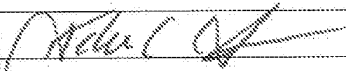
Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	July 27, 2017
Name/Print	John C. Stringham	Registration Number	40831

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour 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.





NOTICE OF ALLOWANCE AND FEE(S) DUE

22913 7590 08/08/2017
Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER

CHANG, EDWARD

ART UNIT PAPER NUMBER

3696

DATE MAILED: 08/08/2017

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.

15/201,152 07/01/2016 Michael A. Liberty 18756.8.1.1.1.1.1.1 2611

TITLE OF INVENTION: MONETARY TRANSACTION SYSTEM

Table with 7 columns: APPLN. TYPE, ENTITY STATUS, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE

nonprovisional SMALL \$480 \$0 \$0 \$480 11/08/2017

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

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

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

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

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

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

**PART B - FEE(S) TRANSMITTAL**

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

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

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

22913 7590 08/08/2017  
 Workman Nydegger  
 60 East South Temple  
 Suite 1000  
 Salt Lake City, UT 84111

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

**Certificate of Mailing or Transmission**

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

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

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/201,152	07/01/2016	Michael A. Liberty	18756.8.1.1.1.1.1.1	2611

TITLE OF INVENTION: MONETARY TRANSACTION SYSTEM

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	\$480	\$0	\$0	\$480	11/08/2017

EXAMINER	ART UNIT	CLASS-SUBCLASS
CHANG, EDWARD	3696	705-035000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. <b>Use of a Customer Number is required.</b></p>	<p>2. For printing on the patent front page, list</p> <p>(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____</p> <p>(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____</p> <p>3 _____</p>
---	---

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

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

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

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

<p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
---	---

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

Applicant certifying micro entity status. See 37 CFR 1.29

Applicant asserting small entity status. See 37 CFR 1.27

Applicant changing to regular undiscounted fee status.

**NOTE:** Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

**NOTE:** If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

**NOTE:** Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_



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15/201,152 07/01/2016 Michael A. Liberty 18756.8.1.1.1.1.1.1 2611

22913 7590 08/08/2017
Workman Nydegger
60 East South Temple
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Salt Lake City, UT 84111

EXAMINER

CHANG, EDWARD

ART UNIT PAPER NUMBER

3696

DATE MAILED: 08/08/2017

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

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

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

## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

### Privacy Act Statement

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

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

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

<b>Notice of Allowability</b>	<b>Application No.</b> 15/201,152	<b>Applicant(s)</b> LIBERTY, MICHAEL A.	
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696	<b>AIA (First Inventor to File) Status</b> No

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

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

1.  This communication is responsive to RCE filed on July 18, 2017.  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.

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

3.  The allowed claim(s) is/are 1, 4, and 5. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

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

**Certified copies:**  
a)  All    b)  Some    \*c)  None of the:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_ .  
3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

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

5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.  
 including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

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

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

**Attachment(s)**

1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	5. <input type="checkbox"/> Examiner's Amendment/Comment
2. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	6. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance
3. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. <input type="checkbox"/> Other _____.
4. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____ .	

/EDWARD CHANG/ Primary Examiner, Art Unit 3696	
---	--

Art Unit: 3696

1. The present application is being examined under the pre-AIA first to invent provisions.

#### **DETAILED ACTION**

##### **Status of Claims**

1. This action is in reply to the RCE filed on 18<sup>th</sup> of July 2017.
2. Claims 1, 4, and 5 were amended.
3. Claims 2, 9, and 10 were cancelled.
4. Claims 1, 4, and 5 were allowable.

##### **Allowable Subject Matter**

The following is an examiner's statement of reasons for allowance: The instant application is directed towards monetary transaction system. Only Alice 101 rejection was pending in the previous action and applicant overcame the rejection for the following reason: examiner agrees with applicant's argument that *"...the present claims when viewed as a whole are directed towards substantially technical systems that address the unique technical problem of monetary exchanges within a system that does not require a centralized banking server to manage the transaction."* Therefore, amendments filed on July 18, 2017 viewed in combination was "significantly more", therefore the amendments made by applicant overcame the 101 rejection and 101 rejection was withdrawn.

For these reasons claims 1, 4, and 5 are deemed to be allowable.

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

Art Unit: 3696

**Conclusion**

Any inquiry of a general nature or relating to the status of this application or concerning this communication or earlier communications from the Examiner should be directed to **Edward Chang** whose telephone number is **571.270.3092**. The Examiner can normally be reached on Monday-Friday, 9:30am-5:00pm. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, **ALEXANDER KALINOWSKI** can be reached at **571.272.6771**.

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://portal.uspto.gov/external/portal/pair> <<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).

Any response to this action should be mailed to:

**Commissioner of Patents and Trademarks**

P.O. Box 1450  
Alexandria, VA 22313-1450

or faxed to **571-273-8300**.

Hand delivered responses should be brought to the **United States Patent and Trademark Office Customer Service Window:**

Randolph Building  
401 Dulany Street  
Alexandria, VA 22314.

August 02, 2017  
/Edward Chang/ Examiner, Art Unit 3696

<b>Notice of References Cited</b>	Application/Control No. 15/201,152	Applicant(s)/Patent Under Reexamination LIBERTY, MICHAEL A.	
	Examiner EDWARD CHANG	Art Unit 3696	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A US-7,024,174 B2	04-2006	Nagy; Dan	G06Q20/04	455/408
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	CPC Classification
N					
O					
P					
Q					
R					
S					
T					

**NON-PATENT DOCUMENTS**

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
U	
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.




<b>Issue Classification</b> 	<b>Application/Control No.</b> 15201152	<b>Applicant(s)/Patent Under Reexamination</b> LIBERTY, MICHAEL A.	
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696	

CPC						
Symbol					Type	Version
G06Q	20		10		F	2013-01-01
G06Q	20		0855		I	2013-01-01
G06Q	40		02		I	2013-01-01
G06Q	20		3255		I	2013-01-01
G06Q	20		322		I	2013-01-01
G06Q	20		405		I	2013-01-01
G06Q	20		36		I	2013-01-01
H04L	63		101		I	2013-01-01


CPC Combination Sets								
Symbol					Type	Set	Ranking	Version

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	3	
/EDWARD CHANG/ Primary Examiner. Art Unit 3696	08/02/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

<b>Issue Classification</b> 	<b>Application/Control No.</b> 15201152	<b>Applicant(s)/Patent Under Reexamination</b> LIBERTY, MICHAEL A.
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696


US ORIGINAL CLASSIFICATION					INTERNATIONAL CLASSIFICATION							
CLASS		SUBCLASS			CLAIMED				NON-CLAIMED			
705		40			G	0	6	Q	40 / 00 (2012.01.01)			
CROSS REFERENCE(S)					G	0	6	Q	20 / 00 (2012.01.01)			
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)											
705	78											

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	3	
/EDWARD CHANG/ Primary Examiner. Art Unit 3696	08/02/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

<b>Issue Classification</b> 	<b>Application/Control No.</b> 15201152	<b>Applicant(s)/Patent Under Reexamination</b> LIBERTY, MICHAEL A.
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant		<input type="checkbox"/> CPA		<input type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47									
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1														
	2														
	3														
2	4														
3	5														
	6														
	7														
	8														
	9														
	10														

NONE		<b>Total Claims Allowed:</b>	
(Assistant Examiner)	(Date)	3	
/EDWARD CHANG/ Primary Examiner. Art Unit 3696	08/02/2017	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	2

<b>Search Notes</b> 	<b>Application/Control No.</b> 15201152	<b>Applicant(s)/Patent Under Reexamination</b> LIBERTY, MICHAEL A.
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696

CPC- SEARCHED		
Symbol	Date	Examiner
G06Q 20/0855	8/2/2017	EC

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
705	40	8/2/2017	EC
705	78	8/2/2017	EC

\* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
EAST - Keyword Search	8/2/2017	EC
Assignee Search	8/2/2017	EC
Backward/Forward Search of Main East Search	8/2/2017	EC
Inventor Search	8/2/2017	EC
Interference Search	8/2/2017	EC

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
705	40	8/2/2017	EC
705	78	8/2/2017	EC

	/EDWARD CHANG/ Primary Examiner. Art Unit 3696
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## EAST Search History

## EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	5000	(705/40).ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/02 23:24
L3	423	(705/78).ccls.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/02 23:25
L5	0	mobile with "limit check" with "velocity check" with sufficient with fund	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/02 23:25
L6	0	mobile and ("limit check" with "velocity check" with sufficient with fund)	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/02 23:26
L8	0	mobile and (authentication with "velocity check" with fund)	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:28
L9	0	"payment handler service" with "rules engine" with "monetary transaction system"	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:29
L10	61	"monetary transaction system"	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:29
L11	12	"monetary transaction system" with "velocity check"	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:29
L16	0	"monetary transaction system" with "velocity check" with "rules engine" with comitting	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:31
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S3	4	exceed with number with account with allowable	US- PGPUB; USPAT; USOCR	OR	OFF	2012/12/15 14:40
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S5	9891	(705/35).ccls.	US- PGPUB; USPAT; USOCR	OR	OFF	2013/06/01 01:40
S11	397	(705/78).ccls.	US- PGPUB; USPAT; USOCR	OR	OFF	2014/02/15 07:04
S13	12	"limit check" with "velocity check"	US- PGPUB; USPAT; USOCR	OR	OFF	2016/10/17 14:10
S14	9	"limit check" with "velocity check" with mobile	US- PGPUB; USPAT; USOCR	OR	OFF	2016/10/17 14:10
S15	0	"limit check" with "velocity check" with sufficient with fund	US- PGPUB; USPAT; USOCR	OR	OFF	2016/10/17 14:10
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S18	0	validat\$3 with account with status with commit\$4 with velocity	US- PGPUB; USPAT	OR	ON	2017/06/11 22:28

**EAST Search History (Interference)**

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	5000	(705/40).ccls.	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:25
L4	423	(705/78).ccls.	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:25
L7	0	mobile and (authentication with "velocity check" with fund)	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:28
L12	0	"monetary transaction system" with "velocity check" with PIN	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:30
L13	12	"monetary transaction system" with "velocity check"	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:30
L14	7	"monetary transaction system" with "velocity check" with "rules engine"	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:31
L15	0	"monetary transaction system" with "velocity check" with "rules engine" with comitting	US-PGPUB; USPAT	OR	OFF	2017/08/02 23:31
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S7	4020	(705/40).ccls.	US-PGPUB; USPAT	OR	OFF	2013/06/01 01:40
S8	28	Perform\$3 with limit with check with velocity with check	US-PGPUB; USPAT	OR	OFF	2013/06/01 01:41
S9	3	Perform\$3 with limit with check with velocity with check with unbanked	US-PGPUB; USPAT	OR	OFF	2013/06/01 01:41
S10	3	Perform\$3 with limit with check with velocity with check with unbanked with subscriber	US-PGPUB; USPAT	OR	OFF	2013/06/01 01:42
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S20	0	validat\$3 with account with status with commit\$4 with velocity	US-PGPUB; USPAT	OR	ON	2017/06/11 22:28

**8/ 2/ 2017 11:32:09 PM****C:\Users\echang1\Documents\EAST\Workspaces\Applicaiton -- 15201152 -- Monetary Transaction System -- CON 3.wsp**



UNITED STATES PATENT AND TRADEMARK OFFICE


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 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 2611

<b>SERIAL NUMBER</b> 15/201,152	<b>FILING or 371(c) DATE</b> 07/01/2016 <b>RULE</b>	<b>CLASS</b> 705	<b>GROUP ART UNIT</b> 3696	<b>ATTORNEY DOCKET NO.</b> 18756.8.1.1.1.1.1.1	
<b>APPLICANTS</b> Mozido, Inc., Austin, TX; <b>INVENTORS</b> Michael A. Liberty, Orlando, FL; <b>** CONTINUING DATA *****</b> This application is a CON of 14/213,543 03/14/2014 ABN which is a CON of 13/964,707 08/12/2013 ABN which is a CON of 13/484,199 05/30/2012 PAT 8538845 which claims benefit of 61/522,099 08/10/2011 and claims benefit of 61/493,064 06/03/2011 <b>** FOREIGN APPLICATIONS *****</b> <b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY **</b> 07/19/2016					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Verified and Acknowledged <u>/EDWARD CHANG/</u> Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	<b>STATE OR COUNTRY</b> FL	<b>SHEETS DRAWINGS</b> 21	<b>TOTAL CLAIMS</b> 8	<b>INDEPENDENT CLAIMS</b> 3
<b>ADDRESS</b> Workman Nydegger 60 East South Temple Suite 1000 Salt Lake City, UT 84111 UNITED STATES					
<b>TITLE</b> MONETARY TRANSACTION SYSTEM					
<b>FILING FEE RECEIVED</b> 940	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		



<b><i>Index of Claims</i></b> 	<b>Application/Control No.</b> 15201152	<b>Applicant(s)/Patent Under Reexamination</b> LIBERTY, MICHAEL A.
	<b>Examiner</b> EDWARD CHANG	<b>Art Unit</b> 3696

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

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

CLAIM		DATE									
Final	Original	08/02/2017									
1	1	=									
	2	-									
	3	-									
2	4	=									
3	5	=									
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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	29976719
<b>Application Number:</b>	15201152
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2611
<b>Title of Invention:</b>	MONETARY TRANSACTION SYSTEM
<b>First Named Inventor/Applicant Name:</b>	Michael A. Liberty
<b>Customer Number:</b>	22913
<b>Filer:</b>	John C. Stringham/Sarah Warcup
<b>Filer Authorized By:</b>	John C. Stringham
<b>Attorney Docket Number:</b>	18756.8.1.1.1.1.1.1
<b>Receipt Date:</b>	03-AUG-2017
<b>Filing Date:</b>	01-JUL-2016
<b>Time Stamp:</b>	15:24:34
<b>Application Type:</b>	Utility under 35 USC 111(a)

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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Other Reference-Patent/App/Search documents	11_OA_2014-08-07.pdf	256871 <small>f3065f000335b8b89eb618b6fc182fbb498b39fc</small>	no	7

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2	Other Reference-Patent/App/Search documents	12_OA_2014-12-10.pdf	407796	no	12
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3	Other Reference-Patent/App/Search documents	13_OA_2015-01-07.pdf	218496	no	7
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4	Other Reference-Patent/App/Search documents	14_OA_2015-02-06.pdf	606644	no	14
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5	Other Reference-Patent/App/Search documents	15_OA_2015-03-16.pdf	233770	no	7
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6	Other Reference-Patent/App/Search documents	16_OA_2015-04-08.pdf	271637	no	7
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<b>Warnings:</b>					
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7	Other Reference-Patent/App/Search documents	17_OA_2015-07-14.pdf	466188	no	13
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8	Other Reference-Patent/App/Search documents	18_OA_2015-07-16.pdf	732469	no	20
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9	Other Reference-Patent/App/Search documents	19_OA_2015-07-22.pdf	338996	no	10
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<b>Information:</b>					
12	Other Reference-Patent/App/Search documents	22_OA_2016-01-06.pdf	290598	no	8
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16	Other Reference-Patent/App/Search documents	26_OA_2016-05-06.pdf	348595	no	9
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<b>Information:</b>					
<b>Total Files Size (in bytes):</b>			8433500		
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Not for submission under 37 CFR 1.99)

Application Number	15/201,152
Filing Date	2016-07-01
First Named Inventor	Michael A. Liberty
Art Unit	3696
Confirmation Number	2611
Examiner Name	Edward Chang
Attorney Docket Number	18756.8.1.1.1.1.1

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	2	9208488	8-Dec-2015	Liberty, Michael A.	
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Examiner Initials*	Cite No.	Publication Number	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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**INFORMATION DISCLOSURE  
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Attorney Docket Number	18756.8.1.1.1.1.1

265	20130017784	17-Jan-2013	Fisher	
266	20130013501	10-Jan-2013	Rackley	
267	20130013499	10-Oct-2013	Kalgi	
268	20130013498	10-Jan-2013	Fisher	
269	20130013490	10-Jan-2013	Keller	
270	20130013434	10-Jan-2013	Fisher	
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304	20120265685	18-Oct-2012	Brudnicki	
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No.	Foreign Patent Document	Country Code	Publication Date	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T 1
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	471	0171627	WO	27-Sep-2001	Qualcomm Incorporated		
	472	2003012717	WO	13-Feb-2003	C-SAM, Inc.		
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495	2012025824	WO	1-Mar-2012	Yang		<input type="checkbox"/>
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**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No.	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 1
	501	Chen, Jiajun Jim et al, Short-Range Wireless Technologies with Mobile Payments Systems. Proceedings of the 6th International Conference on Electronic Commerce [Online] 2004, pp. 649-656	<input type="checkbox"/>
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**OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS**

Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	519	13/484199	26-Dec-2012	Office Action
	520	13/484199	7-Jun-2013	Notice of Allowance
	521	13/527466	15-Apr-2013	Office Action
	522	13/527466	4-Dec-2013	Final Office Action
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533	13/964707	16-Mar-2015	Final Office Action
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**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

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

<sup>1</sup>Applicant is to place a check mark here if English language translation is attached.

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**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

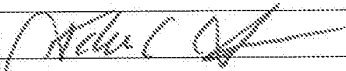
Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

None

The Commissioner is hereby authorized to charge payment of any of the following fees that may be applicable to this communication, or credit any overpayment, to Deposit Account No. 23-3178: (1) any filing fees required under 37 CFR § 1.16; and/or (2) any patent application and reexamination processing fees under 37 CFR § 1.17.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature		Date	July 27, 2016
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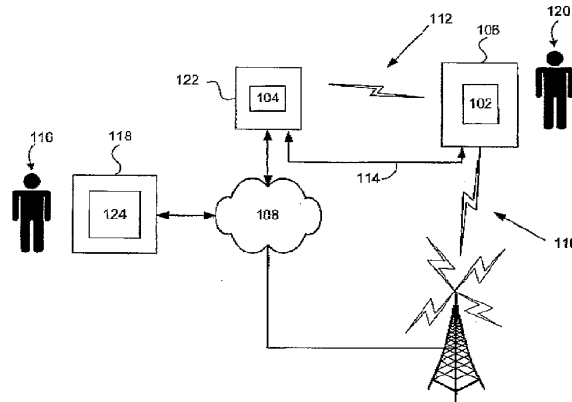
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(57) Abstract: A method of delivering an instruction (206) to a mobile user device (106) connected to a network (110) is disclosed. The method comprising the steps of receiving an interactive workflow (202), translating the interactive workflow into the instruction (206) in a form executable by the mobile user device (106), and sending a message (208) including the instruction (206) to the mobile user device (106).

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## AN INTERACTIVE SYSTEM AND PROCESS

### FIELD OF THE INVENTION

The present invention relates generally to a method of delivering an instruction to a mobile user device connected to a network.

### 5 BACKGROUND

Amongst the wide variety of portable electronic devices available today, mobile phones have become particularly pervasive, with more than double the penetration of the Internet. These devices have rapidly advanced in capability and can do far more than Voice and SMS. Using these capabilities to deliver and execute applications that provide  
10 customisable interactivity to mobile phones and other devices is highly desirable but continues to be a challenging endeavour due the varied types of largely incompatible devices and platforms on the market.

Most interactive applications for mobile phones involve either Short Message Service  
15 (SMS) or the development of dedicated applications that address specific business requirements. SMS interactivity suffers from poor usability (the user has to be familiar with idiosyncratic commands) and security issues (SMS source addresses can be faked), thus limiting their usage to simple, non-sensitive transactions. Furthermore, an organisation wishing to use SMS to interact with its customers needs to come to some  
20 commercial arrangement with the telecommunications provider in order to establish billing procedures and so on. This can be inconvenient for the organisation, and may also be quite expensive, both to set up and also to operate on an on-going basis.

The dedicated applications are an attempt to address these shortcomings by developing  
25 programming code that is executed by the mobile device to perform a specific task. This involves significant amounts of time, at least because mobile phones from different manufacturers are not usually binary compatible and cannot execute the same executable applications. Additionally, these applications are limited to the functionality required at the time of development, and thus may not support additions or modifications to that  
30 functionality. As can be appreciated, distributing changes to these applications is similarly quite a tedious process, typically requiring the user to manually download and install an updated version of the application on their telephone.

**SUMMARY OF THE INVENTION**

According to one aspect of the invention there is provided a method of delivering an instruction to an application installed on a user device connected to a network, the method

5 comprising the steps of:

receiving an interactive workflow;

translating the interactive workflow into the instruction in a form executable by the application; and

10 sending a message including the instruction to the application at the user device.

10 According to another aspect of the invention there is provided a method of delivering an instruction to a mobile user device connected to a network, the method comprising the steps of:

receiving an interactive workflow;

translating the interactive workflow into the instruction in a form executable by the

15 mobile user device; and

20 sending a message including the instruction to the mobile user device.

According to yet another aspect of the invention there is provided computer software comprising executable directions for delivering an instruction to a mobile user device connected to a network, the directions comprising the steps of:

20 receiving an interactive workflow;

translating the interactive workflow into the instruction in a form executable by the mobile user device; and

25 sending a message including the instruction to the mobile user device.

Preferably the step of receiving the interactive workflow includes the step of receiving the  
25 interactive workflow coded in a high level programming or scripting language. More preferably the step of receiving the interactive workflow includes the step of receiving the interactive workflow from an external or third party.

Preferably the step of sending the message includes the step of sending a set of instructions for execution by an application installed on the mobile user device. More preferably the

step of sending the set of instructions includes the step of sending the set of instructions for the device to interact with a user of the mobile user device.

Preferably the mobile user device is one of a plurality of mobile user devices and the method also comprises the step of receiving a specification of the mobile user device from  
5 a database comprising respective specifications for the plurality of user devices.

Preferably the step of translating the interactive workflow includes tailoring the instruction to the specification.

Preferably the step of translating the interactive workflow includes tailoring the instruction to a device operating system.

10 Preferably the step of sending the message includes the step of sending a unique message identifier. More preferably the step of sending the message includes one or more preliminary steps of compressing, encoding and encrypting the instruction.

Preferably the step of sending the message includes the step of sending the message via a Short Message Service (SMS) of a cellular network. More preferably the step of sending  
15 the message via SMS includes the step of splitting the message into a plurality of messages to comply with one or more standards of the SMS. Alternatively, the step of sending the message includes one or more of the steps of sending the message via a Cell Broadcast Service (CBS) of a cellular network, sending the message as an IP/TCP data packet over a GPRS or 3G network, and sending the message as a data packet over a Bluetooth  
20 connection.

Preferably the method further comprises the step of the mobile user device receiving the set of instructions and the unique message identifier. More preferably the step of the mobile user device receiving the set of instructions and the unique message identifier includes the step of receiving the set of instructions for translation to mobile user device  
25 system codes by a workflow execution engine component of the application.

Preferably the method further comprises the step of receiving a response to the instruction from the mobile user device. More preferably the step of receiving a response includes the step of receiving a response identifier from the device. Even more preferably the method comprises the step of comparing the unique message identifier and the response identifier  
30 to confirm the authenticity of the received message.

Preferably the method includes the step of checking if the mobile user device is willing to receive the instruction derived from the interactive workflow from the external or third party. More preferably the method includes the step of sending a request to the user of the mobile user device to accept the instruction derived from the interactive workflow from the external or third party.

Preferably the step of receiving the interactive workflow includes the preliminary step of receiving a request for an Application Programming Interface from the external or third party. More preferably the step of receiving a request for an Application Programming Interface is received from the external or third party. Even more preferably the step of receiving the interactive workflow includes the preliminary step of opening an Application Programming Interface.

Preferably the method also comprises the step of issuing a command to the device to update or delete a sequence of instructions saved to a permanent data store on the mobile user device.

In accordance with the present invention, there is also provided an interactive process executed by a computer system or device, the process including:

- receiving one or more SMS messages including instruction data representing one or more instructions for execution on said system or device to determine information;
- executing said one or more instructions to determine said information; and
- sending one or more SMS messages including response data representing said information.

Advantageously, said information may include system information determined from said system or device and/or user information determined from a user of said system or device.

Preferably, said execution causes generation of an interactive user interface on a display of said system or device, and the process includes receiving response data representing said information from a user of said system or device in response to said interactive display.

Preferably, said one or more instructions are executed by a virtual machine of said system or device.



The present invention also provides an application component for a system or device, the application component including:

- 5 a message receiver for processing one or more received SMS messages to generate one or more instructions for execution on said device to determine information;
- an execution component for executing said one or more instructions of said application data to determine said information; and
- 10 a message sender for generating one or more SMS messages including response data representing said information.

10

Preferably, the application component further includes a data management component for storing sets of instructions on non-volatile storage means and for retrieving a selected one of the stored sets of instructions for execution.

- 15 Preferably, said execution component is adapted to generate an interactive display for a user of said system or device, and to receive response data representing said information from a user of said system or device in response to said interactive display.

The present invention also provides an interactive process for execution by a system or device, including:

- 20 receiving message data including header data and encrypted payload data;
  - selecting one of a plurality of encryption keys on the basis of said header data; and
  - decrypting said payload data using the selected encryption key.
- 25 Preferably, said header data includes index data representing an index for said plurality of encryption keys.

Advantageously, said payload data may represent one or more instructions for execution on said system or device to determine information.

30

Advantageously, said payload data may represent information in response to execution of one or more instructions on a remote system or device.

The present invention also provides an interactive process for execution by a system or device, including:

- generating payload data for sending to a remote system or device;
- selecting one of a plurality of encryption keys;
- 5 encrypting said payload data using the selected encryption key;
- generating message data for sending to said remote system or device, said message data including header data and the encrypted payload data, wherein said header data includes data representing an index for said plurality of encryption keys to allow said remote system or device to determine the selected encryption key and thereby to decrypt
- 10 said payload data.

Advantageously, said payload data may represent one or more instructions for execution on said remote system or device to determine information.

- 15 Advantageously, said payload data may represent information in response to execution of one or more instructions.

Preferably, the process includes generating said plurality of encryption keys and sending said plurality of encryption keys to said remote system or device.

20

Preferably, the process includes associating said plurality of encryption keys with an identifier of said remote system or device.

The present invention also provides an interactive process, including:

- 25 receiving programming instructions for generating an interactive display on a remote system or device;
- compiling said programming instructions to generate compiled instruction data;
- sending said compiled instruction data to said remote system or device to generate an interactive display on said second remote system or device;
- 30 receiving response data representing at least one user response to said interactive display; and
- sending response data representing said at least one user response.

The present invention also provides an interactive process, including:

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receiving workflow instructions from a plurality of entities;  
processing said workflow instructions to generate interactive applications for  
execution on a plurality of user devices; and  
sending said interactive applications to said user devices for execution.

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Preferably, said interactive applications are sent to said user devices using short message service (SMS).

Preferably, said user devices include mobile telephones.

10

The present invention also provides an interactive system for managing interaction with users of remote systems and/or devices, the interactive system being adapted to:

receive workflow instructions from a plurality of entities;  
process said workflow instructions to generate interactive applications for  
15 execution on a plurality of user devices; and  
send said interactive applications to said user devices for execution.

The present invention also provides a system having components for executing any one of the above processes.

20

The present invention also provides a computer-readable storage medium having stored thereon program instructions for executing any one of the above processes.

The present invention also provides an interactive system, including:

25 a gateway component for processing received workflow data to generate instructions for generating an interactive display on a user device, the gateway component being adapted to send said instructions to said user device for execution; and  
an execution component of said user device to receive and execute said instructions to generate said interactive display, to receive response data representing at least one  
30 response of said user to said interactive display; and to send said response data to said gateway component.

Preferably, said user device is a mobile telephone.

Advantageously, the instructions may be sent to said gateway component in one or more SMS messages.

Advantageously, said user response data may be sent to said user device in one or more  
5 SMS messages.

### BRIEF DESCRIPTION OF THE DRAWINGS

Preferred embodiments of the present invention are hereinafter described, by way of example only, with reference to the accompanying drawings, wherein:

10 Figure 1 is a schematic diagram of a preferred embodiment of an interactive system;

Figure 2 is a schematic diagram of the high level process and data flow of an interactive process of the interactive system;

15 Figure 3 is a block diagram of a mobile telephone on which a client application of the interactive system is installed;

Figure 4 is a block diagram of the client application of the interactive system;

Figure 5 is a flow diagram of the life cycle of an interactive application generated by the interactive process and system;

Figure 6 is a block diagram of an application gateway of the interactive system;

20 Figure 7 is a block diagram of a computer system on which the application gateway is installed;

Figure 8 is a schematic diagram of the process and data flow of an opt-in process of the interactive system;

25 Figure 9 is a schematic diagram illustrating the use of encryption key sets to establish an encrypted communications channel between the client application and the application gateway;

Figure 10 is a schematic diagram of the process and data flow involved in conducting secure communications between the client application and the application gateway;

30 Figure 11 is a schematic diagram illustrating the default behaviour of the interactive system and process whereby a particular application gateway transmits instructions to a particular client application, and the resulting response data is returned to the same application gateway that sent the instructions;

Figure 12 is a schematic diagram similar to that of Figure 11, but illustrating the redirection of response data to a different application gateway from the application gateway that sent the corresponding instructions;

Figure 13 is a schematic diagram illustrating the structure of messages exchanged  
5 between the application gateway and the client application;

Figure 14 is a schematic diagram illustrating the structure of payload data of the messages shown in Figure 13;

Figure 15 is a schematic diagram illustrating the structure of each data part of the payload data of Figure 14;

10 Figure 16 is a schematic diagram illustrating the fifteen different types of instructions supported by the interactive system and process;

Figure 17 is a schematic diagram illustrating the structure of an SMS message generated by the interactive system and process;

15 Figure 18 is a schematic diagram illustrating how the interactive system uses multiple SMS messages to transmit instructions constituting an application whose length is greater than 133 bytes;

Figure 19 is a flow diagram of an SMS transmission process of the system;

Figure 20 is a flow diagram of an SMS receiving process of the system;

20 Figure 21 is a flow diagram of an application execution process executed by the execution engine of the system;

Figure 22 is a schematic diagram illustrating the structure of response data sent from the client application to the application gateway;

Figure 23 is a schematic diagram illustrating how the system uses parameter names provided in instructions to label corresponding responses;

25 Figure 24 is a schematic diagram illustrating execution branching in the client application;

Figure 25 is a schematic diagram illustrating the use of branch domains to label responses having the same parameter name;

30 Figure 26 is a schematic diagram illustrating the use of a branch name stack to determine control flow;

Figure 27 is a schematic diagram illustrating the user interface components resulting from selecting different branches of an interactive application;

Figure 28 is a schematic diagram illustrating the inclusion of a 'back' button on each user interface display;

Figure 29 is a schematic diagram illustrating the use of an executed instruction stack to implement the 'back' button of Figure 28;

Figure 30 is a screen shot of a user interface of the application gateway for entering scripting language instructions and for submitting those instructions to an instruction  
5 compiler of the application gateway;

Figure 31 is a source code listing of a function illustrating how the system APIs can be used to send details of a booking to a mobile telephone for display to a user, and to receive the user's response indicating whether they user accepts or rejects the booking;

Figure 32 is a partial listing of a scripting language application, illustrating the use  
10 of control flow branches in the scripting language;

Figure 33 is a schematic diagram illustrating the user interface components generated from the scripting language example of Figure 32;

Figure 34 is a schematic diagram illustrating the use of nested user interface displays generated by the system;

Figures 35 and 36 are schematic diagrams illustrating the appearance and structure  
15 of general user interface displays generated by the system;

Figure 37 is a schematic illustration of a slider control display generated by the system;

Figure 38 is a schematic diagram illustrating the use of single and multiple  
20 selections in user interface displays generated by the system; and

Figure 39 is a schematic diagram illustrating how the branch names of nested menus are used to label parameter data.

#### **DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS**

25 As shown in Figure 1, an interactive system includes at least one client application 102 and at least one application gateway 104. Each client application 102 is a component of a corresponding user device 106 that can communicate with the at least one application gateway 104 via one or more of a variety of communications means supported by the device 106, preferably including a combination of (i) an IP-based communications  
30 network 108 such as the Internet, (ii) a wireless wide-area communications network such as the global system for mobiles (GSM) telephone network, (iii) a local wireless network or link between the device 106 and the at least one application gateway 104, such as an infra-red link, Wi-Fi or Bluetooth network 112, and/or (v) a direct cable connection 114

using a standard communications protocol such as RS-232, universal serial bus (USB), or FireWire (IEEE 1394). The interactive system allows an application developer 116 using a standard computer system 118 to rapidly develop and deploy an interactive workflow or application for execution on one or more user devices 106 in order to interact with the users 120 of those devices 106, and to receive response data representing at least one response of each user 120 to the interactive application.

The interactive workflow or application includes a set of instructions for presenting information to a user 120 of each mobile device 106 in an interactive display or user interface, and for retrieving each user's response(s) to that information. Typically, the information presented to a user 120 will include one or more questions displayed on a display screen of the user's device 106 (and possibly also audio played on a sound transducer of the device 106), and each of the user's responses is provided by the user interacting with one or more user-interface (UI) components or input controls of the interactive display. Each response can be in the form of freeform text typed into a textbox, or the result of the user interacting with another type of input control, such as radio buttons, check boxes, sliders, simple menus, nested menus, and so on. To some extent, these possibilities are determined by the capabilities of the device 106. However, because the workflow supported by the system also includes control flow features similar to those provided by high-level programming languages, the workflow instructions generated by the system are also considered to constitute an interactive software application that is executed on the user device 106.

In the described embodiment, the user device 106 is a mobile telephone, but alternatively could be some other type of portable or handheld device such as a personal data assistant (PDA), and hence is also referred to hereinafter as "the mobile device 106". However, even though the device 106 is described as being "mobile" or "portable", it will be appreciated by those skilled in the art that the systems and processes described herein could alternatively be used in conjunction with other types of devices and systems that need not even be portable. For example, the client application 102 could even be installed on a standard personal computer system (rather than the portable device 106) in order to rapidly develop and deliver interactive applications to a standard personal computer, for example.

In the described embodiment, the client application 102 is a software application that is stored on the mobile device 106, either as part of the device manufacturing or configuration prior to sale, or subsequently deployed as required via GPRS, Bluetooth, Infrared or a phone specific channel (*e.g.*, a data cable), allowing it to be installed on a wide variety of different types of device. However, it will be apparent to those skilled in the art that the client application 102 and its processes could alternatively be implemented either in part or in total by one or more dedicated hardware components, such as application-specific integrated circuits (ASICs) or field-programmable gate arrays (FPGAs), for example.

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Similarly, the application gateway 104 is a software application that is installed on and executed by a standard computer system 122, such as an Intel™ IA-32 computer server executing a Windows™ operating system. The computer system 122 includes standard hardware components 702, and software components 704. The hardware components 702 include at least one processor 706, a communications interface (*e.g.*, network interface card) 708, random access memory 710, non-volatile (*e.g.*, hard disk storage) 712, user input device (*e.g.*, keyboard, mouse or other pointing device) 714, and a display adapter and device 716, all interconnected by a system bus 720. The software components 704 include the application gateway 104, and a standard operating system 718 such as Microsoft Windows. Additionally, a third party application 124, shown as being installed on the developer's computer 118, may additionally or alternatively be installed on the same computer system 122 on which the application gateway itself is located 104, as shown. However, although the application gateway 104 is described as being a software application, it will be apparent to those skilled in the art that the application gateway 104 and its processes could alternatively be implemented either in part or in total by one or more dedicated hardware components, such as application-specific integrated circuits (ASICs) or field-programmable gate arrays (FPGAs), for example.

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The client application 102:

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- (i) verifies a set of instructions sent by the application gateway 104;
- (ii) interprets these instructions;
- (iii) interacts with the user device 106 and/or the user 120 in accordance with the set of instructions; and
- (iv) sends responses back to the gateway 104 or other computer system or device.



The application gateway 104 is effectively a backend component that:

- (i) maintains a database of user devices of the interactive system (*i.e.*, devices on which the client application 102 has been installed);
- 5 (ii) generates and delivers interactive applications to the mobile device 106 via any one of a wide range of communication channels;
- (iii) ensures the integrity and authenticity of outgoing and inbound messages to and from the mobile device 106; and
- 10 (iv) provides application programming interfaces (APIs) to allow third-party applications 124 to deploy an interactive application to the mobile device 106 and to receive corresponding responses generated by the client application 102 on the mobile device 106.

Figure 2 is a schematic diagram illustrating the high level operation of the interactive process of the system in relation to the various components shown in Figure 1. At step 202, 15 an external or third-party application 204 executing on the developer's computer system 118 (or, alternatively, on the gateway computer system 122) calls an API 616 of the application gateway 104 to describe the workflow that the developers of the device 106 want to deploy. In general, the workflow includes the steps of displaying information to a user, and then retrieving at least one response to that information. For example, a typical 20 workflow might be to display a message on the mobile device 106, ask the user to enter their age, then display another message, and send the age back to the developer. These steps or instructions constitute an interactive application for execution on the mobile device 106.

25

The workflow defines:

- (i) one or more addresses of respective user devices 106;
- (ii) the steps to be performed on the one or more user devices 106;
- 30 (iii) the address of an alternate gateway server (if any) 104 to which responses are to be sent; if no address is given, then the responses will be sent to the same gateway server 104 that sent the application instructions;
- (iv) how the response data returned to the application gateway should be processed (*e.g.*, returned to the developer's application 124, sent to the developer 116 by email, stored in a file, etc.); and

- (v) the communication method(s) that are to be used to send the instructions to the user device 106 and to receive the corresponding response data.

At step 206, the application gateway 104 transforms the workflow described by the developer into a compressed, encoded, and encrypted format for transmission to the mobile device 106. The application gateway 104 also inserts a unique identifier or ID into the message and stores data associating that ID with the destination (*e.g.*, phone number, or network address) to which the workflow is to be sent.

The application gateway 104 transforms the message so that it can be transmitted via the appropriate communication means. For example, if the message is to be transmitted via SMS, the application gateway 106 splits a large message into smaller messages to comply with the GSM standard. All this is hidden from the developer. At step 208, the application gateway 104 then transmits the message to the device 106 specified by the developer.

15

At step 210, the client application 102 receives, un-compresses and decrypts the message(s), thereby verifying their integrity. If valid, at step 212 the client application 102 interrupts the user and requests that they complete the workflow. With the user's cooperation, the client application 102 interprets each instruction and performs a corresponding operation *e.g.*, display a message, collect the user's age, etc. that in most cases involves interacting with the user of the device 106.

20

At the end of the workflow, the client application 102 sends back to the application gateway 104 all the collected response data via the response channel specified in the workflow instructions by the application gateway 104. For example, if the response is to be returned via SMS, a response SMS is sent back to a phone number provided in the initial message(s). The client application 102 also encrypts the response message(s) and includes the unique message ID to ensure authenticity of the response.

25

When the application gateway 104 receives the response message at step 216, it decrypts the message and determines whether the ID of the message is valid for the phone number it was received from, using the destination and ID association stored previously. If the message is valid, then it is processed as specified by the developer *e.g.*, passes it on to a third-party application, emails the developer, stores it in a file, etc.

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In addition to the above, the interactive system also provides capabilities for (i) storing (and subsequently updating) a set of instructions as a permanent or semi-permanent application stored on non-volatile storage of the user device 106 for execution at any time; 5 *i.e.*, the application persists on the user's device; (ii) the distribution of encryption keys; and (iii) opt-in mechanisms to ensure that the mobile device 106 is not sent unsolicited applications, *e.g.*, if the application gateway 104 is shared by multiple vendors.

The interactive system and the interactive process executed by the interactive system are 10 described in detail below.

As shown in Figure 3, the mobile device 106 is a standard mobile phone including hardware components 302 and software components 304. The hardware components 302 include a processor 306, read-only memory 308, random-access memory 310, flash 15 memory 312, user interface components including user input components 314 (*e.g.*, microphone, keyboard, and, in some devices, touch-screen), output components 316 (*e.g.*, display screen, speaker), and one or more communications interfaces 318 allowing the device 106 to communicate with a mobile phone network 110, and, in some devices, also Bluetooth and/or Wi-Fi local wireless networks or an infrared link 112. In the 20 preferred case of the mobile device 106 being a telephone, the device 106 also includes a SIM card 320. The software components include an operating system 322 such as the closed, proprietary operating systems installed on mobile telephones sold under brands such as Nokia and Motorola, Java platform Micro-edition (Java ME) 324, and the client application 102. However, if the operating system 322 is a more sophisticated operating 25 system such as Symbian, Linux, Microsoft SmartPhone, PocketPC, Windows CE, or Windows Mobile, that provides sufficiently powerful application programming interfaces (APIs), then the J2ME component-324 can be omitted. As shown in Figure 4, the client application 102 includes a message sender component 402, a message receiver component 404, user interface (UI) widgets 406, a workflow execution engine 408, instant 30 data storage 410, and permanent data storage 412. The client application 102 is a native application that is executed by the mobile device 106. The client application 102 can be installed by any one of a number of means, including WAP push, IP data packets (GPRS or 3G networks), Bluetooth, Infrared, or a phone-specific channel such as a data cable. The

client application 102 can be provided as a preinstalled application on the mobile phone 106 when purchased.

5 The message sender 608 sends response messages to the application gateway 104 in a format understood by the application gateway 104. It encrypts the message and includes ID provided with the initial application to confirm its authenticity.

10 The message receiver 606 decrypts and uncompresses instruction sets received from the application gateway 104. It implements message reception via a number of channels, including Bluetooth, Infrared, IP networks (GPRS or 3G), and SMS. The message receiver 606 also invokes the workflow execution engine 408 to process the instruction set.

The UI Widgets 406 are pre-built user interface components that instructions sent by the application gateway 104 can use to interact with the user.

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The workflow execution engine 408 is responsible for running and maintaining state for the instructions currently being processed. It associates instructions with UI widgets as well as storing input from the device 106 and its user. It is also responsible for invoking the message sender 402 once the workflow is completed to initiate sending the response to the application gateway 104. The workflow execution can also be invoked by a timer if an instruction asks to be run at a specific time.

20 The client application 102 can simultaneously receive multiple workflow applications at any one time, and the instant data store 410 is effectively a first-in, first-out queue that stores these applications and processes them one by one until the instant data store 410 is empty.

30 The interactive system has the ability to make a sequence of instructions persistent on the mobile device 106 as an application. These sequences are identified by a unique label and are stored in the permanent data store 412, being in this embodiment the non-volatile flash memory 312. The application gateway 104 can issue commands to update or delete applications in the permanent data store 412.

Figure 5 is a flow diagram illustrating the life cycle of an execution instance of the client application 102 following receipt of an instruction from an application gateway 104. However, the client application 102 can be invoked at step 502 by either a new data event or a timer event. A new data event occurs when the client application 102 is activated by the mobile device 106 when new payload data addressed to the client application 102 is received. Timer events are set by a specific instruction that suspends execution of the instruction to a later date/time. The workflow engine 408 is responsible for scheduling the client application 102 to start and process the instruction set at that date/time.

10 Once invoked, at step 504 the instruction sequence is retrieved either reading data from the instant data store 410, in the case of a Timer event, or from the input channel in the case of a new data event. If the instruction data is retrieved from the input channel and is encrypted, at step 506 the client application 102 decrypts and verifies it as described below. If the data is valid, the workflow execution begins at step 508.

15

The workflow execution 508 processes the instructions step by step. This may or may not involve user interactions (as some instructions described in the Appendix can be handled without user interaction). Upon execution of a timer instruction specifying that execution should be postponed to a later time, further execution of instructions of the workflow application is suspended and the instruction set is stored placed in the instant data store 410 pending resumption at the specified time.

20 Once the workflow execution 508 is complete, the workflow application is removed from the instant data store 410. If the application is marked as persistent, the instruction set is saved to the permanent data store 412. The user can then invoke the instruction set at any time.

25 At step 510, the information collected by the workflow execution 508 is sent back to the application gateway 104 as response data. The client application 102 encrypts the response data in addition to including the unique message ID that verifies the authenticity of the response data.

As shown in Figure 6, the application gateway 104 includes an instruction compiler 602, a key manager 604, a message receiver 606, a message sender 608, an opt-in manager 610, persistent storage 612, and an application programming interface (API) 616.

5 The instruction compiler 602 translates workflow descriptions received from the developer 116 into a format that is optimized for delivery to and execution by the client application 102. The workflow description is written in a scripting language that is compiled by the instruction compiler 602. The developer can enter the workflow description directly into a text box and submit its contents to the compiler 602. This is typically used to rapidly prototype the look and feel of a workflow application. Alternatively, the workflow description can be submitted by making an API call to the compiler 602 from a high-level programming language such as C#, Java, or TCL, thus providing end-to-end application integration.

15 The message sender 608 encrypts the workflow instruction set. The encryption relies on requesting the key manager 604 to provide a random index and an encryption key that is specific to a particular user device 106 on which the instructions are to be executed. The index is sent in cleartext to the client application 102, which uses the index to look up the appropriate encryption key to decipher the message. The message sender 608 also generates a unique random identifier for the workflow application. The random identifier is a combination of a random identifier and an identifier of the party who sent the workflow description.

25 The message sender 608 uses the transport adapter 614 to deliver the actual message(s) containing the workflow application. The message sender 608 first checks with the Opt-in manager 610 to ensure that the client application 102 does not receive unsolicited applications which it has not opted into, as described below.

30 The transport adapter 614 abstracts the various methods of delivering an instruction set to the client application 102 on the mobile device 106. It uses device capability information stored in the persistent storage 612 to determine the capabilities of the device 106 and hence the best communication channel to deliver the message(s).

The transport adapter 614 provides plug-in support for new channel types dynamically by providing a set of messaging APIs and by allowing dynamic loading of compiled code that implements a new messaging interface. If required, the transport adapter 614 reformats the instruction payload so that it can be delivered via a particular channel. In particular, an application delivered by SMS may have to be divided into two or more smaller messages due to SMS message size limitations.

The key manager 604 is responsible for generating, distributing and managing the encryption keys issued to the portable device 106, as described below. It also provides encryption and decryption facilities for the message sender 608 and the message receiver 606.

The opt-in manager 610 provides an opt-in, opt-out process to allow client applications 102 select the entities they are willing to receive instruction sets from. This is desirable because the application gateway 104 may be shared by multiple parties and the client application 102 will otherwise execute any received instruction set as long as it is valid. The opt-in manager 610 maintains in the persistent data store 612 associations between parties and the phone numbers (or, in the case of devices other than telephones, other form of address or identifier of the destination device) they are allowed to send applications to. The process for creating these associations can be dynamic to allow users to selectively block or allow instructions from particular parties. For example, Figure 8 shows the message flow for an opt-in process.

At step 802, a party uses the external application 124 executing on the computer system 118 to send a workflow description to the application gateway 104, which at step 804 compiles and formats the instructions in preparation for sending them to a client application 102 that has not opted in. At step 806, the message sender 608 first checks whether the client application 102 has opted in. If not, at step 808 it asks the opt-in manager 610 to determine the opt-in status for this party and this user device. At step 810, the opt-in manager 610 sends an opt-in request message to the user, asking whether they agree to receive applications from this party. If the response is yes, at step 812 the opt-in manager 610 stores this information in the persistent data store 612 and then at step 814 instructs the message sender 608 to send the instruction set at step 816. Otherwise, if the

response is no, then the message sender 608 fails and notifies the party at step 818 that the user has not opted in.

Alternatively, the opt-in process could be performed manually, for example, by using a form that enables the user to directly add entries to the persistent data store 612. Alternatively, an analogous process could be used to opt-out of receiving applications from a particular party.

The message receiver 606 receives messages from the client application 102 and communicates with the transport adapter 614 to receive responses via any of the supported transport channels and protocols, including GPRS, IP network, Bluetooth, and SMS. For example, the instruction set of the interactive system allows instructions to be received by one physical channel/protocol (*e.g.*, SMS), and a corresponding response to be delivered by another (*e.g.*, Bluetooth).

15

When a message is received, the message receiver 606 first logs the message for audit purposes. Then it checks the authenticity of the message by deciphering the message using the key manager 604, and examining the unique message ID and the party ID to confirm that they match what was sent out.

20

Once the message authenticity is established, the message receipt is logged for billing and auditing purposes. Finally, the response message is processed as required by the party. This may include emailing the party; logging it to a file for the party to collect; and/or making a request to a third-party application to process the message. The actual method(s) used to process the response message can be specified when calling the API. If the API call does not specify a processing method, then the response is processed using the default method configured for the corresponding developer, determined when the developer establishes an account with the provider of the interactive system.

30 The persistent storage 612 is a non-volatile storage component that is used by:

- (i) the key manager 604 to store the encryption keys for the various mobile devices;
- (ii) the message sender 608 to store the addresses of user devices 106 (*e.g.*, phone numbers in the case of the device 106 being a telephone), together with the



delivery mechanisms that each user device 106 supports. It also stores the identifiers of the messages that have been sent out, for verification purposes;

- (iii) the message receiver 606, to store received messages for audit and billing purposes; and
- 5 (iv) the opt-in manager 610, to store opt-in data representing each user device 106 and the third party applications that are authorised to send instructions to each user device 106.

### Encryption keys

As described above, each installed instance of the client application 102 on a user  
10 device 106 is identified by a unique client identifier (also referred to herein as the client ID number) that is associated with its phone number. When a client application 102 is first installed on a mobile device 106, a number of private encryption keys are generated and associated with the client ID.

15 As shown schematically in Figure 9, these encryption keys are then used by the client application 102 to authenticate the payload data and to encrypt the response data. On each payload or response data packet or message, the index of the appropriate encryption key is indicated in the header of the payload.

20 Figure 10 is a schematic diagram illustrating the message and process flow for generating and updating encryption keys on a client application 102 and an application gateway or backend system 104. The process is initiated by the client application 102 making a secure communication activation request to the application gateway 104 at step 902. In response, the application gateway 104 generates and stores a set of private encryption keys, and  
25 associates these with the client ID at step 904. At step 906, the application gateway 104 sends these newly generated private keys to the client application 102. The client application 102 stores the received private keys on the persistent storage 412 at step 908, and returns an acknowledgement to the application gateway 104 at 910, confirming that the private keys have been stored (or updated if the keys had been previously stored). This  
30 completes the generation/update steps and secure communication is activated at step 912. This involves encrypting a message payload using one of the private encryption keys, which can be selected at random or on any other basis at step 914. At step 916, the secured payload encrypted with the selected key is sent to the client application 102, together with

a message header specifying the index of the selected encryption key. At step 918, the client application uses the encryption key index indicated in the header to select the appropriate private key, and uses that key to decrypt the payload data at step 918. After performing the application instructions specified by the payload, the client application 102 then encrypts the response at step 920. The response can be encrypted using the same key, as shown in Figure 10, or any other of the stored keys. The secured response is sent to the application gateway 104 at step 922, and the response is decrypted using the appropriate response key at step 924. As will be understood by those skilled in the art, the use of private encryption keys greatly improves the security of communication, and the use of a set of encryption keys, rather than a single key, further increases this security.

When sending a response message, the client application 102 uses the source address of the corresponding payload data by default. This effectively provides multiple client-server communication channels in between the backend 104 and the client application 102. For example, Figure 11 shows an arrangement whereby two instances of the client application 102, a first instance 1002 and a second instance 1004, are in communication with two instances 1006, 1008 of the application gateway 104, via a wireless communications network 110. A message 1010 sent from the first backend system 1008 to the second client application 1004 includes an address 1012 of the first backend system 1008 in the header of the message 1010 so that when the client application 1004 sends the corresponding response 1014, it is addressed to the first backend system 1008.

In contrast, Figure 12 shows the same arrangement whereby a message 1102 also includes the address 1012 of the first backend system 1008. However, workflow instructions contained in the payload data can alter this default behaviour by redirecting the response to another backend server instead. This mechanism is activated by a DIVERT command in the payload data, described further in the Appendix. Specifically, in this message 1102 the payload 1104 includes a divert instruction with the address of the second backend system 1006. Consequently, after the second client application 1004 executes this instruction, the response 1106 is addressed to the second backend system 1006, rather than the first backend system 1008 that originated the message 1102 containing the instructions. Because the second backend system 1006 does not have direct access to the client ID and message ID pair, or the encryption keys for the client application 102, the second backend system 1006 calls an API of the first backend system 1008 to check the integrity and

authenticity of the response data. If the payload was encrypted, then the first backend system 1008 decrypts the payload and sends it back to the second backend system 1006 over a secured communications channel (using SSL, for example). In an alternative embodiment, the encryption keys are stored in a centralised component of the interactive system, and all encryptions and decryptions are performed in this manner.

#### Communication data payload

The payload exchanged between the client application 102 and the backend system 104 is binary data - a sequence of bytes. The communication channel for this payload can include SMS or Cell Broadcast Service (CBS) messages; IP/TCP data packets (over GPRS, 3G or other type of data networks); and/or Bluetooth data packets.

As shown in Figure 13, each data payload is prefixed with a header 1204 which indicates whether the payload is encrypted with an encryption key. The header data contains the index of the encryption key stored in the client application key-storage, thereby allowing the client application 102 to decrypt the payload data.

As shown in Figure 14, plain payload data (either unencrypted or after being decrypted) contains a series of variable-length data parts that instruct the dynamic workflow execution engine 508 of the client application 102 to construct the user UI workflow.

As shown in Figure 15, each data part includes type 1402 and length 1404 data fields, followed by the actual instruction data 1406. The type field is a single octet or byte that defines the type of workflow instruction that follows. The length indicates the number of octets or bytes of the instructor data 1406.

As described above, the interactive system is able to use one or more of a variety of different communication channels for sending and receiving messages and responses between the application gateway 104 and the client application 102. For most of these different communication channels, the communication itself is straightforward, using the standard methods and libraries available and known to those skilled in the art. However, the interactive system supports message and response delivery via the short message service, or SMS. SMS is defined in the GSM 03.40 specification, which defines an upper limit on the size of each SMS message. Specifically, each SMS message is capable of

containing up to 140 bytes of data, equivalent to 160 ASCII characters when using 7-bit encoding, as shown in Figure 17. The interactive system sends SMS messages including 8-bit (binary) data and including a 7-byte user data header or UDH 1702, as described in the GSM 03.40 specification. The UDH 1702 consists of a length field or UDHL 1704, specifying the length of User Data Header in bytes as specified in GSM 03.40, and a 6-byte User Data Header field 1706 specifying the destination address of the payload data 1708.

The UDH data 1702 - specifying the destination of the binary message - is interpreted by the mobile device to deliver the payload data to the client application 102. Excluding UDH data 1702, each SMS message is capable of carrying 133 bytes of payload data 1708.

If the payload data exceeds this length, the payload data is sent in two or more SMS messages 1804, each message containing up to 127 bytes of payload data 1806, 1808, as shown in Figure 18. These SMS messages 1804 have a section of User Data Header indicating that they all belong to a concatenated message, as described in the GSM 03.40 specification. A byte padding mechanism is used by the backend system 104 and the client application 102 when the payload is sent in multiple SMS messages. In this mechanism, a padding or termination byte 1810 with value 0xFF is appended to the end of each payload data fragment 1806, 1808 when sent out from the backend system 104. The client application 102 removes these padding bytes 1810, which appear as stuffed bytes 1812 in the concatenated payload data before passing the payload data 1814 to the workflow execution engine 408. The byte padding mechanism is used to eliminate problems found in a number of mobile phone models that strip out the last byte of every concatenated data fragment.

The instruction compiler 602 creates the payload data from the compiler output to generate binary SMS messages. Construction of binary messages includes splitting the payload data 1802 into multiple SMS messages 1804 if the data length exceeds the single message capacity of 133 bytes. Figure 19 is a flow diagram showing the steps involved in this process.

As shown in Figure 19, when delivering a message or a response via SMS, at step 1902 a check is performed to determine whether the size of the payload data exceeds 133 bytes. If

not, then at step 1904 a user data header is added, and a single SMS message is composed and sent at step 1906. Alternatively, if the payload length does exceed the maximum size that can be sent in a single SMS message, then at step 1908 a concatenated message identifier is generated, and at step 1910 the number of concatenated messages that are required to accommodate the payload data is determined. Then, a processing loop consisting of steps 1912 to 1920 composes the appropriate number of SMS messages as follows. At step 1912, the next payload portion is selected and copied to the payload of the current SMS message. At step 1914 a user data header is added, including the identifier indicating that the SMS message is part of this SMS message set. At step 1916, a padding or termination byte is appended to the payload data, as described above. Finally, at step 1918 the resulting SMS message is sent. These steps 1912 to 1918 are repeated until the test at step 1920 determines that the last part of the payload data has been sent, and the process then terminates.

15 Removal of stuffed bytes in the payload data is handled by the client application 102 by searching for the specific stuffed byte octet value (0xFF in this embodiment) and removing it from the payload data, as shown in Figure 20.

Figure 16 is a schematic diagram showing the fifteen different instructions supported by the interactive system, showing the respective type bytes identifying each instruction type, and the structure of the corresponding instruction parameters. Further details on the various instructions are provided in the Appendix.

### ***Dynamic workflow execution engine***

25 The client application 102 presents to the user a number of user interface (UI) widgets 406 as well as executing user-invisible routines. This allows the client application 102 to display information as well as capture device information and/or user inputs.

The UI widgets 406 typically include the following type of user interface components and controls:

- (i) Message screen: to show textual information;
- (ii) Selection menu: to ask for the user's selection of one of a number of defined choices (*i.e.*, radio buttons);

- (iii) Multiple choices: to ask for user's one or more choices (*i.e.*, check boxes);
  - (iv) Textual input: to retrieve free form text input from the user (textbox);
  - (v) Numeric or date inputs: to retrieve user input data, restricted by type; and
  - (vi) Widgets displayed when branching and jumping amongst execution steps.
- 5 However, this list of UI widgets 406 and their actual screen layouts can vary depending on the platform (*i.e.*, on each combination of device hardware and operating system software) on which the client application 102 is installed.

10 The client application 102 implements a workflow execution process 2100, as shown in Figure 21, on each invocation to execute a workflow application. The workflow execution process 2100 begins after the client application 102 is invoked at step 2102, and a test is performed at step 2104 to determine whether the invocation has resulted from the receipt of new payload data from the application gateway 104. If so, then at step 2105 the new payload instructions are retrieved, and then parsed at step 2110. Otherwise, if the

15 invocation was not due to the receipt of new payload data, then a test is performed at step 2106 to determine whether instructions are contained in the instant data storage 410. If so, then the instructions are retrieved from the instant data storage 410 at step 2108, and then parsed at step 2110. Otherwise, another test is performed at step 2132 to determine whether any sets of instructions have been saved as applications in the permanent data

20 storage 412. If not, then at step 2134 an information message is displayed to the user indicating that there are no applications (instant or permanent) in the queue. Once the user acknowledges this information message, or when a corresponding timeout period has elapsed, the client application 102 is terminated. Alternatively, if the permanent data storage 412 contains one or more permanently stored sets of instructions (*i.e.*,

25 applications), then at step 2136 these are displayed to the user, and the process 400 pauses at step 2137, awaiting the user's selection of one of these, or selection of a quit option. If, at step 2138, it is determined that the user has selected the quit option, then the client application 102 terminates. Otherwise, the user has selected a permanently stored set of instructions, and these are retrieved at step 2140, and then parsed at step 2110.

30

Following parsing of the workflow instructions at step 2110, the first or next workflow instruction is read at step 2112, and executed at step 2114. If it is determined at step 2116 that the instruction is a UI instruction, then the process waits to receive user input at step 2118. Once the user's response has been received, at step 2120 the UI widget

displayed on the screen of the device 106 is removed, and any user input is stored at step 2122. At step 2124, a test is performed to determine whether the instruction was the last in the workflow. If not, then the process loops back to step 2112. Otherwise, once all of the instructions have been executed, then a response message is composed at step 2126, and sent at step 2128. If the workflow instructions executed are stored in the instant data storage 410, then they are deleted at step 2130. This terminates the workflow execution process 2100.

### **Parsing workflow instructions and response data**

10 The workflow execution engine 408 of the client application 102 interprets the payload data parts and generates the dynamic UI workflow accordingly.

The data parts from the payload data are indexed sequentially when read by the workflow execution engine 408, and, this is also the default order of workflow execution 508. As shown in Figure 22, the response data includes each response in the same order as the corresponding instructions were received and executed. When a workflow instruction is executed and response data is to be retrieved, a parameter name is included in the instruction data, and the user response or system response is associated with this parameter in the response. All the instruction responses are included in the response data when the workflow is completed, as shown in Figure 23.

### **Jumping and Branching in the workflow**

The workflow execution engine 408 provides a mechanism to allow branching and jumping in the sequence of instructions.

#### **Branching**

25 Because an instruction might be involved in different branches through out the workflow, the workflow execution engine 408 differentiates the instruction response data for different branches using branch domains. A branch domain specifies the address of a workflow instruction in the workflow tree. When setting the instruction response data, the response parameter name is prefixed with the corresponding branch domain, separated by a period character. For example, an instruction to retrieve user input for a numeric-valued parameter with the parameter name "number" could be called from two different branch menus: one named "First branch", and the other named "Second branch". In both of these

cases, the instruction returns the same parameter name "number" but with different values. The workflow execution engine 408 associates a branch domain with the parameter name to differentiate the two response values. Thus in this example, the first value is returned as "First branch.number = xxx" and the second value as "Second branch.number = yyy", where "xxx" and "yyy" represent the actual values entered by the user. Figure 25 shows a more complex example where menu selections are nested.

Additionally, the branch domain is appended with a branch name on selection of a branch menu. For example, in an application with two nested branch menus 3902 "Service Request" and 3904 "Water Service" as shown in Figure 39, when the user selects item 3910 "Water" in menu 3902, and then selects item 3912 "Pipe Burst" in the subsequent branch menu 3904 "Water Service", and then fills out 3914 with "John Doe" in the text input screen 3906 "Your name", the client application 102 will internally send the response as "Water.Pipe burst.name=John Doe". When the BRANCH\_BACK command is executed, the previous branch name is removed. The workflow execution engine 408 uses a branch name stack to maintain the order of branch names as they are selected.

For usability reasons, when working with a multiple branch menu, it is important for the user to know whether or not a branch has already been visited by the user. To this end, the workflow execution engine 408 indicates visited branch menu items by displaying an image adjacent to those branches to indicate that they have already been visited by the user. For example, as shown in Figure 27.

When the user has visited user input screen 2702 to enter data 1, an image icon 2706 is displayed adjacent to the first branch menu item 2704 is marked with distinct. This allows user to visually distinguish those parts of the workflow that have been visited from those parts that have not been visited. Alternatively, the visited branches could be displayed in a different colour, as used by web browsers to indicate that a hyperlink has been visited.

### 30 **Backward navigation**

As shown in Figure 28, all of the user interface screens include a "Back" navigation button 2802 to allow the user to return to the previous screen within the workflow. The position of this back button can change depending on the specific mobile device platform executing



the client application 102. As shown in Figure 29, the workflow execution engine 408 maintains an ordered list or stack of instructions that cause a change in the screen or display, and selection of the "Back" button causes the execution to return to the previous instruction.

5

### ***Sending a workflow description to the Instruction Compiler***

As described above, a developer 116 can send a workflow description to the instruction compiler 602 of the application gateway 104 by submitting programming instructions written in the programming language supported by the instruction compiler 602, using a  
10 hypertext transport protocol (HTTP) interface of the instruction compiler 602. For example, Figure 30 is a screenshot of an HTML webpage generated by the application gateway 104. The webpage includes a scrollable text box 3002 into which the developer 118 can directly enter commands in the scripting language, and a compile button 3004 which, when pressed, submits the text in the scrollable text box 3002 to the  
15 instruction compiler 602 for compilation.

The scripting language of the interactive systems is a high level language for describing the workflow of an interactive application. It is similar in vein to BASIC and can be learnt quickly by a programmer who has a basic knowledge in programming.

20

Alternatively, a workflow description can be sent to the instruction compiler 602 by invoking API calls to the application gateway API 616. For example, Figure 31 shows a source code listing of a J2ME function `SendWorkflowRequest` that is used to generate and send workflow instructions to the mobile telephone 106. In this example, the workflow  
25 instructions are to display booking details to the user 120 and then retrieve the user's response indicating whether the user 120 accepts or rejects the booking, together with the user's name and telephone number. The workflow API is first initialised by creating (at 3102) a new J2ME `Command()` object named `WorkflowCommand`. A workflow header, as described below, is then added at 3104. Workflow instructions are then added in  
30 the order of desired execution by calling APIs that are provided as methods of the `WorkflowCommand` object. Each type of workflow instruction is added by calling a corresponding API function with a set of parameters. For example, the object method `AddInfoMessage` is used (at 3106) to add an instruction that displays a screen of

information to the user. The first argument to this method provides a title for the screen, and the second argument provides the actual text information that is displayed. Similarly, the method `AddSingleMenu` adds (at 3108) an instruction that displays a single-level menu (*i.e.*, radio buttons) to the user, allowing the user to select one item from a list of 5 items provided as a parameter to the method. In this example, the two items are displayed as "Accept", and "Reject", and the user's response indicates whether the user 120 accepts or rejects the booking.

The method `AddUserInputCmd` (at 3110 and 3112) displays a text string to the 10 user, together with a textbox, prompting the user to enter an appropriate input value. The first parameter to this function finds the name of the parameter that will be associated with the returned input value. The second argument provides a string that is displayed to the user, and a third argument allows the developer to restrict the type of input; for example, to a phone number, email address, and so on.

15

Finally, the `AddRedirectHeader` method (at 3114) defines a return address or phone number to which the response will be redirected, as described above. The communication channel to be used (*e.g.*, whether by SMS, IP network, Bluetooth, etc) is also specified in the header.

20

Once the workflow instructions are added, the workflow API is called again (at 3116) to compile the instructions and build the payload data to be sent to the client application. The workflow API is called as many times as needed (at 3118) to send multiple messages if required.

25

## Scripting Language Overview

- Instructions are written line by line.
- Comment lines start with `//`
- Label lines start with `#`
- String parameters are delimited by double quote characters `""`

30

## Workflow-programming Structure

Commands are processed sequentially line by line. Three instructions are provided to create tree structures of the workflow: BRANCH\_TO, BRANCH\_BACK, and GOTO. BRANCH\_TO and BRANCH\_BACK are used in combination to create a subroutine for the compiled program. GOTO is a jump instruction that allows program execution to jump to a specified line in the script. Comment and blank lines are ignored by the instruction compiler 602.

### Command line syntax

A command is a line in the script which has the following structure:

10     <Command Name> <String Parameter> <String Parameter> <Label>

Where:

- <Command Name> is a command.
- <String Parameter> is a qualified string value, *i.e.*, delimited by double quote characters. For example, "User name" is a string parameter. There can be more than one string parameter in each command.
- <Label> is the name of the label that is associated with the command. Labels can only be used with the GOTO command and the ITEM command when used in conjunction with BRANCH\_TO command.

### Comment

20 There is no block comment in the language. Comment lines are lines that start with // (two forward slash characters followed by a space character).

Example:

// this is a comment line

### Label

25 A label is a way to mark a line number so that it can be referred to in GOTO and BRANCH\_TO's ITEM commands. A label line starts with # (hash) character, followed by a space character. The label name is the next word from the # character.

Example:

For label START, the line looks like this:

30     # START

The label name is mapped to the index (*i.e.*, relative position in the script) of the command immediately following the label line.

Labels in a script must be unique, a compile error occurs if a duplicate label is detected. All labels are parsed in the first pass of the compiler, building a mapping of  
5 label and command index to be used in the second pass.

### ***Backward navigation***

As described above, a "Back" navigation button is attached to all displayed screens by default. This button allows backward navigation of the workflow executed on the user device 106. On most mobile phone platforms, this "Back" button is mapped to the right  
10 action key. However, this can change depending on the type of phone.

### ***Tree navigation***

A combination of the BRANCH\_TO command, labels, and the BRANCH\_BACK command allows the workflow to support a tree like execution structure, as shown in the source code listing of Figure 32 and the resulting display screens of Figure 33. A detailed  
15 description is provided below. When a user is navigating through workflow screens, the state of each screen (item selection and user inputs) is not remembered.

### **Example**

The following is a source code listing that is used to generate an interactive application for  
20 execution on a user device such as the mobile telephone 106. The source code defines a workflow that allows the user 120 of the mobile telephone 106 to generate a service request for water, electricity, and/or gas services. The listing is arranged in four groups of commands or paragraphs under respective labels. The first paragraph, labeled START, results in display of a main screen 3402, as shown in Figure 34. The BRANCH\_TO  
25 command has two parameters. The first, "serv" defines a branch name for this branch, and the second parameter, "Service Request" defines the title that is displayed at the top of the main screen 3402. The subsequent three commands define items that can be selected by the user to invoke corresponding workflow branches. For example, the first ITEM command has two parameters. The first parameter, "Water", defines the text 3404 that is displayed on  
30 the main screen 3402, and that can be selected to invoke the corresponding workflow branch. The second parameter, in this case "WATER", is a label of the corresponding

workflow branch, in this case referring to the second group or paragraph of commands grouped under that label. Thus if the user navigates the main screen 3402 to select the first item 3404, the workflow jumps to the SELECT ITEMS, causing display of a water service selection screen 3406. In this case, the three items are simply menu selections (rather than  
 5 workflow branches), and thus selection of any one of these items causes the appropriate parameter, in this case named "water" to be assigned a value defined with the corresponding item. For example, if the user selects the second item, "Leaking" 3408, then the parameter "water" is assigned the value "Leaking". Once this item has been selected, the workflow proceeds to the following command, which in this case is the  
 10 BRANCH\_BACK command, which returns control to the main screen 3402.

In this manner, the user can select the Electricity item 3410 to branch to the ELECTRICITY workflow, resulting in display of a Electricity service screen 3412. Similarly, the user can select the "Gas" request item 3414 to cause a Gas service screen  
 15 3416 to be displayed. Once the user is satisfied with the service requests thus defined, selection of the Next button 3418, or the OK button 3420 causes execution to continue to execute in this example the command "GOTO CONTACTS", which causes the workflow to jump to the command following the CONTACTS label, being in this case an INPUT command displaying a name input screen 3422, and subsequently a Contact number screen  
 20 3424. Once the OK button 3426 on the Contact numbers screen 3424 has been selected, a MESSAGE command causes display of a Service Info screen 3428 providing informational feedback to the user, in this case confirming that the service request will or has been sent to an appropriate party for processing the user's request.

```

25 // Start of program
    # START
    BRANCH_TO "serv" "Service Request"
    ITEM      "Water" WATER
    ITEM      "Electricity" ELECTRICITY
30 ITEM      "Gas" GAS
    GOTO      CONTACTS

    # WATER
    SELECT    "water" "Water service"
  
```

34

```

ITEM          "Pipe Burst"
ITEM          "Leaking"
ITEM          "New connection"
BRANCH_BACK

5
# ELECTRICITY
SELECT       "elect" "Electricity service"
ITEM         "Fire"
ITEM         "New connection"
10 ITEM       "Disconnection"
BRANCH_BACK

# GAS
SELECT       "gas" "Gas service"
15 ITEM       "Leaking"
ITEM         "New connection"
ITEM         "Fire"
BRANCH_BACK

20 // This is like a subroutine
# CONTACTS
INPUT        "name" "Your Name" ANY
INPUT        "phone" "Contact Number" NUMERIC
// message is sent here
25 //# END
MESSAGE      "Service Info" "Your request will be sent to XXXX"

```

## Script commands and syntax

### *HEADER command*

- 30 The HEADER command is used to include a specified piece of text at the beginning of the response message when the workflow has been executed. This command is invisible to the

user of the user device. This command is used as a context identifier for server-client conversation.

There can be multiple header commands in the script. When using the HEADER command in conjunction with the BRANCH\_TO command, different response message prefixes can  
5 be set, based on the user's selection.

### Syntax

HEADER <header>

- <header> is a string parameter to be prepended to the response text message.

### Example

10     HEADER "timesheet"

### Response

<header> is attached to the beginning of the response message. If there are multiple headers to be included in the response message, the response headers are prepended based on their execution order in the workflow.

### 15     ***DIVERT command***

The DIVERT command is used to redirect a response message to a telephone number or address different from that of the source of the original instructions. Normally, the response message is sent back to the source address of the payload, but the response message can be sent back to another number instead by including a DIVERT command in  
20 the workflow. This command is invisible to the user. There can be multiple DIVERT commands in the script, but the last one that is executed in the workflow takes effect. When combining this command with the BRANCH\_TO Command, the workflow can send a response message to a source number selected by the user.

### Syntax

25     DIVERT <address>

- <address> is a string parameter representing the mobile number of the redirected address.

### Example

DIVERT "+61418366896"

**MESSAGE command**

MESSAGE command shows a message with a title and message content to the user.

**Syntax**

```
MESSAGE <title> <message content>
```

- 5
- <title> is a string parameter for of the title of the message to be displayed.
  - <message content> is a string parameter.

The end result is display of a screen as shown in Figure 35.

**Example**

```
MESSAGE "Hello" "Hello world"
```

10

**Response**

This GUI screen does not collect any user input and no response data is associated with it.

**INPUT command**

- 15 This command displays a GUI screen with a text input box 3602 to the user to retrieve user inputs, as shown in Figure 36. A parameter name is provided in the command to set the name of the user input data when included in the response message. A default input value can be provided as an input parameter. If desired, the user input data can be restricted to a certain types such as numeric, decimal or a phone number. However, the implementation of user input restriction depends on the capability of the user device executing the client application 102.
- 20

**Syntax**

```
INPUT <return parameter> <label> <type> <default value>
```

- 25
- <return parameter> is a string parameter for the name of the entered value to be set in the return message.
  - <label> is the title of the input text box
  - <type> is the type of the input to be captured, these types are available:
    - ANY
    - EMAILADDR
    - NUMERIC



37

- PHONENUMBER
  - URL
  - DECIMAL
- <default value> is an optional string parameter to be set to the input text box when the screen is visible to the user. If omitted, the default value of the input text box is left empty.

### Response

User input data is included in a response message associated with a parameter name specified in the corresponding instruction. If the INPUT command is executed in a branch routine (see BRANCH\_TO command) then any domain path applicable will be prefixed to the parameter name.

<return parameter>=<value> (without domain path)

<domain path>.<return parameter>=<value>

15 Where:

- <value> is a string value that user enters. This can be an empty value.
- <domain path> is the path of branches that lead to this INPUT command in the workflow.

### GAUSS command

20 This command results in the display of an interactive screen having a slider or "gauss" control 3702 to prompt the user to provide corresponding response data, as shown in Figure 37. The user is able to slide the slider control from a minimum value to a maximum value specified on the command line. The resulting data is included in the response message associated with the parameter name given.

### 25 Syntax

GAUSS <parameter name> <minimum value> <maximum value> <default value>

- <parameter name> is a string parameter for the name of the gauss value to be set in the return message.
- <minimum value> is the minimum value the user can select.
- 30 • <maximum value> is the maximum value the user can select

- <default value> is the default value if the user does not select any value. This parameter is optional so if it is not present, the default value is empty.

### Example

```
GAUSS "temper" "1" "10" "5"
```

### 5 Response

If this command is executed in a branch routine (see BRANCH\_TO command) then any domain path applicable will be prefixed to the parameter name.

```
<parameter name>=<value> (without domain path)
```

```
<domain path>.<parameter name>=<value>
```

10

### ***GOTO command***

This command allows the workflow execution engine 406 to jump to a specific workflow instruction, rather than proceed to the next instruction in sequence. A parameter of this command is the label of the instruction for the workflow execution to be directed to. There

15 is no user screen or response data associated with this instruction.

**Syntax**

GOTO <label>

- <label> is the label name indicating the index the command that the workflow execution jumps to after executing this command.

**5 Example**

```

....
GOTO Hello // The program jumps to message hello world after executing this
command.
...
10 ...
# Hello
MESSAGE "Hello" "Hello world"
...

```

***SELECT, SELECT\_MULTI command***

- 15 As shown in Figure 38, these commands display a screen with a list of items to select from. The SELECT command allows single item selection, and the SELECT\_MULTI command allows multiple item selection screen. The user selection is included in the response message identified by the parameter name. In case of multiple selection list, the selected values are separated by a delimiter character in the response value data.

**20 Syntax**

SELECT or SELECT\_MULTI command is followed by ITEM definitions (one per line).

```

SELECT <parameter name> <title>
25 ITEM <item name>
ITEM <item name>
ITEM <item name>

SELECT_MULTI <parameter name> <title>
30 ITEM <item name>

```

```

ITEM <item name>
ITEM <item name>

```

Where:

- 5       • < parameter name > is a string parameter specifying the return parameter id for the SELECT screen.
- <title> is a string parameter specifying the title of the screen.
- <item name> is a string parameter specifying the item to be displayed on the screen.

## 10 Example

```

// This example allows the mobile user to select one of the option listed
SELECT "tsk" "Select task"
ITEM "Administration"
ITEM "Service desk"
15  ITEM "Client meeting"

// This example allows mobile user to select one or many of user names in the list
SELECT_MULTI "name" "Select users"
ITEM "User 1"
20  ITEM "User 2"
ITEM "User 3"

```

For multiple select command, each of the items in the select list is displayed adjacent to an icon that indicates whether or not the item has been selected by the user. On most mobile devices, a "Mark" button is displayed to allow user to mark the selection of the highlighted item. A "Next" button is also attached to this screen to allow the user to navigate to the next workflow instruction. On some mobile device platforms, the Next button is mapped directly to one of the mobile phone buttons.

## Response

```

30  SELECT command:
      <parameter name>=<item>
SELECT_MULTI command:

```

< parameter name >=<item>;<item>;<item>

Where:

- <item> is the item name as selected

The multiple select response can be empty.

## 5 **BRANCH\_TO command**

This command provides users a list of items to select, and on selection of an item, execution of the workflow is branched to the specified command. The behavior of this screen is similar to the SELECT screen described above. Once the workflow execution starts executing from the new target instruction, it follows the default sequential order.

- 10 When the BRANCH\_BACK command is executed, the workflow execution engine returns to the previous BRANCH\_TO command to execute. However, the BRANCH\_TO command does not require a BRANCH\_BACK command to operate. The workflow can consequently branch to the last command without returning to the branch menu.

- 15 To progress to the next screen from a BRANCH\_TO command, a "Next" button is provided. On some phones, this button is mapped to one of the phone keys on the mobile device. On most phones however, this button is mapped to a soft-key named "Next" when the user select Options on the BRANCH\_TO screen (similar to SELECT\_MULTI command).

- 20 There is no specific user value attached to this screen in the response message. The selected branch item is however appended to the branch domain path. This domain path is then appended to the parameter name of any input screens being executed in the branch target.

### Syntax

BRANCH\_TO command is followed by ITEM definitions (one per line).

25

```
BRANCH_TO <parameter name> <title>
ITEM <item> <label>
ITEM <item > <label>
ITEM <item > <label>
```

30

Where:

- < parameter name > is a string parameter specifying the return parameter id for the BRANCH\_TO screen.
- <title> is a string parameter specifying the title of the screen.
- <item > is a string parameter specifying the item to be displayed on the screen.
- 5 • <label> is a valid label name as specified in the workflow with "#" character.

### Examples

```

....
# EnterBetAmount
INPUT "bet" "Enter bet amount" DECIMAL
10 BRANCH_BACK
....
# SelectBetAmount
SELECT "bet" "Select bet amount in dollars"
ITEM "100"
15 ITEM "200"
ITEM "300"
BRANCH_BACK
....
BRANCH_TO "b" "Select team to bet"
20 ITEM "Melbourne" EnterBetAmount
ITEM "Geelong" SelectBetAmount
GOTO END
....
# END
25 MESSAGE "Info" "Please select Yes to allow response message to be sent"

```

### Response

- The domain path is appended with <item> selected in the branch menu.
- This domain path is then appended to the parameter name of any input screen executed in the branch target. In the example script, the "bet" amount parameter
- 30 name when appearing in the response message is: Melbourne.bet=<bet value>.

**BRANCH\_BACK command**

This command is invisible to the user, it provides the capability to navigate back from branching. A workflow could have multiple branches wired up and the result is a tree like structure. BRANCH\_BACK command allows navigation upwards in this tree structure.

- 5 Combination of label and BRANCH\_BACK command allows combining a group of workflow commands in to a routine, which can be referred to multiple times during the workflow execution.

**Syntax**

BRANCH\_BACK

10 **STORE\_PERMANENT command**

This command instructs the workflow execution to store the whole payload data to persistent storage. A title is set in the parameter of this command allows the client application to display the stored payload data to the user. This command does not result in any user data in the response message.

15 **Syntax**

STORE\_PERMANENT <title>

Where:

- <title> is a string parameter indicating the title of workflow payload data to be displayed in the persistent list. This persistent list is displayed to the user when the client application is started manually by the user and no instant payload data is waiting to be executed.
- 20

**Example**

STORE\_PERMANENT "Message one"

**CLEAR\_PERMANENT command**

- 25 This command clears all the persistent workflow payload data previously saved by STORE\_PERMANENT command. Execution of this command does not result in any data in the response message.

**Syntax**

CLEAR\_PERMANENT

**EXECUTE command**

This command makes a request to the mobile device operating system to retrieve an URL  
 5 address. The results could be making a phone call or launching the internet browser on the  
 phone to the specified URL address. Behavior of this command might varies across  
 different device models due to device capabilities.

**Syntax**

EXECUTE &lt;url\_address&gt;

10 Where:

- <url\_address> is a string parameter describing the URL address of the request to be sent to the J2ME platform.

**Example**

To make a mobile phone call to +61418366896 mobile number

15 EXECUTE "tel:+61418366896"

To launch the internet browser on the mobile phone to access ACME mobile website

EXECUTE "http://mobile.acme.com"

**Response**

If making a mobile phone call is required, the mobile device will ask user if a mobile  
 20 phone call can be made. If launching of the internet browser is required, the application  
 will ask for the user's permission to open the internet connection to the specified URL.

**CONFIGURATION command**

The response message is constructed from the user/system data. A number of default  
 delimiter characters are used to separate the data parts as well as name-value separator.

25 This command when included in the payload data can change the delimiter characters of  
 the response message as well as specifying whether or not the name part is included in the  
 response message.



**Syntax**

CONFIGURATION <configuration\_string>

Where <configuration\_string> is composed of configuration characters:

- 1<sup>st</sup> character: Include parameter in the response, if set to '0', the response message only has values, set to '1', the response message has Name=Value
- 2<sup>nd</sup> character: Response part delimiter, the default is ','
- 3<sup>rd</sup> character: Equal character, the default is '='
- 4<sup>th</sup> character: Multiple selection options, the default is ';'.
- 5<sup>th</sup> character: Screen path delimiter, the default is '.'

**10 Example**

CONFIGURATION "0,=,;"

This configuration command instructs the workflow execution to exclude parameter names from the response message.

**SYSTEM\_PROPERTY command**

- 15 This command instructs the workflow execution to read a system property and return the result in the response. The parameter name that is associated with the response data is the system property if parameter name is omitted.

**Syntax**

SYSTEM\_PROPERTY <property\_name> <parameter name>

20 Where:

- <property\_name> is the system property to be read. On the J2ME platform, examples of these properties are:
  - microedition.profiles
  - microedition.configuration
- 25 • <parameter name> is an optional string parameter. If omitted, property name is used as parameter name in the response instead.

**Examples**

SYSTEM\_PROPERTY "microedition.profiles"

SYSTEM\_PROPERTY "microedition.profiles" "midp"

**Response**

The value of the system property is included in the response message as name=value pair. All the rules applied to the name-value pairs are applied. These include changing of delimiter parameters and whether or not to include the name part in the response message.

- 5        <system property>=<value> (if parameter name is omitted)  
          <parameter name>=<value> (if parameter name is present)

***NOP command***

This is a no-operation command. It is useful when used in conjunction with labeling.

**Syntax**

- 10        NOP

***SET\_KEYS command***

A command to set the encryption key specified by the index of the key on the mobile device.

**Syntax**

- 15        SET\_KEYS <key\_index> <key>

Where <key\_index> is a string parameter indicating the index of the key to be set on the client application 102. <key> is a string parameter containing the actual key to be updated.

- 20        Many modifications will be apparent to those skilled in the art without departing from the scope of the present invention as hereinbefore described with reference to the accompanying drawings.

- 25        It will be apparent from the description above that the interactive system and process described herein allow a developer to dynamically send on demand customisable workflow instructions to one or more user devices 106 such as mobile telephones. The generation, secure delivery, execution, and secure return of response data to the developer are all handled transparently by the interactive system, thus hiding all the details of these aspects from the developer, greatly simplifying the provision of interactive applications and quasi-  
 30        real-time interactions with one or more users. The provision of workflow instructions via

SMS is particularly advantageous as it can be assumed to be supported by all mobile telephones available today. Moreover, since the SMS communications are all managed by the interactive system, any premium SMS services that may be required can be established by the operator of the interactive system, thus freeing the developer from needing to

5 establish their own independent premium SMS services. This greatly simplifies the provision of new interactive applications, and also allows the operator of the interactive system to provide these services at a lower cost by leveraging the substantial volume of SMS traffic resulting from the aggregation of SMS traffic or all developers using the interactive system.

10

It will be appreciated by persons skilled in the art that numerous variations and/or modifications may be made to the invention as shown in the specific embodiments without departing from the spirit or scope of the invention as broadly described. The present embodiments are, therefore, to be considered in all respects as illustrative and not

15 restrictive.

**CLAIMS:**

1. A method of delivering an instruction to a mobile user device connected to a network, the method comprising the steps of:
  - receiving an interactive workflow;
  - 5 translating the interactive workflow into the instruction in a form executable by the mobile user device; and
  - sending a message including the instruction to the mobile user device.
2. A method as defined by claim 1 wherein the step of receiving the interactive workflow includes the step of receiving the interactive workflow coded in a high  
10 level programming or scripting language.
3. A method as defined by either of claims 1 or 2 wherein the step of receiving the interactive workflow includes the step of receiving the interactive workflow from an external or third party.
4. A method as defined by any one of the preceding claims wherein the step of  
15 sending the message includes the step of sending a set of instructions for execution by an application installed on the mobile user device.
5. A method as defined by claim 4 wherein the step of sending the set of instructions includes the step of sending the set of instructions for the device to interact with a user of the mobile user device.
- 20 6. A method as defined by claim 5 wherein the step of sending the message includes the step of sending a unique message identifier.
7. A method as defined by claim 6 further comprising the step of the mobile user device receiving the set of instructions and the unique message identifier.
8. A method as defined by claim 7 wherein the step of the mobile user device  
25 receiving the set of instructions and the unique message identifier includes the step of receiving the set of instructions for translation to mobile user device system codes by a workflow execution engine component of the application.
9. A method as defined by either of the claims 7 or 8 further comprising the step of receiving a response to the instruction from the mobile user device.

10. A method as defined by claim 9 wherein the step of receiving a response includes the step of receiving a response identifier from the device.
11. A method as defined by claim 10 wherein the method comprises the step of comparing the unique message identifier and the response identifier to confirm the authenticity of the received message.  
5
12. A method as defined by any one of the preceding claims wherein the step of translating the instruction includes tailoring the instruction to a device operating system.
13. A method as defined by any one of the preceding claims wherein the mobile user device is one of a plurality of mobile user devices and the method also comprises the step of receiving a specification of the mobile user device from a database comprising respective specifications for the plurality of user devices.  
10
14. A method as defined by claim 13 wherein the step of translating the interactive workflow includes tailoring the instruction to the specification.
- 15 15. A method as defined by any one of the preceding claims wherein the step of sending the message includes one or more preliminary steps of compressing, encoding and encrypting the instruction.
16. A method as defined by any one of the preceding claims wherein the step of sending the message includes the step of sending the message via a Short Message Service (SMS) of a cellular network.  
20
17. A method as defined by claim 16 wherein the step of sending the message via SMS includes the step of splitting the message into a plurality of messages to comply with one or more standards of the SMS.
18. A method as defined by any one of the claims 1-15 wherein the step of sending the message includes one or more of the steps of sending the message via a Cell Broadcast Service (CBS) of a cellular network, sending the message as an IP/TCP data packet over a GPRS or 3G network, and sending the message as a data packet over a Bluetooth connection.  
25

19. A method as defined by any one of the preceding claims also including the step of checking if the mobile user device is willing to receive the instruction derived from the interactive workflow.
20. A method as defined by claim 19 wherein the step of checking involves sending a request to the user of the mobile user device to accept the instruction derived from the interactive workflow.
21. A method as defined by claim 3 wherein the step of receiving the interactive workflow includes the preliminary step of receiving a request for an Application Programming Interface (API) from the external or third party.
22. A method as defined by claim 21 wherein the step of receiving the interactive workflow includes the preliminary step of opening an Application Programming Interface.
23. A method as defined by any one of the preceding claims also comprising the step of issuing a command to the device to update or delete a sequence of instructions saved to a permanent data store on the mobile user device.
24. Computer software comprising executable directions for delivering an instruction to a mobile user device connected to a network, the directions comprising the steps of:
- receiving an interactive workflow;
  - translating the interactive workflow into the instruction in a form executable by the mobile user device; and
  - sending a message including the instruction to the mobile user device.
25. A method of delivering an instruction to an application installed on a user device connected to a network, the method comprising the steps of:
- receiving an interactive workflow;
  - translating the interactive workflow into the instruction in a form executable by the application; and
  - sending a message including the instruction to the application at the user device.

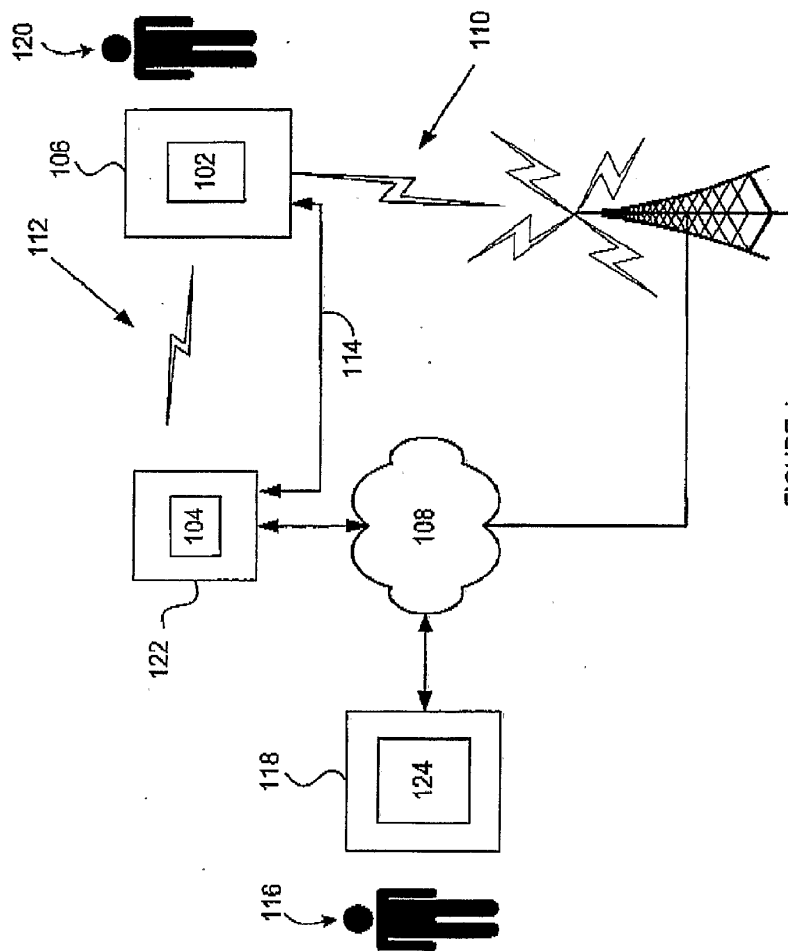


FIGURE 1

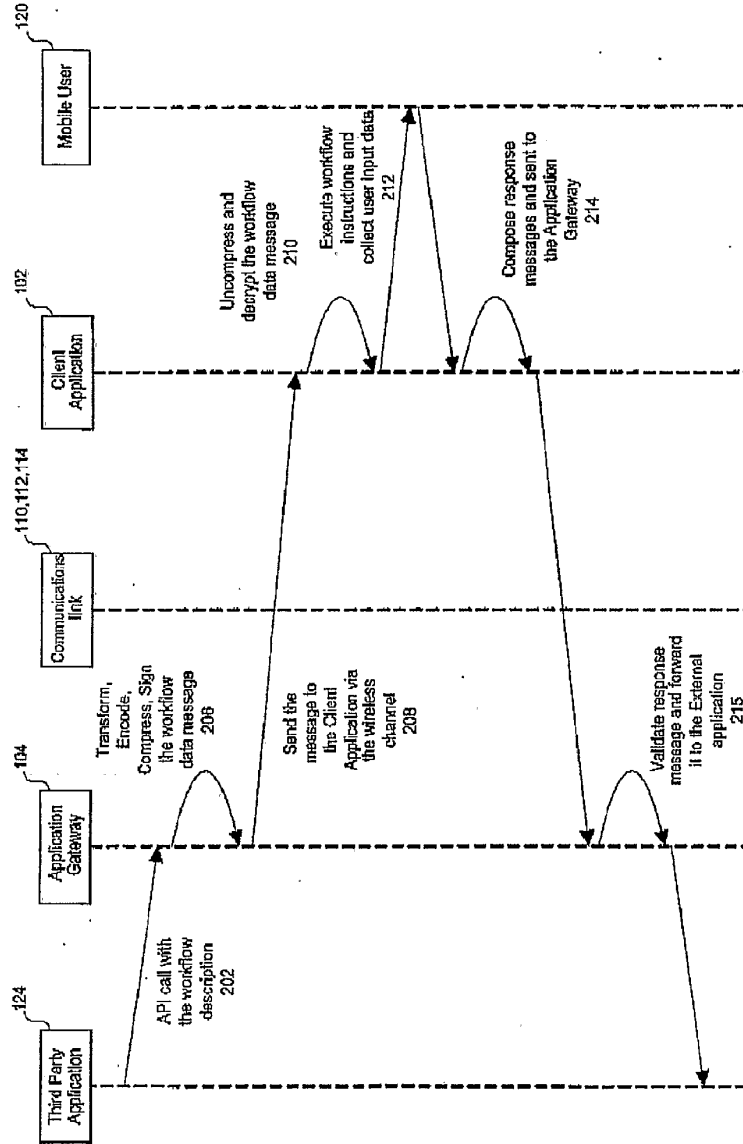


FIGURE 2



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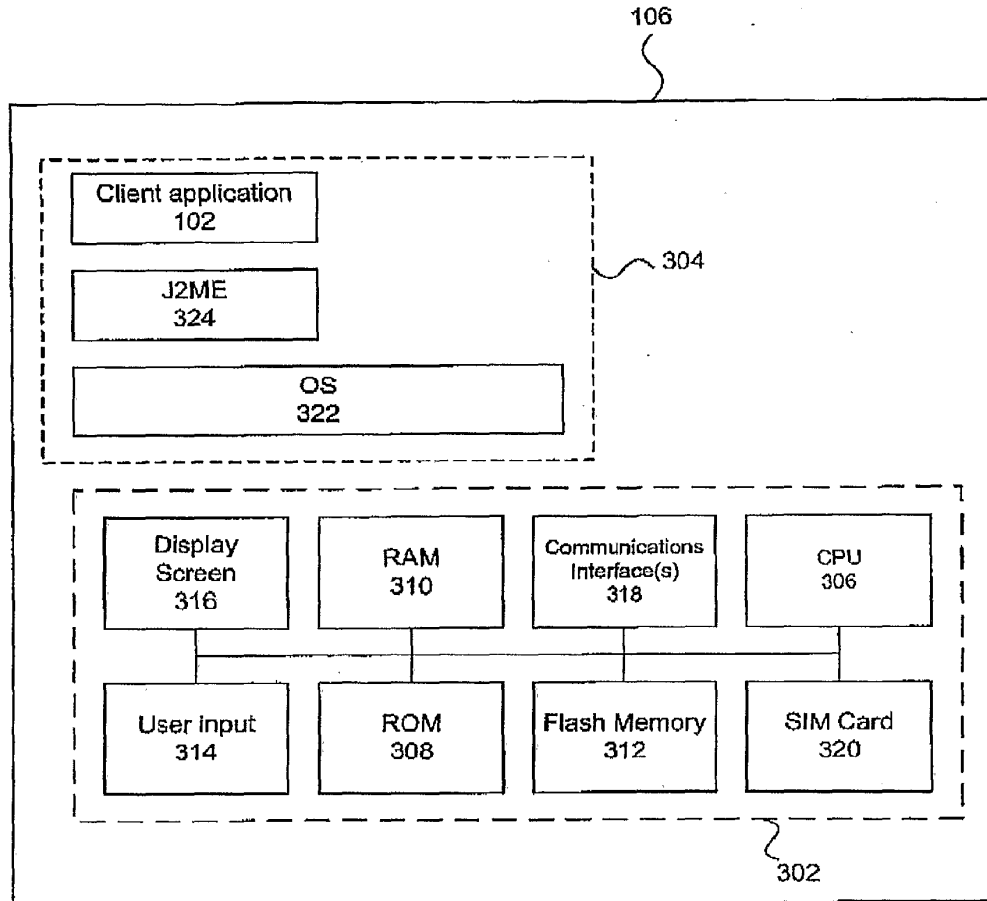


FIGURE 3

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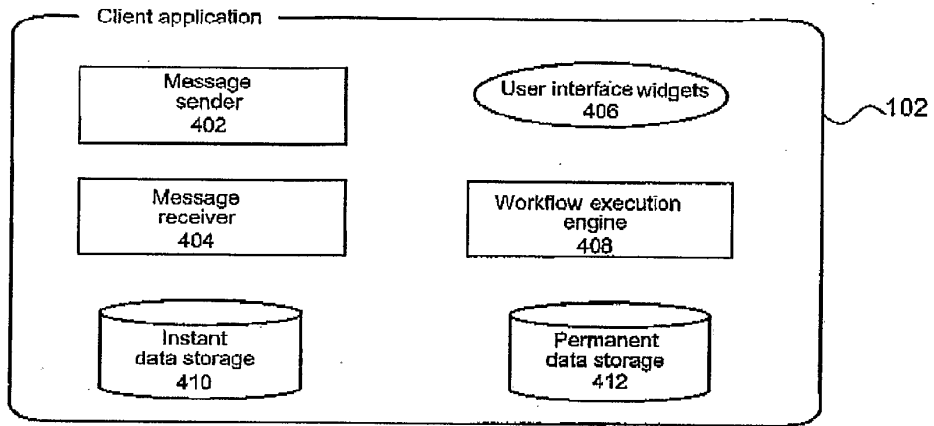


FIGURE 4



FIGURE 5

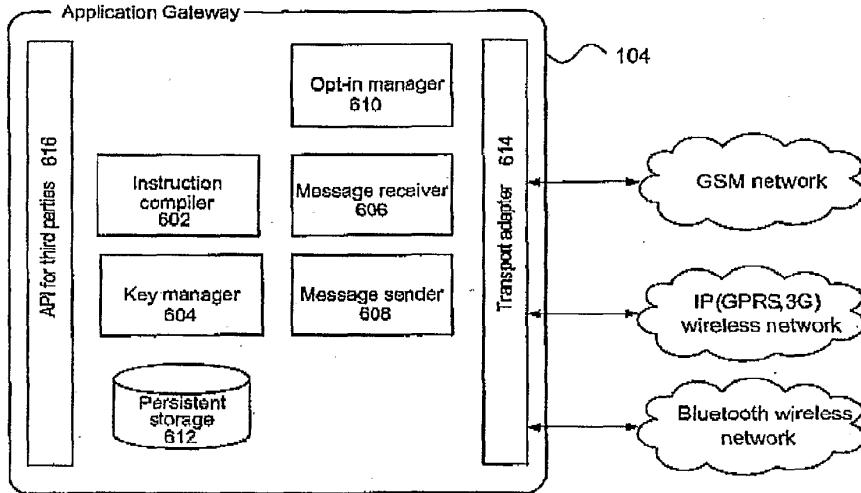


FIGURE 6

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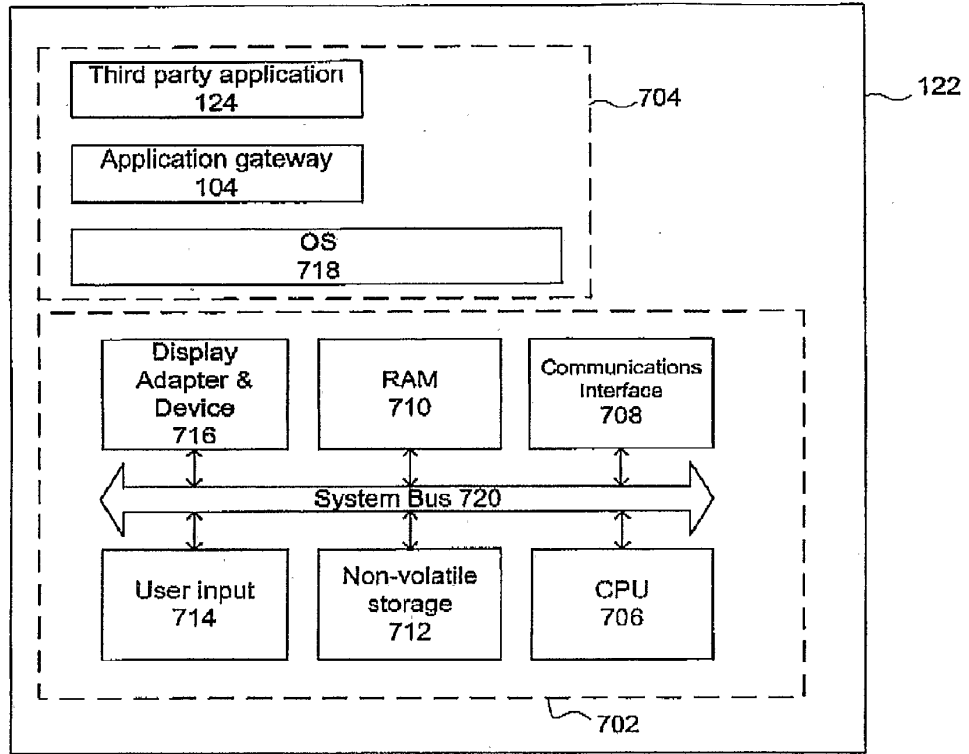


FIGURE 7

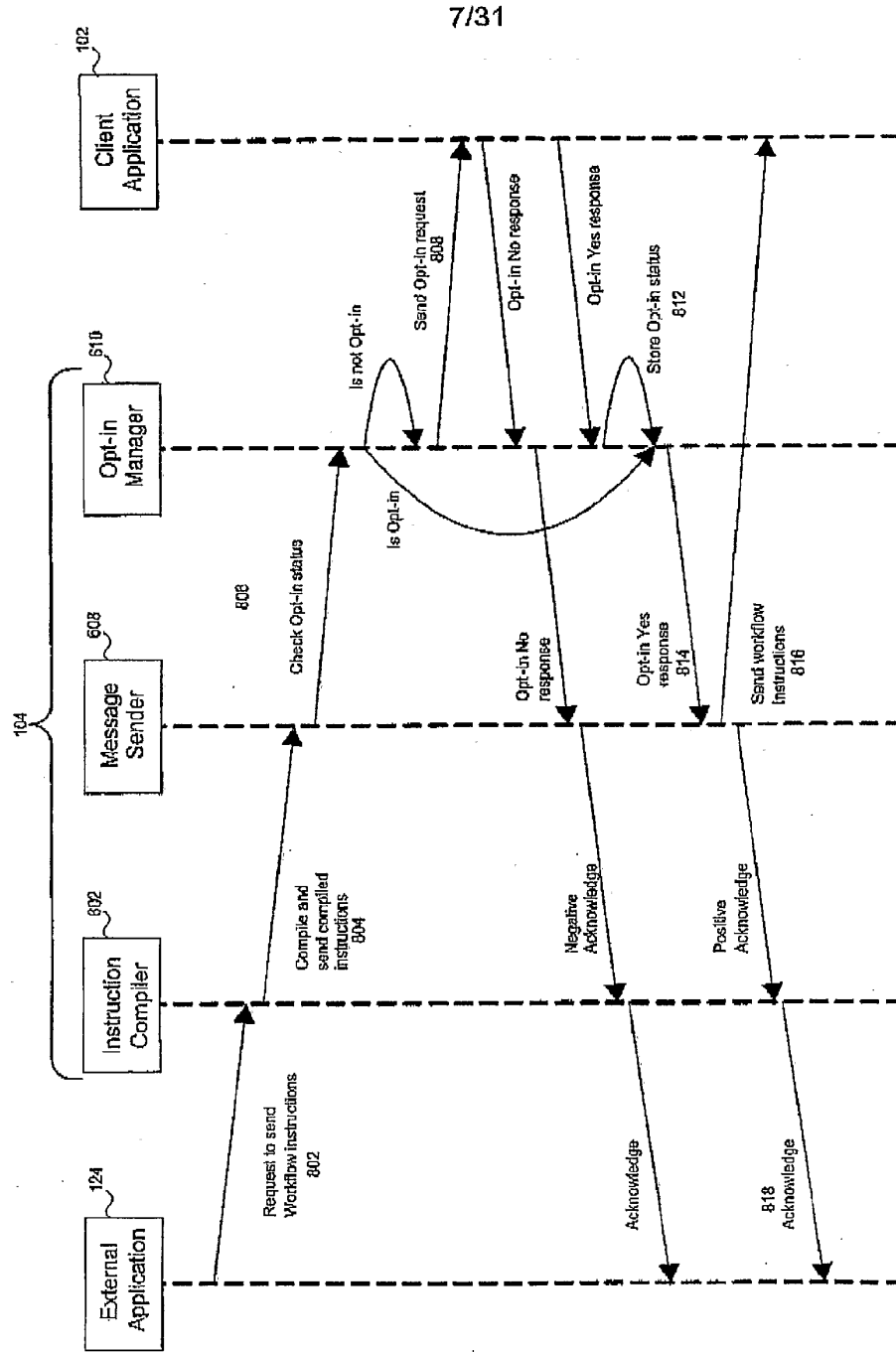


Figure 8

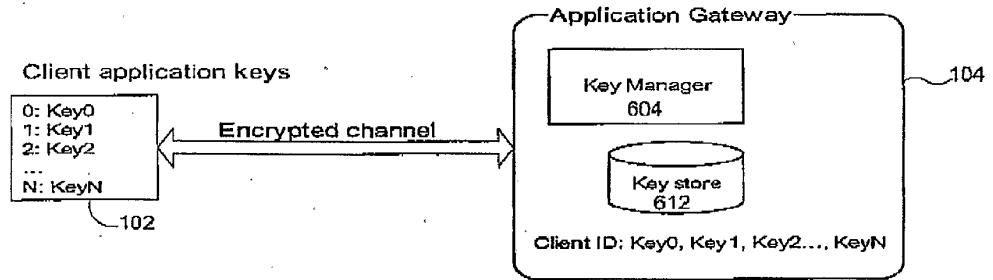


FIGURE 9

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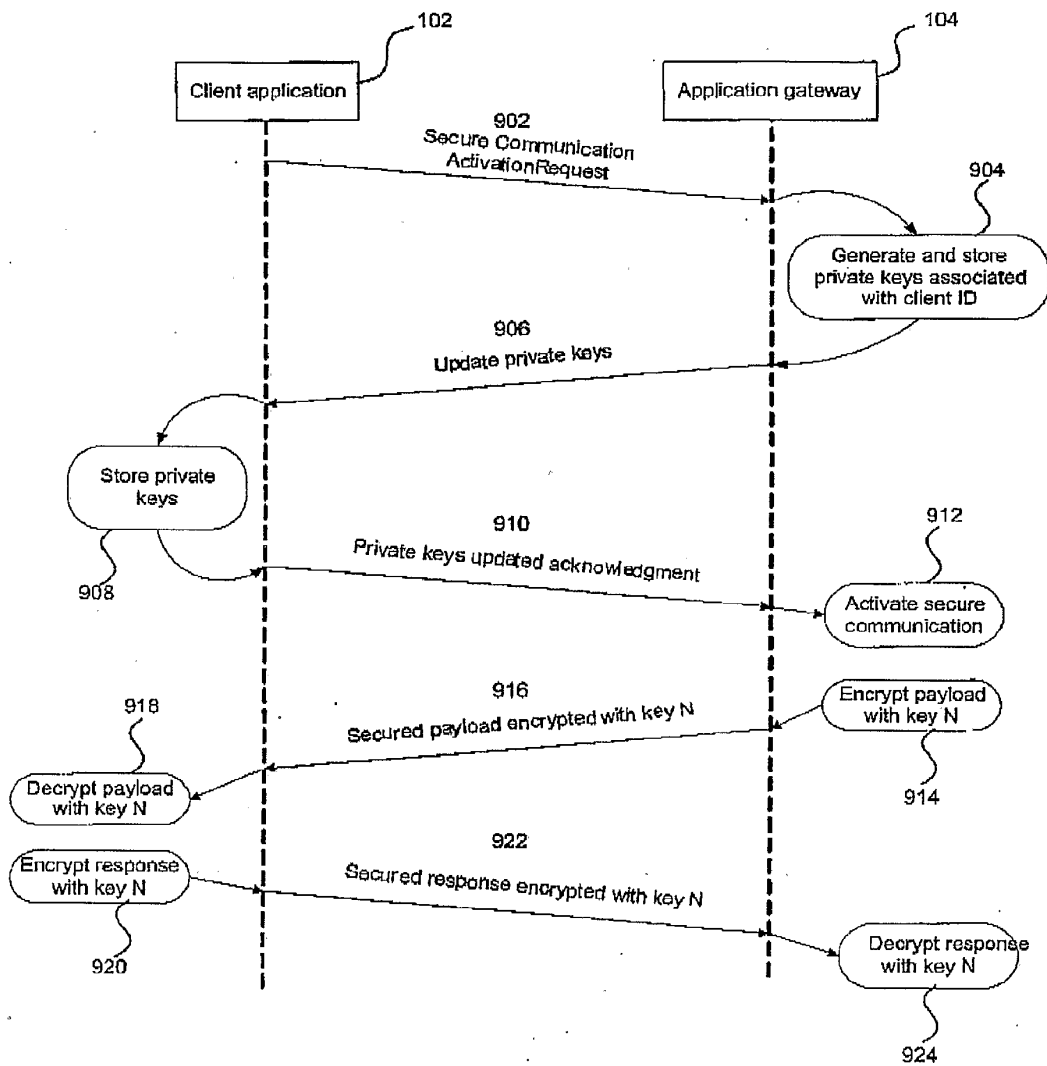


FIGURE 10

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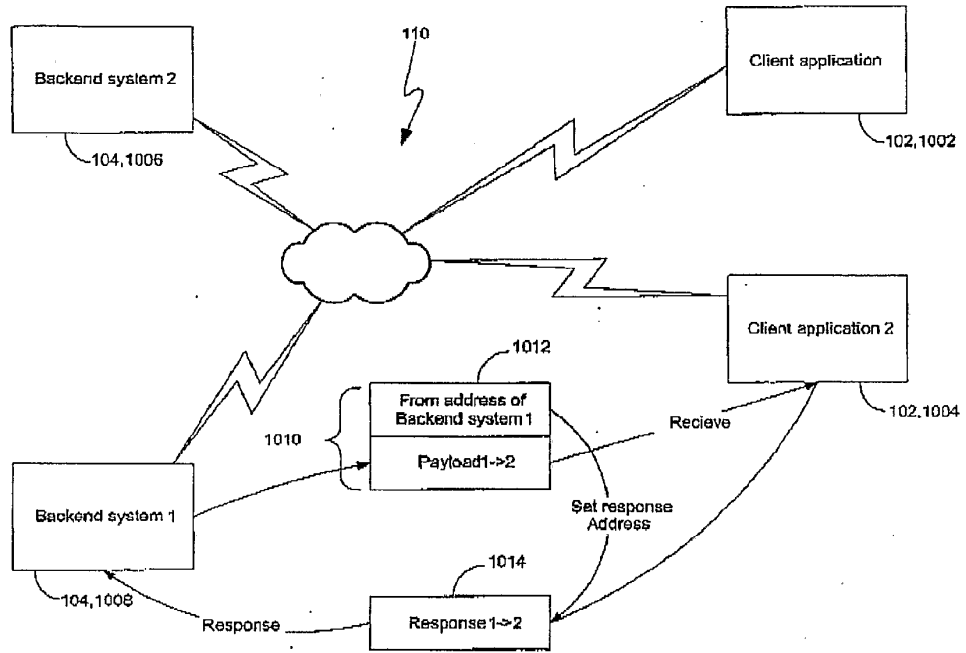


FIGURE 11



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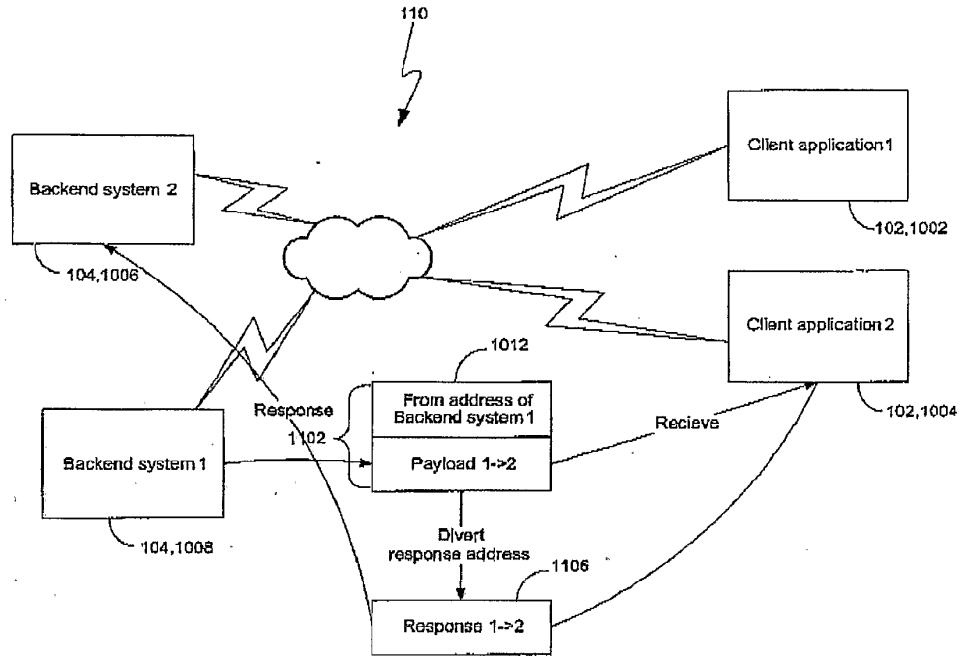


FIGURE 12

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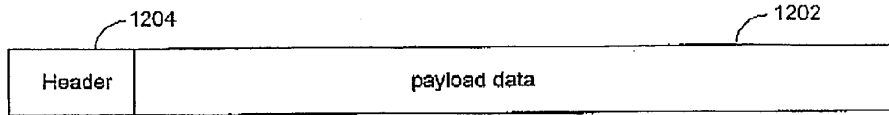


FIGURE 13

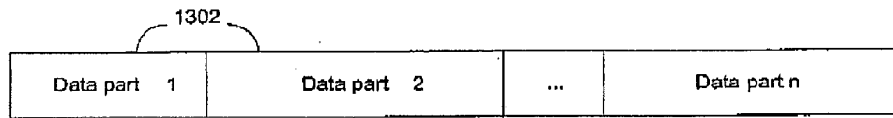


FIGURE 14

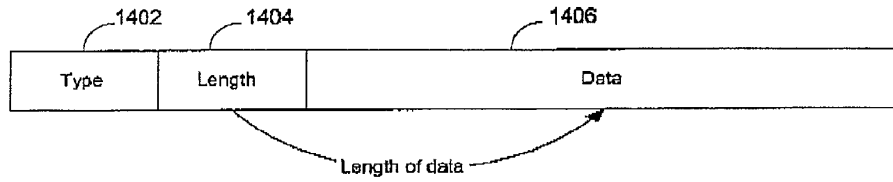


FIGURE 15

**Workflow instruction data structure**

	Type	Data
Menu Single/Multiple Select	S,M	[PARAMETER] [TITLE] [ITEM1] [ITEM2]..... [ITEMn]
Information Message	I	[TITLE] [MESSAGE]
Header Response	H	[HEADER]
Redirect Address	R	[PHONE NUMBER]
User Input	T	[PARAMETER] [LABEL] [TYPE]
Execute URL	E	[URL]
Jump to index	J	[CMD index]
Go to previous Cmd	P	
Branch menu	B	[PARAMETER] [TITLE] [Label1,index1] [Label2,index2] ..... [ITEMn]
No-op	N	
Store Permanent	K	[TITLE]
Clear Permanent Storage	D	
Read System Property	P	[Property name]
Configuration Settings	C	[Configurations]

Type enumeration:  
 TYPE\_ANY = 0;  
 TYPE\_EMAILADDR=1;  
 TYPE\_NUMERIC = 2;  
 TYPE\_PHONENUMBER = 3;  
 TYPE\_URL = 4;  
 TYPE\_DECIMAL = 5;

FIGURE 16

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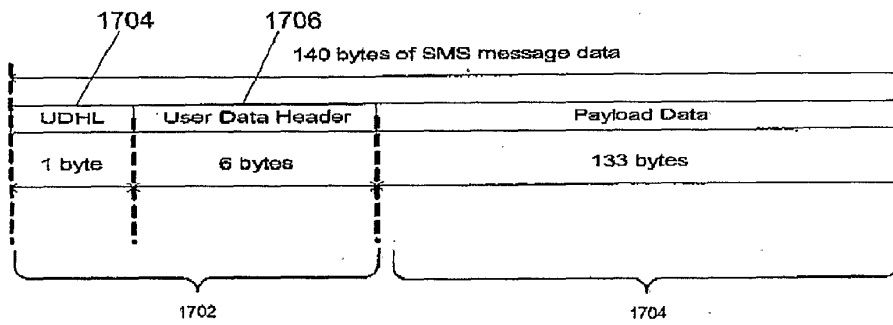


FIGURE 17

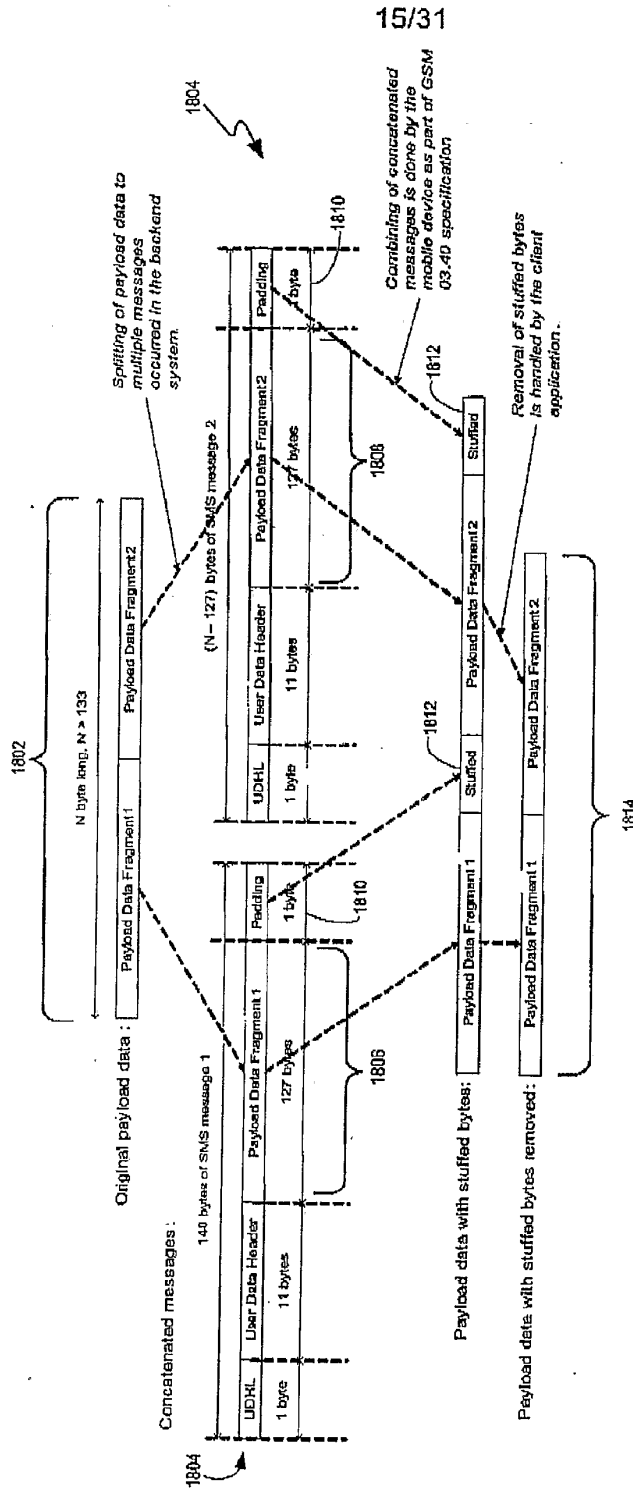


FIGURE 18

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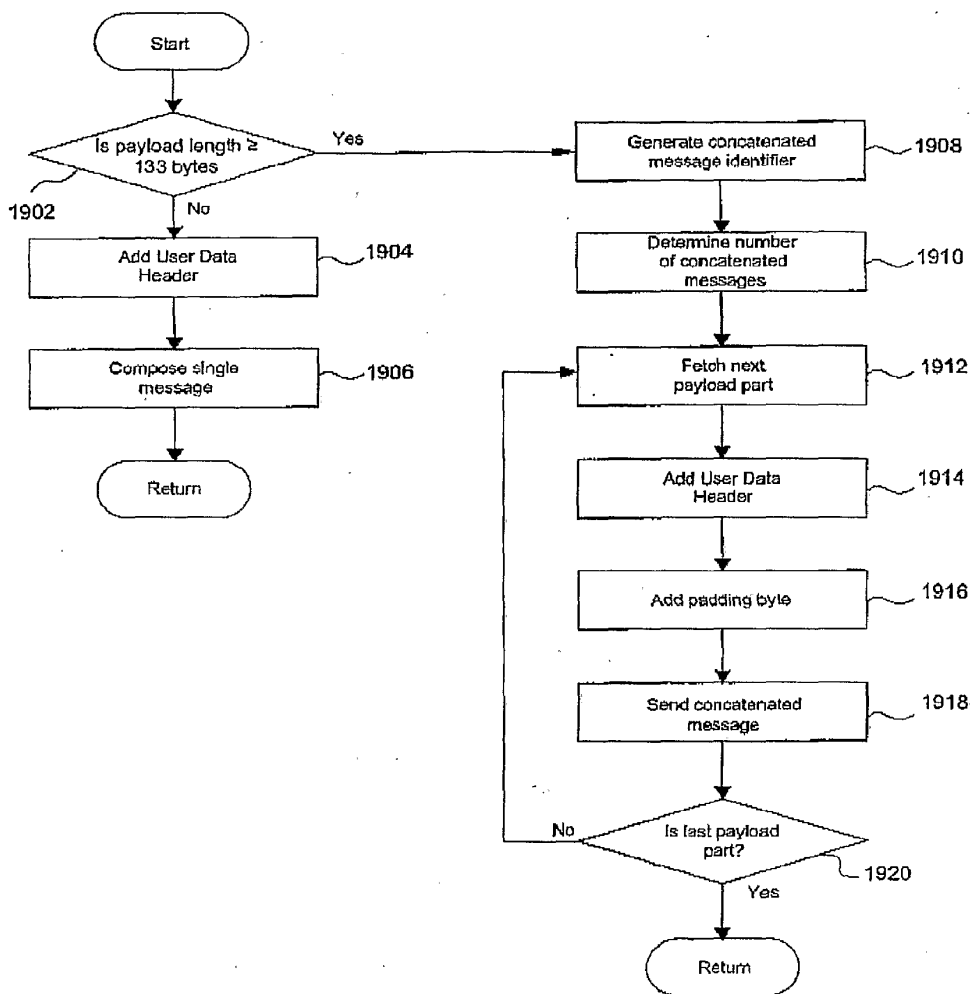


FIGURE 19

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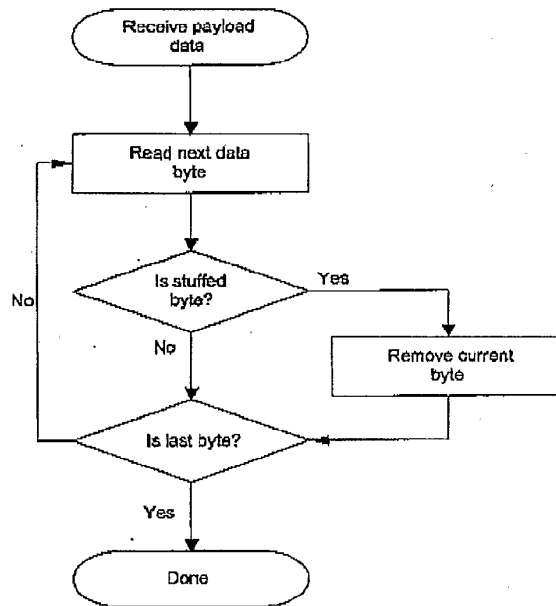


FIGURE 20

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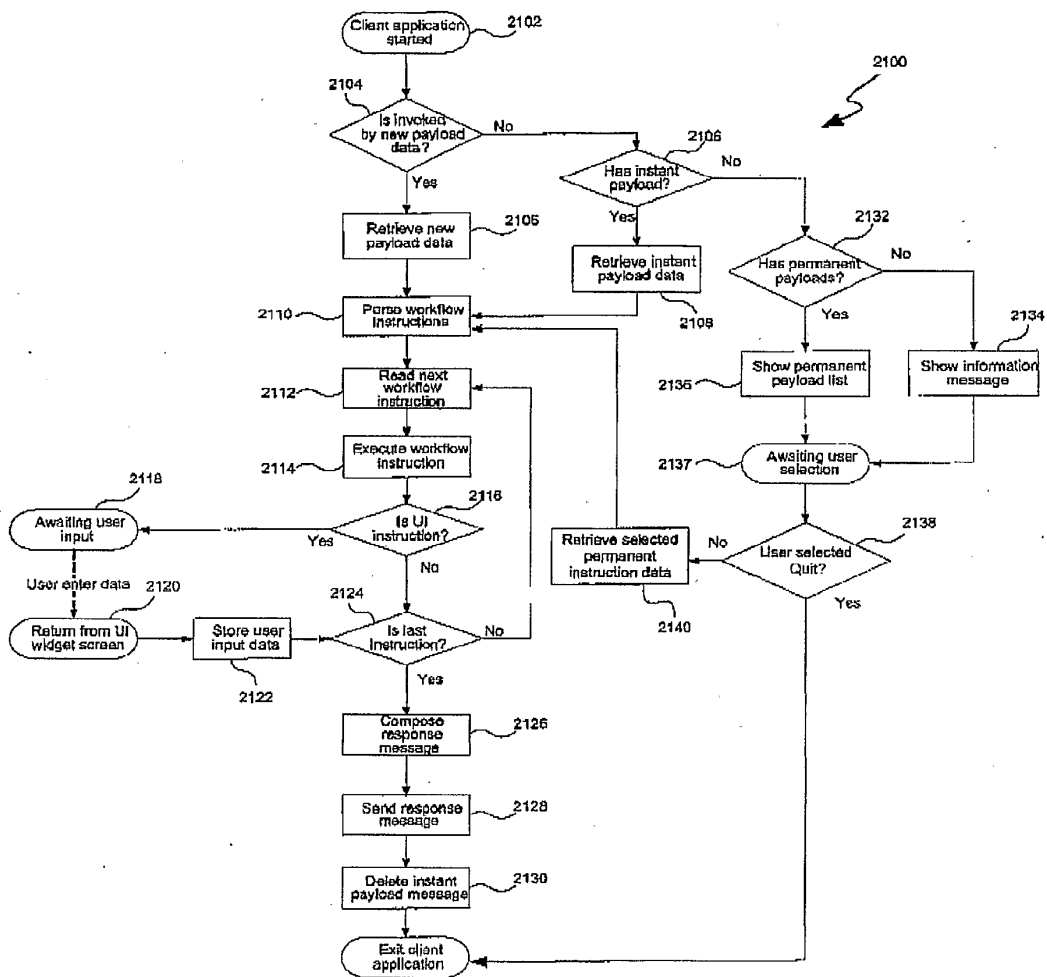


FIGURE 21



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0	Instruction 1 response
1	Instruction 2 response
n	Instruction n response

FIGURE 22

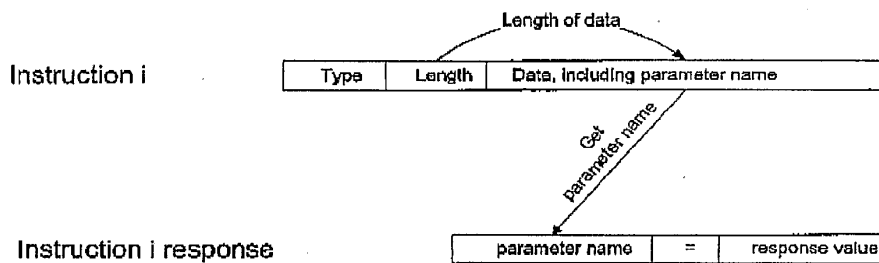


FIGURE 23

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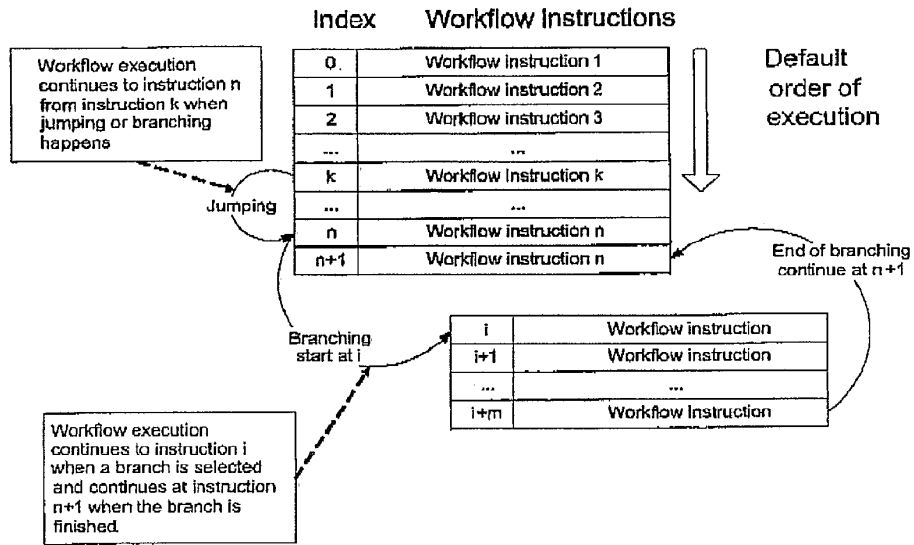


FIGURE 24

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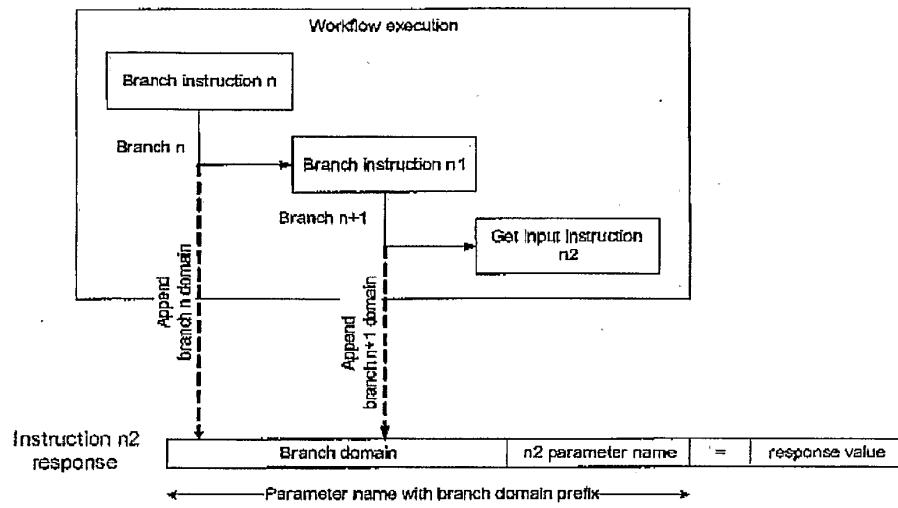


FIGURE 25

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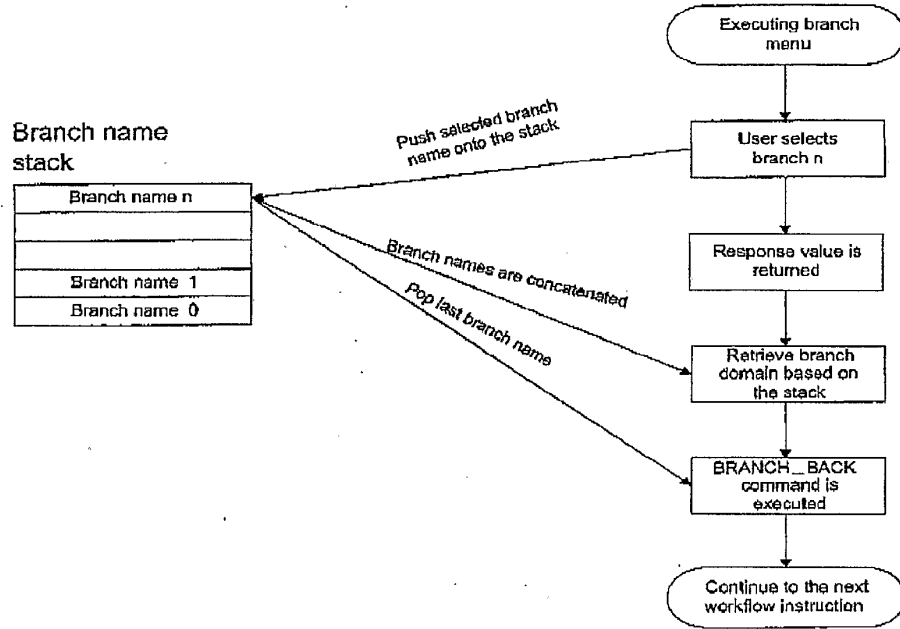


FIGURE 26

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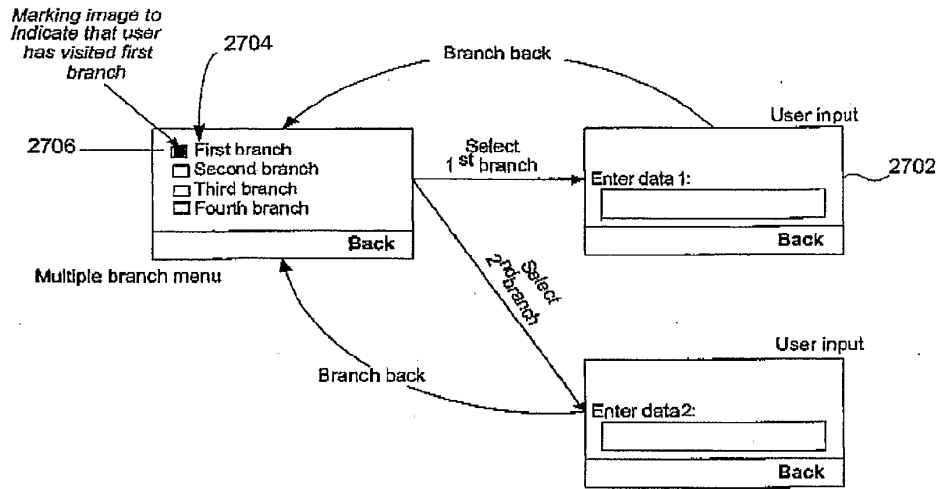


FIGURE 27

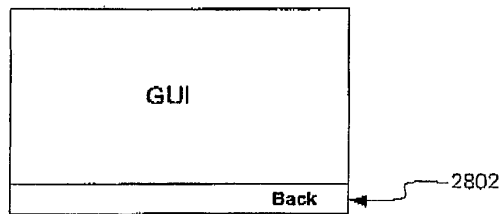


FIGURE 28

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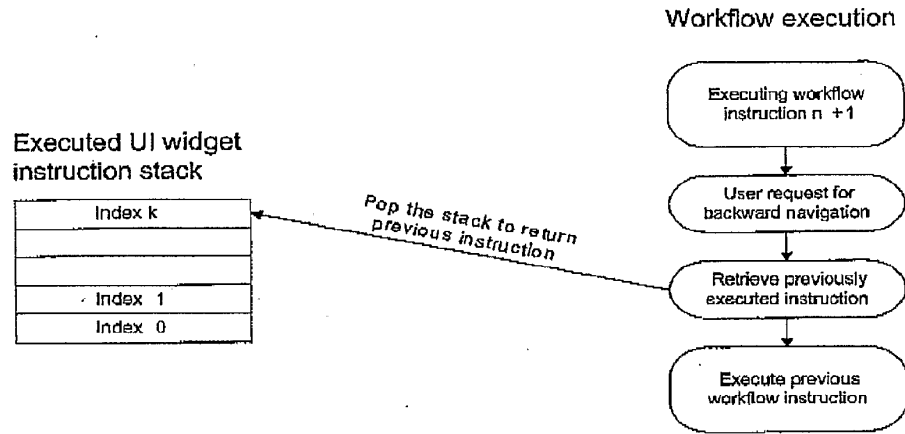


FIGURE 29

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script: Compile 3004 3002

```

HEADER "jmsngo "
DIVERT "+61418668968"
MESSAGE "Timesheet" "Please enter your timesheet
for this week"
BRANCH_TO "tsk" "Select task"
ITEM "Admin work" TIME
ITEM "Client meeting" TIME
ITEM "Work onsite" INPUT
ITEM "Sick leave" TIME
ITEM "Annual leave" TIME
GOTO END

# TIME
SELECT "tm" "Enter your time"
ITEM "1"
ITEM "2"
ITEM "3"
ITEM "4"
ITEM "5"
ITEM "6"
ITEM "7"
ITEM "8"
BRANCH_BACK

# INPUT
INPUT "tm" "Enter your time" DECIMAL
BRANCH_BACK

# END
NOP

```

FIGURE 30

```

private string SendWorkflowRequest(string sourceNumber,
    string destinationNumber, string bookingHeader,
    string bookingTitle, string bookingDetails)
{
    3102 → J2EECommand workflowCommand = new J2EECommand();
    3104 → if(bookingHeader != null)
        workflowCommand.AddCmdHeader(bookingHeader);

    // Add information message
    3106 → workflowCommand.AddInfoMessage(bookingTitle, bookingDetails);

    // Add selection menu
    3108 → workflowCommand.AddSingleMenu("action", "Select", new String[]{"accept", "reject"});

    // Add input text box to enter name
    3110 → workflowCommand.AddUserInputCmd("name", "Enter your name", J2EECommand.InputType.ANY);

    // Add input text box to enter contact number
    3112 → workflowCommand.AddUserInputCmd("contact", "Contact number", J2EECommand.InputType.PHONENUMBER);

    // Add redirection address where the response message is sent to
    3114 → workflowCommand.AddRedirectHeader("ans://1991616");

    // Now send the command, in multiple messages if it is needed
    3116 → IList messages = workflowCommand.BuildCommandMessages(1000);
    string sentIds = "";
    foreach(BinaryMessage binMessage in messages)
    {
        3118 → sentIds += _messageSender.SendBinaryMessage(sourceNumber, destinationNumber,
            binMessage.UserId, binMessage.DetailsHeader);
        sentIds += " ";
    }
    return sentIds;
}

```

FIGURE 31



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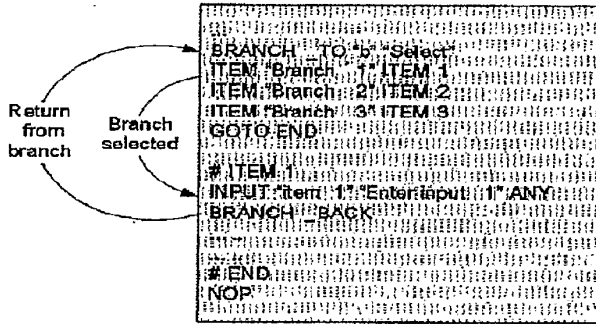


FIGURE 32

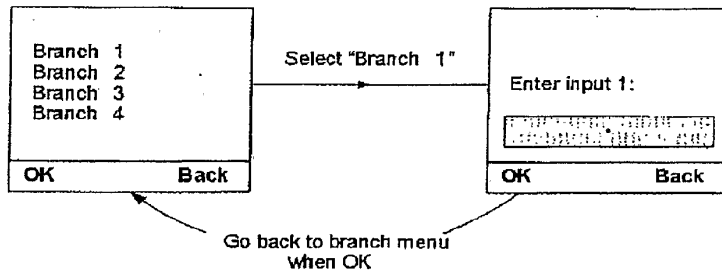


FIGURE 33

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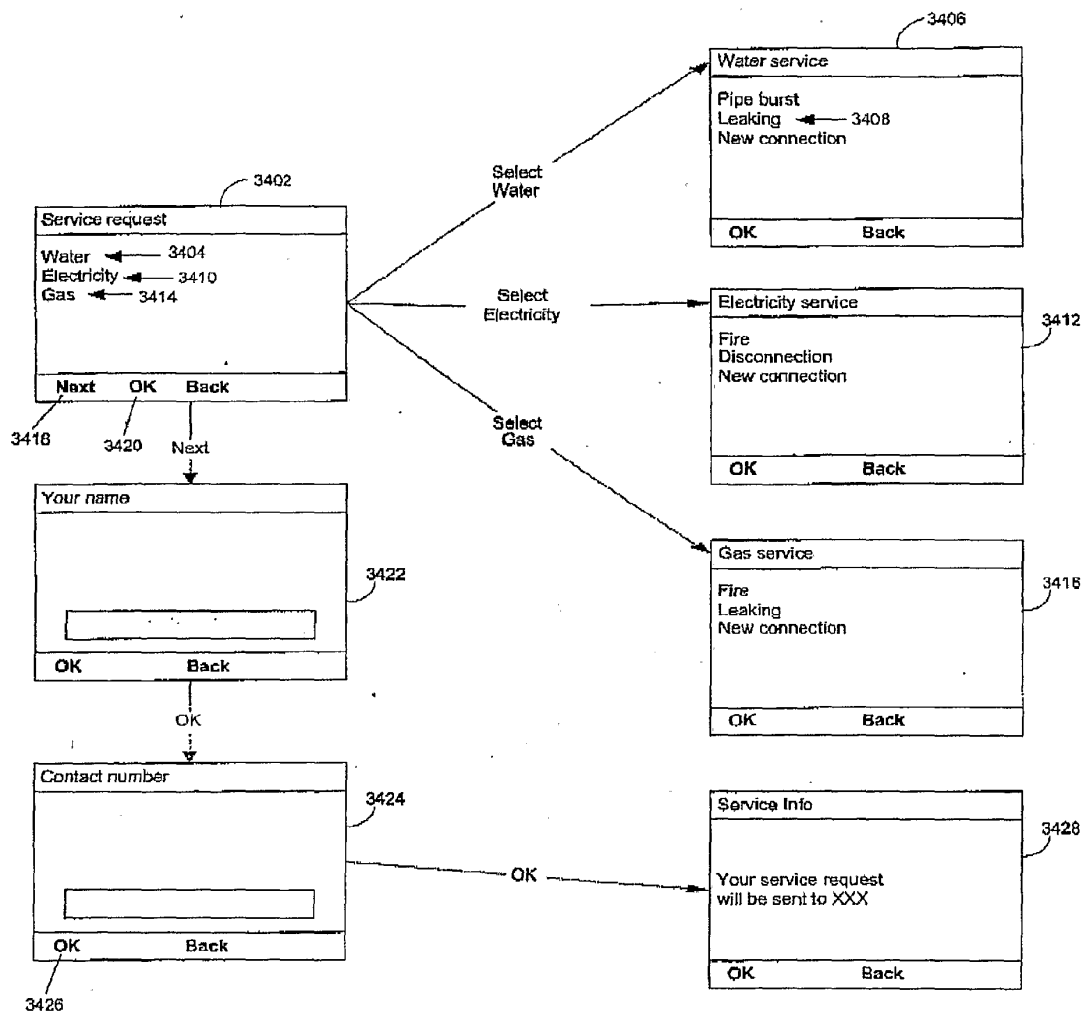


FIGURE 34

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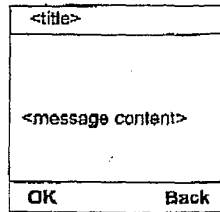


FIGURE 35

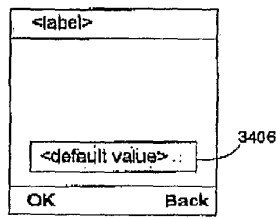


FIGURE 36

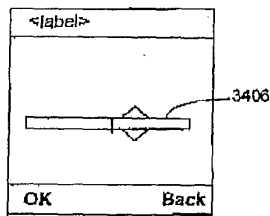


FIGURE 37

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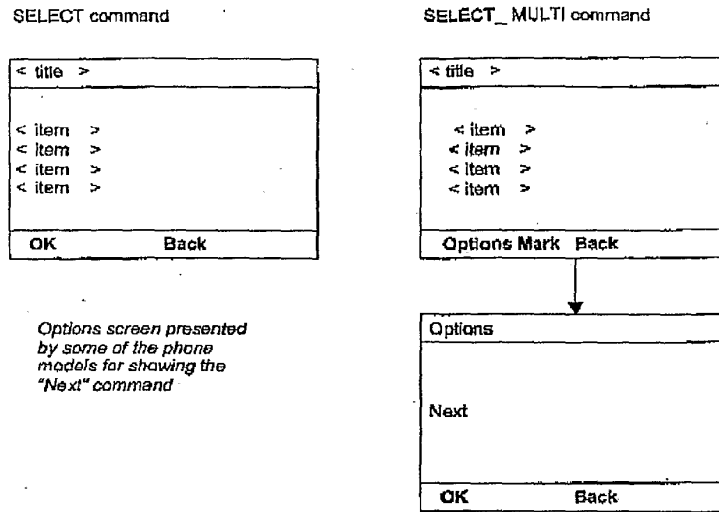


FIGURE 38

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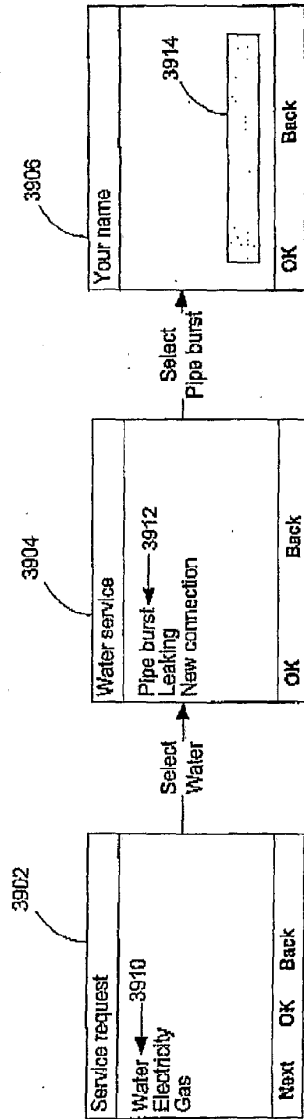
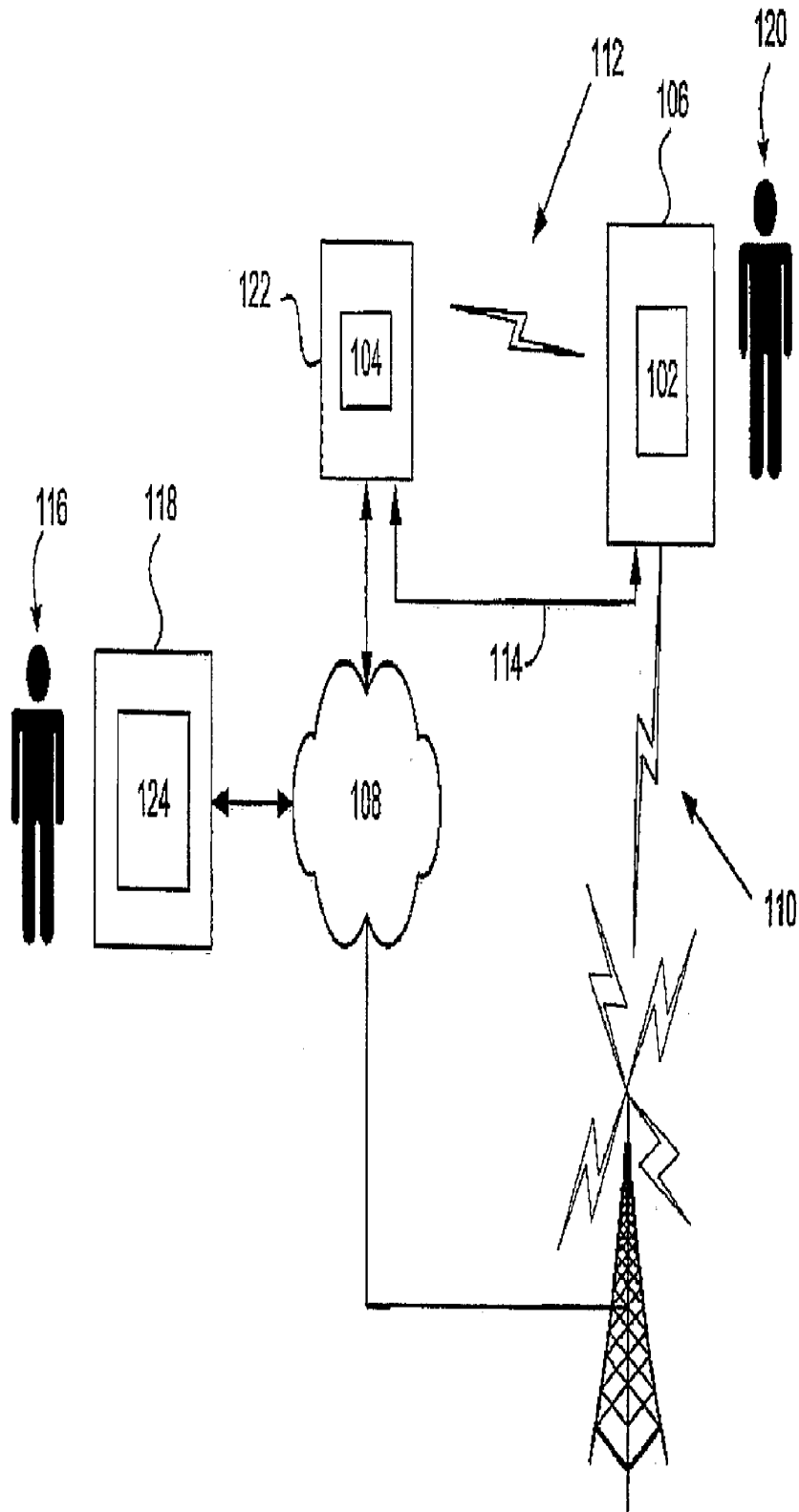


FIGURE 39





Espacenet

**Bibliographic data: CN101606400 (A) — 2009-12-16**
**An interactive system and process**

**Inventor(s):** ANH NGO DUC [AU] ± (NGO DUC ANH)

**Applicant(s):** DELOITTE SERVICES PTY LTD [AU] ± (DELOITTE SERVICES PTY LTD)

**Classification:** - international: ***H04W4/14; H04W4/18; H04W8/24***  
 - Euro: ***G06F8/65; H04M3/42E5; H04W8/24N***

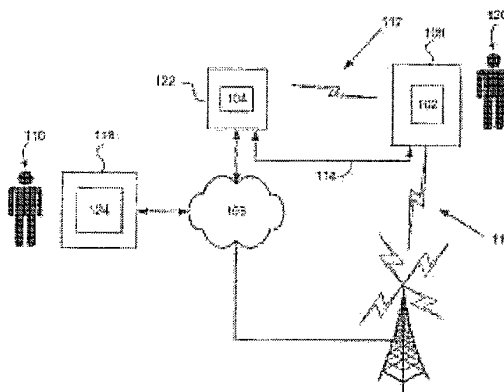
**Application number:** CN20078038721 20071019

**Priority number (s):** AU20060905829 20061019

**Also published as:** WO2008046161 (A1) US2010197326 (A1) EP2084921 (A1)  
CA2666616 (A1) AU2007312879 (A1) more

**Abstract of CN101606400 (A)**

A method of delivering an instruction (206) to a mobile user device (106) connected to a network (110) is disclosed. The method comprising the steps of receiving an interactive workflow (202), translating the interactive workflow into the instruction (206) in a form executable by the mobile user device (106), and sending a message (208) including the instruction (206) to the mobile user device (106).



Last updated: 24.09.2012 Worldwide Database 5.7.44.2; 93p



Espacenet

**Bibliographic data: CN102073958 (A) — 2011-05-25**

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**System and method for implementing mobile payment**

No documents available for this priority number.

**Inventor(s):** KAI WEI; CHENJIE YU; TIANXIA FU ± (WEI KAI, ; YU CHENJIE, ; FU TIANXIA)

**Applicant(s):** TIANJIN ZTE SOFTWARE CORP ± (TIANJIN ZTE SOFTWARE CORPORATION)

**Classification:** - **international:** *G06Q30/00; G07G1/14; H04L29/06; H04W88/02*  
- **cooperative:**

**Application number:** CN20091228730 20091125

**Priority number (s):** CN20091228730 20091125

**Abstract of CN102073958 (A)**

The invention provides a system and a method for implementing mobile payment. The method comprises that: when the transaction type is online account, a management information system (MIS) merchant device acquires transaction data of a mobile payment terminal and personal identification codes of a user, encrypts the personal identification codes, and packs the encrypted personal identification codes, the transaction data and point of sale (POS) terminal information into 8583 online transaction message together; after receiving the 8583 online transaction message, a mobile payment platform judges whether the transaction request is valid, if so, verifies the validities of the user and the account and verifies the personal identification codes; if the user and the account are valid and the personal identification codes are correct, accounting treatment of the transaction is completed; and the mobile payment terminal is a mobile terminal with a radio frequency-subscriber identity module (RF-SIM) card. By adopting the technical scheme of the invention, noncontact mobile payment can be quickly, effectively and securely implemented.

Last updated: 09/10/2013 Worldwide Database 5.8.11.5; 92p





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(51) Int. Cl.

G06Q 30/00 (2006.01)

G07G 1/14 (2006.01)

H04L 29/06 (2006.01)

H04W 88/02 (2009.01)

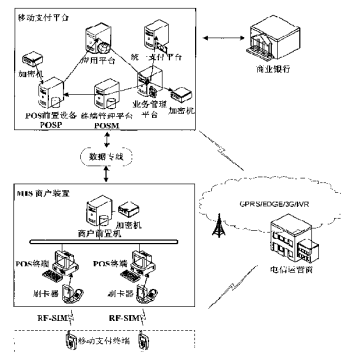
权利要求书 2 页 说明书 7 页 附图 3 页

(54) 发明名称

一种实现移动支付的系统及方法

(57) 摘要

本发明提供一种实现移动支付的系统及方法,该方法包括,当交易类型为在线账户时,MIS 商户装置获取移动支付终端的交易数据以及用户的个人识别码,并将个人识别码加密后连同所述交易数据、POS 终端信息一起封装成 8583 联机交易报文;移动支付平台收到 8583 联机交易报文后判断交易请求是否合法,若交易请求合法则验证用户及账户的合法性,以及对个人识别码进行验证,若用户及账户合法,且个人识别码正确则完成本次交易的账务处理;移动支付终端为具有 RF-SIM 卡的移动终端。采用本发明的技术方案,可快速、有效、安全地实现非接触式移动支付。



1. 一种实现移动支付的方法,包括:当交易类型为在线账户时,MIS 商户装置获取移动支付终端的交易数据以及用户的个人识别码,并将所述个人识别码加密后连同所述交易数据、POS 终端信息一起封装成 8583 联机交易报文;

所述移动支付平台收到所述 8583 联机交易报文后判断交易请求是否合法,若交易请求合法则验证用户及账户的合法性,以及对所述个人识别码进行验证,若用户及账户合法,且个人识别码正确则完成本次交易的账务处理;

所述移动支付终端为具有 RF-SIM 卡的移动终端。

2. 如权利要求 1 所述的方法,其特征在于:

所述 MIS 商户装置还对 8583 联机交易报文进行 MAC 生成后发送至对应的移动支付平台;

所述移动支付平台收到所述 8583 联机交易报文后先进行 MAC 验证,若 MAC 验证通过再进行所述用户及账户的合法性验证。

3. 如权利要求 1 或 2 所述的方法,其特征在于:

位于移动支付平台的 POS 前置设备收到所述 8583 联机交易报文后,于 MAC 验证通过后对所述个人识别码进行转加密,然后将报文转换为类 8583 报文通过应用平台发送至业务管理平台;

所述对个人识别码进行验证是指,对被加密的个人识别码进行解密,若解密后的个人识别码与本地存储的个人识别码一致则验证通过,否则验证未通过。

4. 如权利要求 2 所述的方法,其特征在于:

所述 MIS 商户装置还存储 POS 终端与 POS 前置设备的对应关系,MIS 商户装置根据所述 POS 终端信息查找该对应关系后确定处理本次交易的 POS 前置设备。

5. 如权利要求 3 所述的方法,其特征在于:

所述 MIS 商户装置对个人识别码进行加密的 PIK1 由 POS 前置设备产生,所述 POS 前置设备对个人识别码进行转加密的 PIK2 由业务管理平台产生;

进行 MAC 验证的 MAK 是由 POS 前置设备产生,各网元的 MAK 一致;

PIK1、PIK2 及各网元处的 MAK 均被 KEK 加密后存储,但各网元处的 KEK 不同。

6. 一种实现移动支付的方法,包括:当交易类型为现金账户时,MIS 商户装置获取移动支付终端的交易数据及移动支付终端的余额信息后,验证本次交易是否合法以及所述移动支付终端的现金账户余额是否足够本次交易,若交易合法且现金账户余额足够本次交易,则完成本次离线交易处理;所述移动支付终端为具有 RF-SIM 卡的移动终端。

7. 一种实现移动支付的系统,包括:移动支付终端、MIS 商户装置及移动支付平台;其特征在于:

所述移动支付终端为具有 RF-SIM 卡的移动终端;

所述 MIS 商户装置用于当交易类型为在线账户时获取交易数据以及用户的个人识别码,并将加密后的个人识别码连同所述交易数据、POS 终端信息一起封装成 8583 联机交易报文后发送至移动支付平台;

所述移动支付平台用于收到所述 8583 联机交易报文后判断交易请求是否合法,若交易请求合法则验证用户及账户的合法性,以及对所述个人识别码进行验证,还用于用户及账户合法,且个人识别码正确时完成本次交易的账务处理。

8. 如权利要求 7 所述的系统,其特征在於:

所述移动支付平台包括 POS 前置设备、应用平台及业务管理平台;

所述 MIS 商户装置还用于对所述 8583 联机交易报文加封装企业代码后进行 MAC 生成,并将所述 8583 联机交易报文发送至 POS 前置设备;

所述 POS 前置设备用于对所述 8583 联机交易报文进行 MAC 验证,并于 MAC 验证通过后判断交易请求是否合法,若合法则将所述 8583 联机交易报文转换为类 8583 报文后进行 MAC 生成,之后发送至对应的应用平台;

所述应用平台用于收到所述类 8583 报文后进行 MAC 验证,以及 MAC 验证通过后验证用户及账户的合法性,还用于当用户及账户合法后对所述类 8583 报文进行 MAC 生成后发送至业务管理平台;

所述业务管理平台用于收到所述报文后对所述类 8583 报文进行 MAC 验证,以及 MAC 验证通过后对所述个人识别码进行验证,若个人识别码正确则完成本次交易的账务处理。

9. 如权利要求 7 或 8 所述的系统,其特征在於:

所述 POS 前置设备还用于收到所述 8583 联机交易报文后对所述个人识别码进行转加密,以及将转加密后的个人识别码连同所述交易数据、本 POS 终端信息一起封装成类 8583 报文;

所述业务管理平台对个人识别码进行验证是指,业务管理平台对加密后的个人识别码进行解密,若解密后的个人识别码与本地存储的个人识别码一致则验证通过,否则验证未通过。

10. 如权利要求 7 所述的系统,其特征在於:

所述商户端前置机还用于存储各 POS 终端与 POS 前置设备对应关系的路由信息,以及根据 POS 终端信息查询本地存储的路由信息,确定处理该交易报文的 POS 前置设备,并将交易报文发送至对应的 POS 前置设备。

11. 如权利要求 9 所述的系统,其特征在於:

所述 POS 前置设备还用于产生对个人识别码进行加密的 PIK1,并将其发送至 MIS 商户装置;

所述业务管理平台还用于对个人识别码进行转加密的 PIK2,并将其发送至 POS 前置设备;

所述 PIK1、PIK2 及各网元处的 MAK 均被 KEK 加密后存储,但各网元处的 KEK 不同。

12. 一种实现移动支付的系统,包括:移动支付终端及 MIS 商户装置;其特征在於:

所述移动支付终端为具有 RF-SIM 卡的移动终端;

所述 MIS 商户装置用于当交易类型为现金账户时获取交易数据及移动支付终端的余额信息,还用于验证本次交易是否合法以及所述移动支付终端的现金账户余额是否足够本次交易,若交易合法且现金账户余额足够本次交易,则完成本次离线交易处理。

## 一种实现移动支付的系统及方法

### 技术领域

[0001] 本发明涉及电子支付及金融领域,具体涉及一种实现移动支付的系统及方法。

### 背景技术

[0002] 移动支付论坛 (Mobile Payment Forum) 认为:“移动支付是指进行交易的双方,以一定信用额度或一定金额的存款,为了某种货物或者业务,通过移动设备从移动支付商处兑换到代表相同金额的数据,以移动终端为媒介将该数据转移给支付对象,从而清偿消费费用进行商业交易的支付方式。”

[0003] 按实现方式和距离,移动支付可分为两种:一种是远程支付。以银行账户、手机话费或虚拟预存储账户作为支付账户,以短信、语音、WAP 等方式提起业务请求。第二种是现场支付。通过近距离非接触无线通信技术,如红外技术、RFID 射频识别技术、NFC(Near Field Communication, 近距离无线通讯) 技术、蓝牙技术等,在手机终端和 POS(Point Of Sale, 销售点终端) 机、自动售货机、售票机等设备之间进行支付信息的交换,真正实现用手机完成面对面的支付交易。

### 发明内容

[0004] 本发明要解决的技术问题是提供一种实现移动支付的系统及方法,可快速、有效、安全地实现非接触式移动支付。

[0005] 为了解决上述问题,本发明提供了一种实现移动支付的方法,包括:当交易类型为在线账户时,MIS 商户装置获取移动支付终端的交易数据以及用户的个人识别码,并将所述个人识别码加密后连同所述交易数据、POS 终端信息一起封装成 8583 联机交易报文;

[0006] 所述移动支付平台收到所述 8583 联机交易报文后判断交易请求是否合法,若交易请求合法则验证用户及账户的合法性,以及对所述个人识别码进行验证,若用户及账户合法,且个人识别码正确则完成本次交易的账务处理;

[0007] 所述移动支付终端为具有 RF-SIM 卡的移动终端。

[0008] 进一步地,所述 MIS 商户装置还对 8583 联机交易报文进行 MAC 生成后发送至对应的移动支付平台;

[0009] 所述移动支付平台收到所述 8583 联机交易报文后先进行 MAC 验证,若 MAC 验证通过再进行所述用户及账户的合法性验证。

[0010] 进一步地,位于移动支付平台的 POS 前置设备收到所述 8583 联机交易报文后,于 MAC 验证通过后对所述个人识别码进行转加密,然后将报文转换为类 8583 报文通过应用平台发送至业务管理平台;

[0011] 所述对个人识别码进行验证是指,对被加密的个人识别码进行解密,若解密后的个人识别码与本地存储的个人识别码一致则验证通过,否则验证未通过。

[0012] 进一步地,所述 MIS 商户装置还存储 POS 终端与 POS 前置设备的对应关系,MIS 商户装置根据所述 POS 终端信息查找该对应关系后确定处理本次交易的 POS 前置设备。

[0013] 进一步地,所述 MIS 商户装置对个人识别码进行加密的 PIK1 由 POS 前置设备产生,所述 POS 前置设备对个人识别码进行转加密的 PIK2 由业务管理平台产生;

[0014] 进行 MAC 验证的 MAK 是由 POS 前置设备产生,各网元的 MAK 一致;

[0015] PIK1、PIK2 及各网元处的 MAK 均被 KEK 加密后存储,但各网元处的 KEK 不同。

[0016] 本发明还提供一种实现移动支付的方法,包括:当交易类型为现金账户时,MIS 商户装置获取移动支付终端的交易数据及移动支付终端的余额信息后,验证本次交易是否合法以及所述移动支付终端的现金账户余额是否足够本次交易,若交易合法且现金账户余额足够本次交易,则完成本次离线交易处理;所述移动支付终端为具有 RF-SIM 卡的移动终端。

[0017] 本发明还提供一种实现移动支付的系统,包括:移动支付终端、MIS 商户装置及移动支付平台;

[0018] 所述移动支付终端为具有 RF-SIM 卡的移动终端;

[0019] 所述 MIS 商户装置用于当交易类型为在线账户时获取交易数据以及用户的个人识别码,并将加密后的个人识别码连同所述交易数据、POS 终端信息一起封装成 8583 联机交易报文后发送至移动支付平台;

[0020] 所述移动支付平台用于收到所述 8583 联机交易报文后判断交易请求是否合法,若交易请求合法则验证用户及账户的合法性,以及对所述个人识别码进行验证,还用于用户及账户合法,且个人识别码正确时完成本次交易的账务处理。

[0021] 进一步地,所述移动支付平台包括 POS 前置设备、应用平台及业务管理平台;

[0022] 所述 MIS 商户装置还用于对所述 8583 联机交易报文加封装企业代码后进行 MAC 生成,并将所述 8583 联机交易报文发送至 POS 前置设备;

[0023] 所述 POS 前置设备用于对所述 8583 联机交易报文进行 MAC 验证,并于 MAC 验证通过后判断交易请求是否合法,若合法则将所述 8583 联机交易报文转换为类 8583 报文后进行 MAC 生成,之后发送至对应的应用平台;

[0024] 所述应用平台用于收到所述类 8583 报文后进行 MAC 验证,以及 MAC 验证通过后验证用户及账户的合法性,还用于当用户及账户合法后对所述类 8583 报文进行 MAC 生成后发送至业务管理平台;

[0025] 所述业务管理平台用于收到所述报文后对所述类 8583 报文进行 MAC 验证,以及 MAC 验证通过后对所述个人识别码进行验证,若个人识别码正确则完成本次交易的账务处理。

[0026] 进一步地,所述 POS 前置设备还用于收到所述 8583 联机交易报文后对所述个人识别码进行转加密,以及将转加密后的个人识别码连同所述交易数据、本 POS 终端信息一起封装成类 8583 报文;

[0027] 所述业务管理平台对个人识别码进行验证是指,业务管理平台对加密后的个人识别码进行解密,若解密后的个人识别码与本地存储的个人识别码一致则验证通过,否则验证未通过。

[0028] 进一步地,所述商户端前置机还用于存储各 POS 终端与 POS 前置设备对应关系的路由信息,以及根据 POS 终端信息查询本地存储的路由信息,确定处理该交易报文的 POS 前置设备,并将交易报文发送至对应的 POS 前置设备。

[0029] 进一步地,所述 POS 前置设备还用于产生对个人识别码进行加密的 PIK1,并将其发送至 MIS 商户装置;

[0030] 所述业务管理平台还用于对个人识别码进行转加密的 PIK2,并将其发送至 POS 前置设备;

[0031] 所述 PIK1、PIK2 及各网元处的 MAK 均被 KEK 加密后存储,但各网元处的 KEK 不同。

[0032] 本发明还提供一种实现移动支付的系统,包括:移动支付终端及 MIS 商户装置;

[0033] 所述移动支付终端为具有 RF-SIM 卡的移动终端;

[0034] 所述 MIS 商户装置用于当交易类型为现金账户时获取交易数据及移动支付终端的余额信息,还用于验证本次交易是否合法以及所述移动支付终端的现金账户余额是否足够本次交易,若交易合法且现金账户余额足够本次交易,则完成本次离线交易处理。

[0035] 本发明所基于的 RF-SIM 技术,即是现场支付技术的一种,它通过将射频技术集成到手机 SIM 卡里,使手机使用者仅需要更换一张智能卡,便可以使现有的手机变成类 NFC 手机,不但拥有普通 SIM 卡的所有功能,还拥有可代替钱包、钥匙和身份证的全方位服务平台。其中 SIM 卡部分用于正常的手机移动通讯、鉴权,仅用作与手机的物理连接。内置软件用于管理高安全度的 RF-ID、内置 e-credit 电子信用卡、EMV 电子钱包以及其他基于 mifare 逻辑的 VIP 会员卡。同时使用微型 RF 模块并通过内置的天线与外部设备通讯。

#### 附图说明

[0036] 图 1 是本发明的移动支付系统集中式组网结构图;

[0037] 图 2 是本发明的联机交易流程图;

[0038] 图 3 是本发明的支付账户在线充值流程图;

[0039] 图 4 是本发明的密钥分配体系图。

#### 具体实施方式

[0040] 本发明的主要目的在于提供一种基于 RF-SIM 终端卡技术和 ISO8583 协议的安全高效的电子支付方法,主要用于实现近距离非接触式移动支付。为了兼容现有的银行卡类交易,本发明的交易报文以 ISO8583 规范为基础。在移动支付平台之外,包括 MIS 商户装置和与商业银行的账务接口部分,采用标准 8583 报文;而在移动支付平台之内,则按照系统设计的类 8583 报文进行交易数据的处理和转发。

[0041] 本发明给出了一整套移动支付的解决方案,包括系统架构设计,安全体系建立,以及交易数据传输等。

[0042] 本发明中涉及的几个名词解释如下:

[0043] RF-SIM:RF-SIM 是一种基于 SIM 卡的近/中距离无线通信技术,技术支持方为香港直通电讯。此技术是 NFC 近距离无线通信的一种,它将具有 RF 射频功能的模块镶嵌在 SIM 卡内,使用 2.4G 的微波频率进行数据通信。最大特点是用户不需更换手机,是典型的单 SIM 卡移动支付解决方案。

[0044] ISO8583:ISO8583 协议是目前国际上金融系统通用的标准报文协议。它被广泛应用于以银行卡交换为主的金融交易系统,各个银行间通讯,ATM 或 POS 通讯,均采用 ISO8583 报文。目前流行的网银在线、Call Center 与银行之间的通讯报文也是 ISO8583 协议。

[0045] OTA :是 Over The Air 的缩写,中文称为空中下载。空中下载技术是通过移动通信(GSM 或 CDMA) 的空中接口对 SIM 卡数据及应用进行远程管理的技术。空中接口可以采用 WAP、GPRS、CDMA1X 及短消息技术。

[0046] 本发明中实现该方法的系统架构,主要由移动支付终端,MIS 商户装置和移动支付平台三部分组成。这里所指 MIS 商户是指能够受理移动支付业务,所属的 POS 终端通过商户前置机与移动支付平台相连的零售商、公司或其他机构。

[0047] 如图 1 所示,根据本发明的移动支付系统包括 RF-SIM 移动支付终端, MIS 商户装置和移动支付平台三个主要部分。分别说明如下:

[0048] 移动支付终端 :主要是指采用 RF-SIM 技术,可与 POS 终端进行近距离非接触式数据交换的移动终端。还可以通过 OTA 空中下载的方式完成对终端卡的管理,包括对终端卡安全域的划分及通过空中下载方式到业务管理平台下载应用程序;移动支付终端中具有 RF-SIM 卡。

[0049] MIS 商户装置 :包括刷卡器,POS 终端和商户前置设备。

[0050] 刷卡器用于当交易类型为现金账户时读取交易数据,并将其发送至 POS 终端,还用于当移动支付终端选择在线账户时获取用户的 PIN(个人识别码),并将 PIN 与交易数据发送至 POS 终端;

[0051] POS 终端用于识别移动支付终端的 RF-SIM 卡参数,包括判断是否支持交易,及本次交易类型(包括在线账户、现金账户等),当交易为现金账户时,移动支付终端的现金账户余额是否足够本次交易;

[0052] POS 终端还用于当交易类型为现金账户时,验证本次交易是否合法,若合法且现金账户余额足够本次交易,则完成本次离线交易处理,包括扣除移动支付终端的现金账户余额。

[0053] POS 终端还用于当交易类型为在线账户时,将收到的 PIN、交易数据连同本 POS 终端信息封装成标准 8583 联机交易报文(该报文包括应用类型标识 AID),并进行 MAC(Message Authentication Code,报文鉴别码)生成后将 8583 联机交易报文发送至商户前置设备。

[0054] POS 终端还用于检查后台系统是否有权限接收 POS 终端的数据;以及数据上传,联机交易处理和信息上传;提供票据打印,出纸错误控制。

[0055] 商户前置设备包括商户前置机和加密机;

[0056] 加密机用于进行密钥转换,即将移动支付平台中的 POS 前置设备发来的经 KEK 加密的 WK(工作密钥,包括 PK 及 MAK)进行密钥转换后发送给 POS 终端;

[0057] 加密机还用于收到 POS 终端发来的 8583 联机交易报文后进行 MAC 验证,验证通过后再进行 MAC 生成;

[0058] 商户前置机用于将 MAC 生成后的报文加上企业代码等信息后封装成标准 8583 联机交易报文,将交易报文发送至对应的 POS 前置设备。

[0059] 商户前置机还用于存储各 POS 终端与 POS 前置设备对应关系的路由信息,并根据 POS 终端信息查询本地存储的路由信息,从而确定处理该交易报文的 POS 前置设备,并将交易报文发送至对应的 POS 前置设备。

[0060] 移动支付平台包括 POS 前置设备、POS 终端管理平台、应用平台、业务管理平台以

及统一支付平台,是该移动支付系统的核心部分;其中:

[0061] POS 前置设备,用于生成 WK,并通过 KEK 加密后发送给商户前置机;还用于产生 PIK1,并将其发送至 POS 终端;

[0062] POS 前置设备还用于收到交易报文后进行 MAC 验证,验证通过后对交易报文进行合法性检查,包括终端设备编号及运行状态、操作员、校验位以及 POS 终端的有效期等是否合法,以及交易是否超时、超范围,若合法且未超时、未超范围则使用 PIK2 将 PIN 进行转加密(即重新用 PIK2 对 PIN 进行加密),之后将报文封装成移动支付平台内部通用的类 8583 报文,并根据报文中的 ATD 将交易报文转发至对应的应用平台;若交易不合法或交易超时或超范围则拒绝该交易。这样,可以降低应用平台及账务清算平台等的负荷,减少后台系统处理账务所需的开销。

[0063] 应用平台,用于记录移动支付终端对应用程序的下载,如合法下载过哪些应用程序,若移动支付终端曾非法下载过应用程序则将该移动支付终端加入黑名单;还用于收到交易报文后根据黑名单验证用户及账户的合法性,包括该用户是否欠费及是否为黑名单中的用户等,还可以用于按照应用计费原则(如应用的使用次数等)完成相关处理(如为运营商收取一定的手续费),并将报文转发至业务管理平台。

[0064] 应用平台还用于协助业务管理平台完成应用程序的产品测试,以及对应用进行分组,以及提供应用程序的更新,应用的暂停、恢复,以及注销等操作;提供安全控制功能,包括内部操作员管理、移动支付终端交易限制、用户黑名单管理、抽取交易特征及建立风险控制模型等。

[0065] 业务管理平台,用于产生 PIK2,并将其发送至 POS 前置设备;还用于收到交易报文后进行 MAC 验证,MAC 验证通过后对 PIN 进行校验,还用于校验通过后对本次交易进行账务处理,如扣款处理,之后返回交易响应;若校验未通过,则返回交易失败的消息。

[0066] 对 PIN 进行校验是指,用本地存储的 KEK 解密出被加密的 PIK2,之后用 PIK2 解密出报文中的 PIN,然后比较解密出的 PIN 是否与本地存储的 PIN 一致,若一致则校验通过,否则校验未通过;

[0067] 业务管理平台负责用户、商户、SP/CP、支付终端卡片、以及 POS 机的注册和信息管理;提供支付账户的管理功能,包括现金账户(如扣除现金余额)、在线账户(如修改在线账户信息)和积分账户(如修改用户积分等);提供业务信息的查询统计、分析功能;提供密钥安全管理、应用程序下载。

[0068] POS 终端管理平台主要负责 POS 终端的信息和参数管理;提供 POS 终端应用程序的增加、下载、更新;负责终端运行状态监控(POS 终端运行是否正常),包括终端主动上报异常情况和终端管理平台下发监控命令两种方式。

[0069] POS 终端管理平台存储 POS 终端及商户信息,将这些信息提供给 POS 前置设备验证 POS 终端是否合法,商户是否合法。

[0070] 统一支付平台用于在线交易时,接收业务管理平台发来的用户信息及相关交易信息后,与银行系统进行实时交互完成银行账户的扣款;还用于离线交易时,接收业务管理平台发来的用户信息及相关交易信息后,采用日终方式完成。即统一支付平台是支持和具体商户结算、和资金系统相连的环节。统一支付平台与银行账务系统的接口,是银行账务系统接入移动支付系统的唯一入口,所有与银行关联的清算、对账信息都经由统一支付平台转



发到业务管理平台进行处理。

[0071] 本实施例提供一种实现移动支付的方法,如图 2 所示,根据本发明实现移动支付的方法包括如下步骤:

[0072] 步骤 S2002,用户确认 POS 终端上显示的支付金额后,在 RF-SIM 的移动支付终端上选择“在线账户”进行支付,然后将移动支付终端靠近刷卡器,同时在 POS 附带的密码键盘上输入 PIN。

[0073] 步骤 S2004, MIS 商户装置获取移动支付终端的交易数据及用户的 PIN,并使用 PIK1 对 PIN 进行加密后连同交易数据及 POS 终端信息封装成标准 8583 联机交易报文(该报文包括应用类型标识 AID),并进行 MAC 生成,之后将报文发送至移动支付平台。

[0074] 该步骤中,可以是由位于 MIS 商户装置的 POS 终端生成上述 8583 联机交易报文,并进行 MAC 生成后发送至位于 MIS 商户装置的商户前置设备,商户前置设备收到上述报文后先进行 MAC 验证,验证通过后对该 8583 联机交易报文加封装企业代码后进行 MAC 生成,然后查询存储的 POS 终端与移动支付平台的对应关系后由数据专线将上述报文发送至对应的移动支付平台。

[0075] 步骤 S2006,移动支付平台收到 8583 联机交易报文后,先进行 MAC 验证,验证通过后对报文进行合法性检查,内容包括终端设备编号及运行状态、操作员、校验位以及 POS 终端的有效期等,用以判断交易请求的合法性以及是否做出拒绝。还需要校验 PIN 是否正确,若正确则完成本次账务处理后,返回交易响应。账务处理包括在线账户时修改在线账户信息等。

[0076] 该步骤具体包括:

[0077] a) 位于移动支付平台的 POS 前置设备收到 8583 联机交易报文后,先进行 MAC 验证,验证通过后对使用 PIK2 将 PIN 进行转加密(即重新用 PIK2 对 PIN 进行加密),重新封装一个移动支付平台内部通用的类 8583 报文后进行 MAC 生成,并根据报文中的 AID(应用类型标识),将交易报文转发至对应的应用平台进行处理;

[0078] b) 应用平台收到类 8583 报文后,先进行 MAC 验证,验证通过后对该类 8583 报文进行合法性检查,若合法则对类 8583 报文重新进行 MAC 生成后发送至业务管理平台;

[0079] c) 业务管理平台收到类 8583 报文先进行 MAC 验证,验证通过后校验 PIN 是否正确,之后完成本次交易的账务处理。

[0080] 在线交易时,统一支付平台接收业务管理平台发来的用户信息及 Related 交易信息后,与银行系统进行实时交互完成银行账户的扣款。

[0081] 对 PIN 进行校验可以是,将 PIN 密文、KEK(密钥加密密钥)加密下的 PIK2 以及本地存放的 PIN 密文等信息一并送入本地加密机,由加密机在其内部将业务管理平台上送的 PIN 和本地数据库中存放的 PIN 进行比较,完成 PIN 的校验。

[0082] 步骤 S2008,移动支付平台通过 MIS 商户装置向移动支付终端返回交易响应。

[0083] 在小额支付场景下,移动支付终端可以选择“现金账户”进行离线交易,此时无需使用 PIN。具体步骤如下:

[0084] 步骤 S3002,用户确认 POS 终端上显示的支付金额后,在 RF-SIM 的移动支付终端上选择“现金账户”进行支付,然后将移动支付终端靠近刷卡器;

[0085] 步骤 S3004, MIS 商户装置获取移动支付终端的交易数据以及移动支付终端的余

额信息,验证本次交易是否合法,并验证该移动支付终端的现金账户余额是否足够本次交易,若交易合法且现金账户余额足够本次交易,则完成本次离线交易处理,包括扣除移动支付终端的现金账户余额。并采用日终清算方式交本次交易记录发送至移动支付平台。

[0086] 如图 3 所示,根据本发明的支付账户在线充值流程包括如下步骤:

[0087] 步骤 S4002,用户持现金及 RF-SIM 移动支付终端至营业厅 / 充值网点,POS 充值终端读取移动支付终端(卡)侧的用户信息后发送至柜面客户端。

[0088] 步骤 S4004,柜面客户端将用户信息发给业务管理平台,业务管理平台进行合法性验证,包括对用户卡、账户身份的验证;

[0089] 步骤 S4006,验证通过后由业务管理平台返回用户及其附属支付账户的详细信息,附属支付账户指在线账户和现金账户,这里返回的是两个账户在业务管理平台内存储的信息。

[0090] 步骤 S4008,柜面客户端根据用户要求选择充值账户(现金账户或在线账户),填写充值金额后将请求发给业务管理平台。

[0091] 步骤 S4010,业务管理平台根据请求进行账户合法性验证,修改现金账户 / 在线账户信息,生成充值记录。

[0092] 步骤 S4012,业务管理平台通过柜面客户端向移动支付终端返回充值结果信息。

[0093] 步骤 S4014,对于现金账户充值,还将由 POS 充值终端修改移动支付终端侧的现金账户信息。

[0094] 图 4 为根据本发明的密钥分配方式示意图。

[0095] 移动支付系统的密钥体系分为三层:主密钥(MK),用于对密钥加密密钥 KEK 进行加密保护,各加密机存储的 KEK 是经过 MK 加密的, MK 由本地加密机产生;

[0096] 密钥加密密钥(KEK),用于工作密钥在线更新时加密工作密钥;

[0097] 工作密钥(WK),包括对 PIN 加密的 PIK(PIN 加密工作密钥),以及进行报文鉴别(MAC)的 MAK(MAC 加密工作密钥)。

[0098] MAK 是由 POS 前置设备产生,各区域(即网元)的 MAK 一致,但由不同的 KEK 进行加密。

[0099] 密钥分配的目的在于首先是使主机之间分别共享相同的传输密钥(KEK),以便工作密钥的安全传输。然后便可定时生成工作密钥进行加密下载,从而保证通讯的双方具有相同的工作密钥。下面将对移动支付系统中的密钥分配方式进行简要说明(图 4,以 PIK 为例)

[0100] 1) POS 终端的工作密钥 PIK1 由 POS 前置设备产生,POS 前置设备中用于 PIN 转加密的 PIK2 由业务管理平台产生。PIK 在不同区域(即网元)中由不同的 KEK 保护,这些 KEK 由本地加密机产生,通过 IC 卡等方式注入下一通信网元的加密机中,即将本地产生的 KEK 存储到与之相连的下一级通信网元。

[0101] 2) 密钥分段有效原则:每个 KEK 仅在某一区域(即网元)内存在并有效,不同区域(即网元)间的 KEK 之间没有任何关系。用以保证不会因某个区域(即网元)的 KEK 的泄露而影响其它区域间传输的数据的安全,从而实现密钥的分工管理。

[0102] 本发明提出了一种基于 RF-SIM 和 ISO8583 协议的安全移动支付方法,用于快速、有效、安全地对非接触式移动支付交易进行处理。

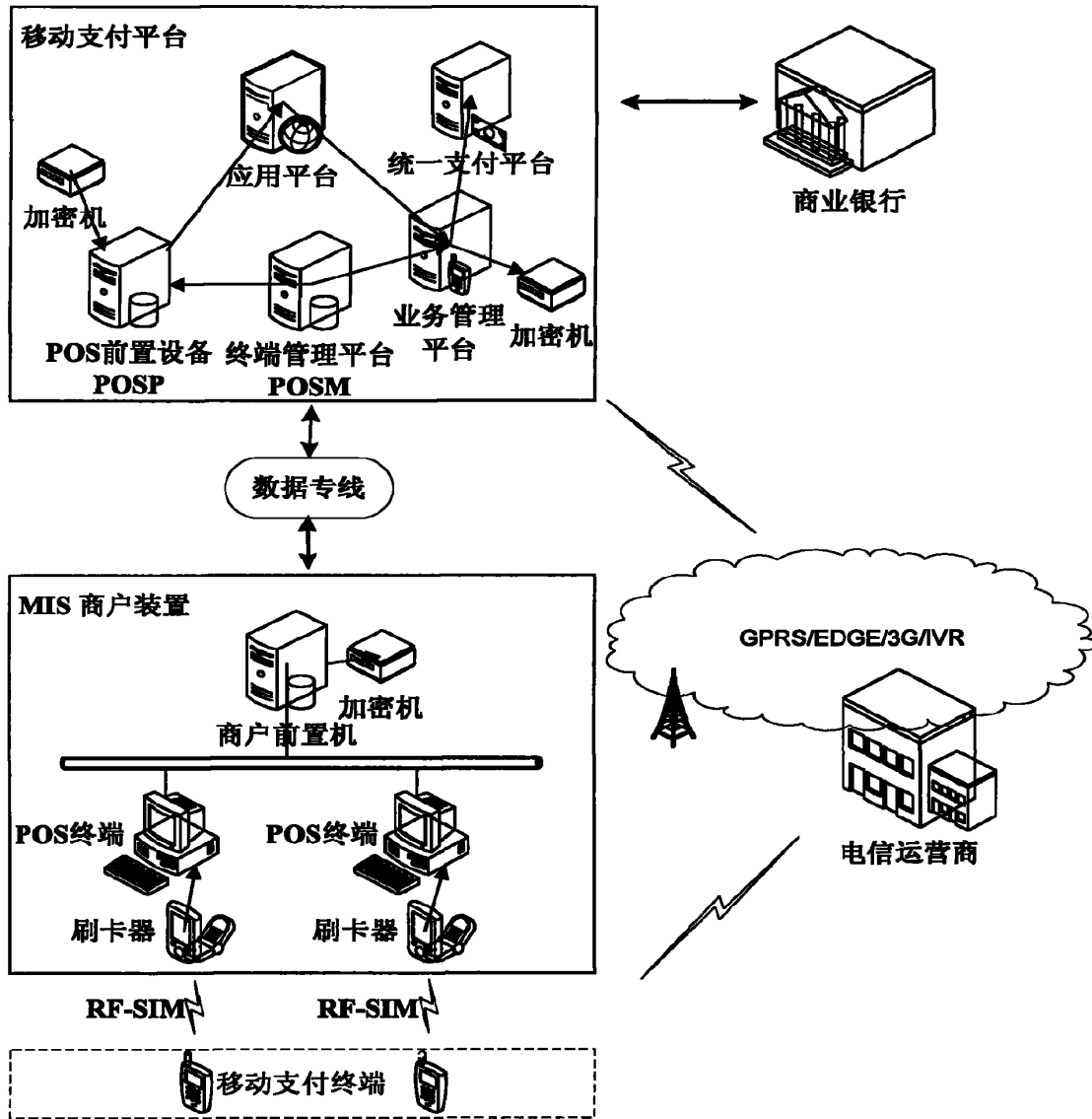


图 1

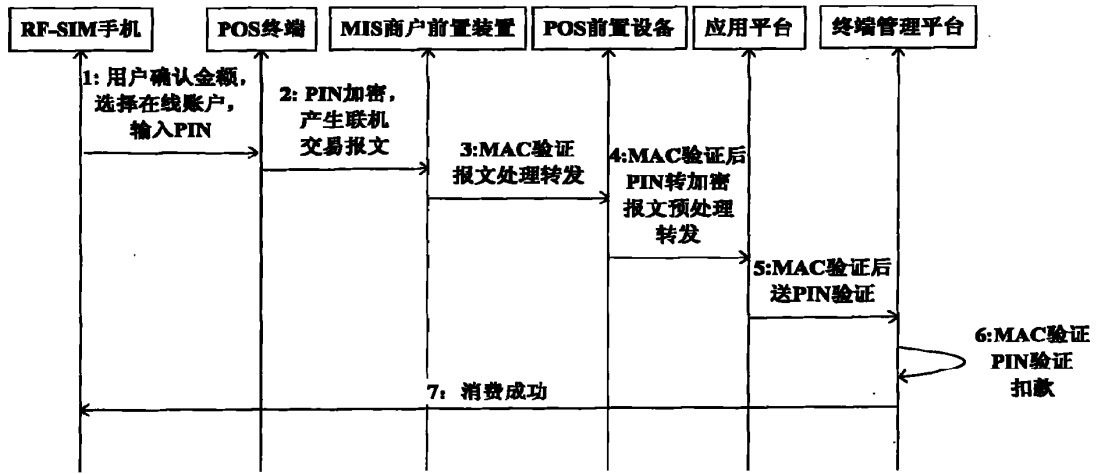


图 2

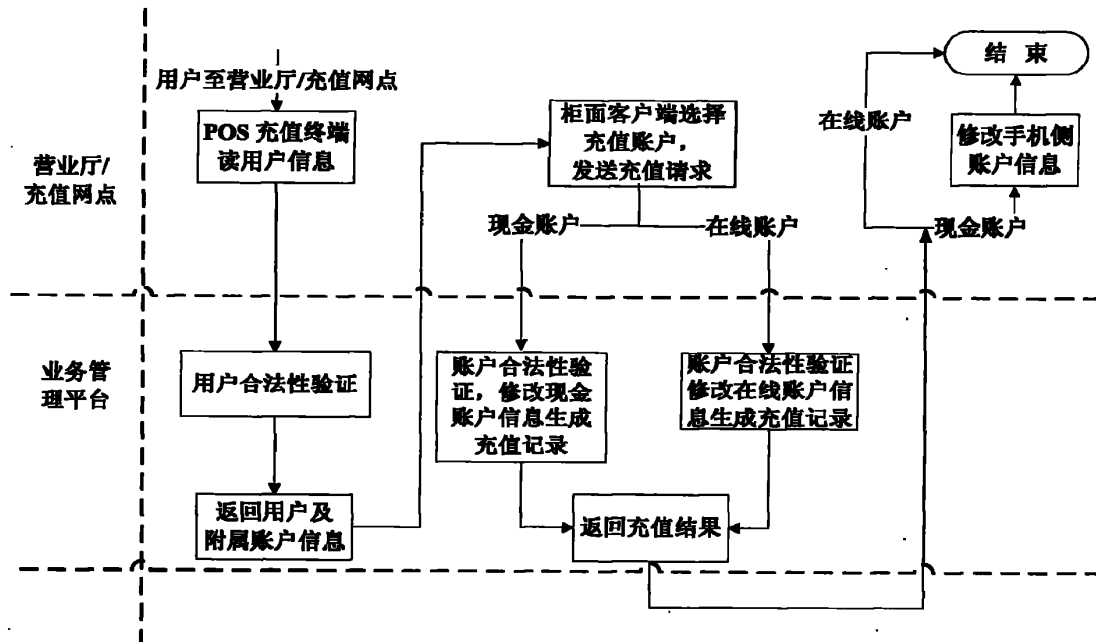


图 3

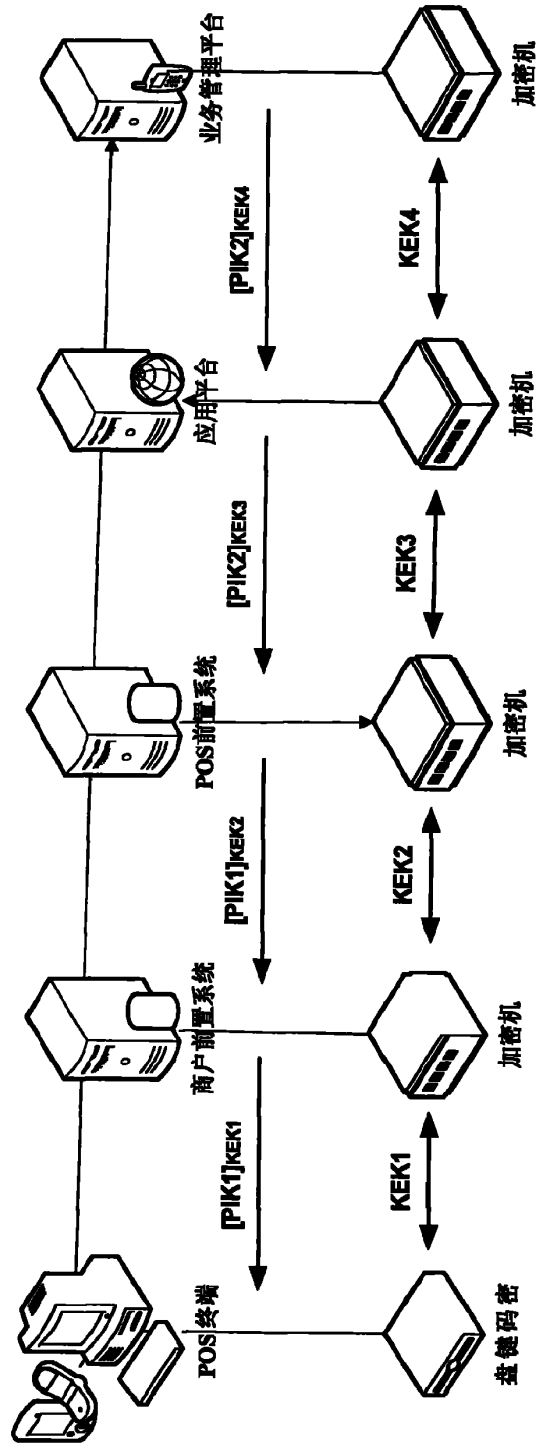


图 4



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DE10119808 (A1)

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**Transaction method for providing goods or services involves vending machine comparing transaction codes transmitted to it and to customer from terminal at chargeable connection**
**Page bookmark** DE10119808 (A1) - Transaction method for providing goods or services involves vending machine comparing transaction codes transmitted to it and to customer from terminal at chargeable connection

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- European: G06Q20/04; G06Q20/32; G07F5/18

**Application number:** DE20011019808 20010423

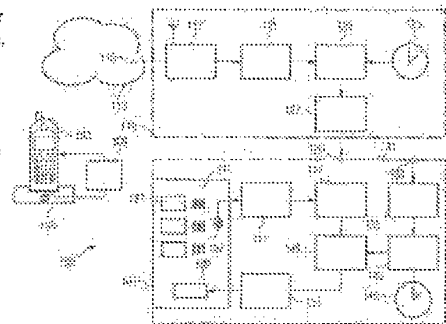
**Priority number(s):** DE20011019808 20010423; DE20011009821 20010301

**Abstract of DE10119808 (A1)**

Translate this text into

German

The method involves making a connection between a calling customer terminal or payment point and a called terminal or payment point at a chargeable connection, sending object and vending machine identification data to the called terminal, generating a transaction code and sending to the customer terminal and vending machine, storing a reference code in the vending machine, entering the code to the vending machine, comparing codes and dispensing. The method involves making a connection between a calling customer terminal or payment point and a called terminal or payment point at a chargeable connection, sending goods or service object identification data and vending machine identification data to the called terminal, generating a transaction code and sending to the customer terminal and to the vending machine, storing the transmitted or generated transaction code as a reference code in the vending machine, the customer entering the code to the vending machine, comparing codes and dispensing the goods or service. Independent claims are also included for (1) a transaction method for providing functionality (2) an arrangement for providing goods or services; and (3) an arrangement for providing functionality.





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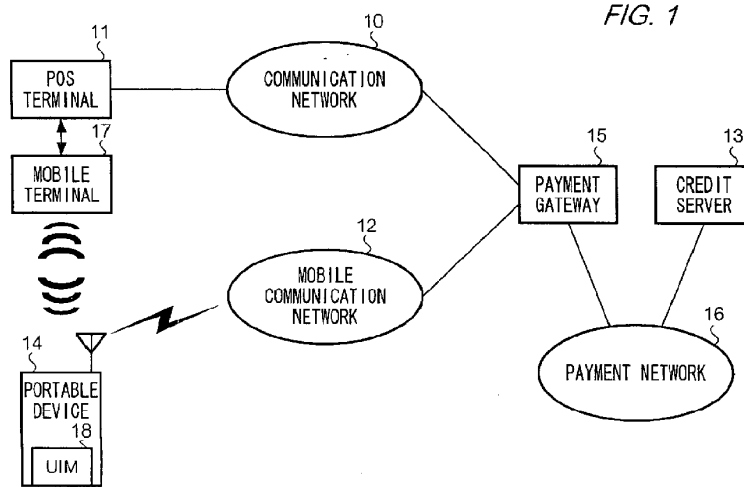
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(54) **Electronic payment method, system, and devices**

(57) A portable device authenticates a user of the portable device. If authenticity of the user is confirmed, a user ID is transmitted to a POS terminal. Upon receipt of the user ID, the POS terminal sends a request for pay-

ment including the user ID and transaction information to a payment gateway. Upon receipt of the request, the payment gateway sends an e-mail to the portable device to execute an application for payment stored in the portable device.



**Description**

## Background of the Invention

## Field of the Invention

**[0001]** The present invention relates generally to a method, system, and devices used for electronic financial transactions between financial institutions connected by a network.

## Description of the Related Art

**[0002]** Electronic payment using a credit card is known in the art. As an example, a prior system for electronic payment is shown in fig. 21.

**[0003]** When a people (purchaser) buys goods at a shop, firstly, a clerk inputs transaction data including the name of goods, quantity, price, and tax into a Point of Sales (POS) terminal 1 provided at the shop. Secondly, he/she hand his/her credit card to the clerk. Thirdly, the clerk sets the card to a Card reader 2. Card reader reads out information such as a card number and expiration date stored in the card. Next, this card information is supplied to POS terminal 1. Upon receipt the information, POS terminal 1 makes a request for credit by adding information on the shop (merchant) to the card information and transaction data and sends it to a Credit server 4 managed by a credit card company via a Network 3 such as Credit Finance Information Switching Systems (CAFIS). Credit server 4 checks the card information included in the request sent by POS terminal 1. Finally, if Credit server 4 accepts authenticity of the card, it sends a completion message to POS terminal 1. In such a system, a consumer buys goods without carrying cash.

**[0004]** However, it is known that there is a security concern in such a system. Since a purchaser has to hand his/her credit card to a clerk in paying by a credit card, there is a danger that unauthorized persons improperly use the card. Furthermore, there is always a possibility of dropping off a credit card. In other words, a consumer necessarily takes risks that a stranger uses his/her credit card illegally.

**[0005]** The present invention has been made with a view to overcome the above problem and it is an object of the present invention to provide a method, system, server, terminal, computer program, and storage medium to conduct electronic financial transactions.

## Summary of the Invention

**[0006]** To achieve the above aim, an electronic payment method of the present invention comprises the steps of:

authenticating a user of a user terminal on the basis of user identification information inputted to the user

terminal by the user, by the user terminal; storing an authentication result of the user, by the user terminal when the user terminal confirms authenticity of the user;

5 transmitting a user identification information stored beforehand in the user terminal to a merchant terminal when the user terminal confirms authenticity of the user, by the user terminal;

10 transmitting to payment device via a first communication network the user identification information and transaction information transmitted from the user terminal, by the merchant terminal;

15 receiving the user identification information and the transaction information transmitted from the merchant terminal, by the payment device;

20 identifying the user terminal on the basis of the user identification information and transmitting commands for instructing transmission of the authentication result to the user terminal via a second communication network;

25 transmitting authenticity of the user to the payment device via the second communication network if the user terminal stores authenticity of the user, by the user terminal; and

performing payment processing on the basis of the transaction information upon receipt of the authentication from the user terminal, by the payment device.

**[0007]** In an electronic payment system in which the above method is applied, a user is able to pay by credit card using a terminal without handing a credit card to a clerk, thereby preventing a third-party including a clerk from using the card improperly. Furthermore, since the user terminal authenticates a user, if a third-party obtains a user terminal improperly, the terminal cannot be used for payment in the electronic payment system by the third-party. Furthermore, the payment device identifies a user to which authentication result is transmitted. In other words, the only user terminal that the payment device specifies can proceed payment processes. Thus, the danger of an improper use by a third-party of the user terminal is reduced. Furthermore, the user terminal transmits an authentication result according to the commands send from the payment device, in other words, a user does not have to operate the user terminal for the transmission. Therefore, the danger of stop of payment processing due to misoperation by a user is prevented.

**[0008]** In a preferred embodiment, an electronic payment method of the present invention comprises the steps of:

55 authenticating a user of a user terminal on the basis of user identification information inputted to the user terminal by the user, by the user terminal;

transmitting user identification information for identifying a user to a merchant terminal, by the user terminal, when the user terminal confirms authentication



ticity of the user;  
 transmitting to a payment device via a first communication network the user identification information transmitted from the user terminal, by the merchant terminal;  
 receiving the user identification information from the merchant terminal, by the payment device;  
 identifying the user terminal referring to received user identification information and transmitting commands for executing an application for payment stored in the user terminal to identified user terminal via a second communication network, by the payment device;  
 upon receipt of the commands, executing the application to transmit a request for proceeding payment processing to the payment device via the second communication network, by the user; and  
 upon receipt of the request from the user terminal, performing a payment processing.

**[0009]** In this embodiment the payment device identifies a user terminal on the basis of user identification information and sends commands so that the user terminal can execute application for payment stored in the user terminal. In other words, both a user and a user terminal are authenticated, thereby ensuring security against authorized person greatly. In addition, a user's convenience is improved because a user does not have to carry out troublesome operation necessary for payment.

**[0010]** In another embodiment, an electronic payment method comprises the steps of:

receiving from a merchant terminal a user identification information for identifying a user of a user terminal, by a receiving unit;  
 retrieving from a storage unit a card number corresponding to the identified user, by a retrieving unit;  
 encrypting the retrieved card number, by an encrypting unit;  
 generating a key for decryption of the encrypted card number, by a generating unit;  
 transmitting to the merchant terminal the encrypted card number, by a first transmitting unit; and  
 transmitting the key to a credit server managed by an issuer of the credit card, by a second transmitting unit.

**[0011]** In an electronic payment system in which a method of this embodiment of the present invention is used, a user is able to pay by credit card to a merchant in a way that the merchant does not know a card number because a credit card number is encrypted for transmission to the merchant. Specifically, a payment device determines a card to be encrypted on the basis of the user identification information. On the other hand, the credit server obtains a card number by decrypting an encrypt-

ed card number using the key for decryption received from the payment device, thus the credit server is able to carry out payment processing. Further, since the encrypted card number is generated each time a transaction is conducted, the merchant can manage sales at the shop using the encrypted card number although the merchant does not know card numbers.

**[0012]** An electronic payment system of the present invention has a payment device, a merchant terminal connected with the payment device via a first communication network, and a user terminal connected with the payment device via a second communication network and is characterized in that:

the user terminal authenticates a user of the user terminal on the basis of user identification information inputted to the user terminal by the user;  
 if authenticity of the user is confirmed, stores authentication result; and  
 transmits to the merchant terminal user identification information stored in the user terminal;  
 the merchant terminal transmits to the payment device via the first communication network the user identification information transmitted from the user terminal and transaction information;  
 the payment device identifies the user terminal on the basis of the user identification information transmitted from the merchant terminal and  
 transmits to the identified user terminal via the second communication network commands for instructing transmission of the authentication result;  
 the user terminal transmits to the payment device via the second communication network according to the commands transmitted from the payment device when the user terminal stores the authentication result; and  
 upon receipt of the authentication result from the user terminal, the payment device performs payment processing on the basis of the transaction information.

**[0013]** In a preferred embodiment, an electronic payment system of the present invention is characterized in that:

the user terminal authenticates a user on the basis of the user identification information inputted to the user terminal by the user;  
 if authenticity of the user is confirmed, transmits to the merchant terminal a user identification information for identifying the user;  
 the merchant terminal transfers the user identification information to the payment device via the first communication network;  
 the payment device identifies the user terminal on the basis of the user identification information and transmits to the identified user terminal via the second communication network commands for execut-

ing an application for payment stored in the user terminal;  
 the user terminal executes the application according to the commands and transmits a request for proceeding payment processing to the payment device via the second communication network; and  
 the payment device performs the payment processing according to the request.

**[0014]** A communication terminal used for an electronic payment system of the present invention has a payment device connected with a first and a second communication network and a merchant terminal connected with the payment device via a first communication network and comprises:

an authenticating means for authenticating a user of the communication terminal on the basis of a user identification information inputted to the user terminal by the user;  
 a storing means for storing an authentication result when authenticity of the user is confirmed by the authenticating means;  
 a storage medium for storing the user identification information;  
 a first transmitting means for transmitting, when authenticity of the user is confirmed, the user identification information stored in the storage means to the merchant terminal so that the merchant terminal transmits to the payment device a request for payment processing including the user identification information;  
 a receiving means for receiving commands for instructing transmission of the authentication result which is transmitted, in response to the request for payment, from the payment device via the second communication network; and  
 a second transmitting means for transmitting, upon receipt of the commands, a request for proceeding the payment processing including the authentication result to the payment device via the second communication network.

**[0015]** In a preferred embodiment, a communication terminal used for the electronic payment system comprises:

an authenticating means for authenticating a user of the communication terminal on the basis of a user identification information inputted to the user terminal by the user;  
 a first transmitting means for transmitting, when authenticity of the user is confirmed, the user identification information stored in the storage means to the merchant terminal so that the merchant terminal transmits to the payment device a request for payment processing including the user identification in-

formation

a receiving means for receiving commands for executing an application for payment which is transmitted from the payment device via the second communication network; and  
 a second transmitting means for executing the application for payment stored in the user terminal and transmitting, according to the application, a request for proceeding payment processing to the payment device via the second communication network.

**[0016]** A payment device of the present invention comprises:

a receiver for receiving a request for payment including a user identification information for identifying a user of a user terminal from a merchant terminal via a first communication network;  
 an identifying means for identifying the user terminal among registered user terminal on the basis of the received user identification information; a transmitter for transmitting to the identified user terminal via a second communication network commands for executing an application for payment stored in the user terminal; and  
 a processing means for performing a payment processing on the basis of a request sent from the user terminal via the second communication network after transmission of the commands.

**[0017]** In another embodiment, a payment device comprises:

a storage unit for storing a user identification information for identifying a user of a user terminal and a card number of a credit card correspondingly; a receiving unit for receiving from a merchant terminal a user identification information;  
 a retrieving unit for retrieving from the storage unit a card number corresponding to the identified user;  
 an encrypting unit for encrypting the retrieved card number;  
 a generating unit for generating a key for decryption of the encrypted card number;  
 a first transmitting unit for transmitting to the merchant terminal the encrypted card number; and  
 a second transmitting unit for transmitting the key to a credit server managed by an issuer of the credit card.

**[0018]** A computer program product of the present invention makes a computer incorporated into a communication terminal used for the electronic payment system having a payment device connected with a first and a second communication network and a merchant terminal connected with the payment device via a first communication network to execute the steps of:

authenticating a user of the communication terminal on the basis of a user identification information inputted to the user terminal by the user;  
 storing an authentication result into a storage means when authenticity of the user is confirmed by the authenticating means;  
 transmitting, when authenticity of the user is confirmed, the user identification information stored in the storage means to the merchant terminal so that the merchant terminal transmits to the payment device a request for payment processing including the user identification information;  
 receiving commands for instructing transmission of the authentication result which is transmitted, in response to the request for payment, from the payment device via the second communication network; and  
 transmitting, upon receipt of the commands, a request for proceeding the payment processing including the authentication result to the payment device via the second communication network.

**[0019]** In another embodiment, a computer program product makes a computer to execute the steps of:

receiving from a merchant terminal a user identification information for identifying a user of a user terminal;  
 retrieving from a storage unit a card number corresponding to the identified user;  
 encrypting the retrieved card number;  
 generating a key for decryption of the encrypted card number; transmitting to the merchant terminal the encrypted card number; and  
 transmitting the key to a credit server managed by an issuer of the credit card.

**[0020]** A storage medium of the present invention stores the above computer program products.

Brief description of the drawings

**[0021]**

Fig.1 is a conceptual block diagram to illustrate an electronic payment system based on the first embodiment of the present invention.  
 Fig.2 is a block diagram to illustrate a portable device used in the system.  
 Fig.3 illustrates a UIM mounted detachably to the portable device.  
 Fig.4 shows a storage area of EEPROM in the UIM.  
 Fig.5 is a block diagram to illustrate a POS terminal and a mobile terminal used in the system.  
 Fig.6 is a block diagram illustrating a payment gateway used in the system.  
 Fig.7 illustrates data items stored in a user table in a hard drive of the gateway.

Fig.8 illustrates data items stored in a transaction table in a hard drive of the gateway.  
 Fig.9 illustrates data items stored in an issuer table in a hard drive of the gateway.  
 Fig.10 illustrates data items stored in a merchant table in a hard drive of the gateway.  
 Fig.11 is a sequence flowchart illustrating payment processing in the system.  
 Fig.12 is a flowchart illustrating a processing performed by the portable device.  
 Fig.13 illustrates a screen displayed on a display of the portable device.  
 Fig.14 is a flowchart illustrating a processing performed by the portable device.  
 Fig.15 is a flowchart illustrating a processing performed by the portable device.  
 Fig.16 illustrates a screen displayed on a display of the portable device.  
 Fig.17 illustrates a screen displayed on a display of the portable device.  
 Fig.18 is a flowchart illustrating a processing performed by the POS terminal.  
 Fig.19 is a flowchart illustrating a processing performed by the payment gateway.  
 Fig.20 is a conceptual block diagram illustrating an electronic payment system based on a modification of the first embodiment.  
 Fig.21 illustrates an electronic payment system of the prior art.  
 Fig.22 illustrates an electronic payment system based on the second embodiment.  
 Fig.23 illustrates an example of data items stored in a POS terminal.  
 Fig.24 illustrates an example of data items stored in a credit server.  
 Fig.25 illustrates an example of data items stored in a storage unit of a payment gateway.  
 Fig.26 is a flowchart illustrating a method for payment used in the system.  
 Fig.27 is a flowchart illustrating a method for payment used in the system.  
 Fig.28 is a conceptual block diagram to illustrate a computer program for payment based on the second embodiment.

Detailed Description

(First embodiment)

**[0022]** The first embodiment of the present invention will now be described referring to the drawings.

A. Configuration of the system

A-1. Overall configuration

**[0023]** Fig. 1 shows that a system to which a method for electronic payment of the present invention based

on the first embodiment is applied. As shown therein, the system comprises (a) a POS terminal 11 connected to a communication network 10, (b) a payment gateway 15 connected to Communication network 10, a mobile communication network 12, and a payment network 16, (c) a portable device 14 by which a user obtains communication services via Mobile communication network 12, (d) a credit server 13 connected to Payment network 16, and (e) a mobile terminal 17. For the sake of simplicity, only one POS terminal 11 and one Portable device 14 is shown in the figure. In actuality, a plurality of POS terminals are connected to Communication network 10 and many portable devices are connected to Mobile communication network 12.

**[0024]** A mobile communication network 12 includes mobile telephone networks in which Personal digital Cellular (PDC) scheme, Code Division Multiple Access (CDMA) scheme, or other schemes is used and data communication networks in which PDC-Packet (PDC-P) scheme is used. Each network has base stations which are not shown. Each base station covers an area and carries out radio communications with portable devices 14 within the area. Therefore, Portable device 14 is able to carry out voice and data communications by radio via Mobile communication network 12. A payment gateway 15 is connected to Mobile communication system 12, thus Portable device 14 is able to carry out data communications with Payment gateway 15.

**[0025]** A POS terminal 11 and Payment gateway 15 are connected via Communication network 10. Specifically, Communication network 10 is a dedicated line to which many POS terminals 11 and Gateway system 15 are connected. Needless to say, Communication network 10 can be a fixed telephone network, a public network such as Internet, or a mobile communication network (possibly Mobile communication network 12).

**[0026]** A credit server 13 managed by a credit company and Gateway system 15 are connected via a payment network 16. Specifically, Payment network 16 is designed especially for credit payment such as Credit and Finance Information Switching Systems (CAFIS). Credit server 13 is a conventional server for credit payment. Specifically, upon receipt of a request for credit transmitted by a POS terminal via Payment network 16, Credit server 13 checks authenticity of a credit card. If the authenticity is confirmed, Server 13 carries out a payment processing before sending a completion message to the POS terminal.

**[0027]** An essence of the electronic transaction service using a method for paying electronic transactions based on this embodiment is as follows. When a user of Portable device 14 buys goods at a shop, the user uses Portable device 14 to make request for payment to Credit server 13 via POS terminal 11 and Payment gateway 15. As such, a user is able to pay without handing a credit card to others including a clerk. Components of this system will be described in detail below.

## A-2. Portable device

**[0028]** Portable device 14 has a function of carrying out wireless voice and data communications via Mobile communication network 12. Further, it has a function of carrying out short-range radio communication using Bluetooth, for example, to carry out data communications with POS terminal. In addition, the device 14 is able to mount a User Identity Module (UIM) detachably.

**[0029]** As shown in fig.2, Portable device 14 has a control unit 310, memory 320, control unit 330, communication unit 340, mic/speaker 350, UIM interface 360, and radio interface 370.

**[0030]** Control unit 310 has a Central processing unit (CPU) and other microprocessors to execute programs stored in Memory 320 to control each unit of the device 14 including reading/writing data from/to UIM 18.

**[0031]** Memory 320 includes a Read Only Memory (ROM), a Random Access Memory (RAM), and an Electrically Erasable and Programmable ROM (EEPROM) and has several storage areas, one of which is assigned for storing programs including programs for starting and proceeding payment described later, and another one of which is for storing data. Another program stored in Memory 320 is used for browsing, in other words, accessing a Web server on the Internet, downloading Hyper Text Markup Language (HTML) data or Compact-HTML (C-HTML) data, and displaying the data. Another one is used for sending and receiving e-mail. Control unit 310 executes these programs so that the user can browse and use e-mail.

**[0032]** Input device 330 has operation buttons such as a ten-key pad, which is not shown in the figure, to input information such as a telephone number and to select buttons or icons displayed on a liquid crystal display not shown in the figure. Communication unit 340 transmits data such as information on ordering via an antenna 341 under control of Control unit 34 and receives data send via Antenna 341. Mic/speaker 350 includes a microphone to input a sound and a speaker to output a sound.

**[0033]** UIM interface 360 supplies information outputted from Control unit 310 to UIM 18 and information outputted from UIM 18 to Control unit 310. Information stored in UIM 18 is used each time a user carries out voice and data communications by radio via Communication network 12. Radio interface 370 is used to carry out short-range communication with POS terminal 11 by Bluetooth, for example.

## A-3. UIM

**[0034]** As shown in fig.3, UIM 18 is an Integrated Circuit (IC) card which is detachable/attachable and includes a CPU 210, interface 215, ROM 220, RAM225, and EEPROM 230. UIM 18 stores information unique to the user including a subscriber number and telephone book used for carrying out communication via Mobile

communication network 12.

**[0035]** CPU210 executes a control program stored in ROM 220 to control each unit within UIM 18. Interface 215 connects UIM 18 with Portable device 14. ROM 220 is a nonvolatile memory and stores programs for analyzing and executing commands supplied from Portable device 14 and for managing data, for example, as well as the control program. RAM 225 is a rewritable memory for temporarily storing data supplied from Portable device 14. EEPROM 230 is a versatile and is rewritable. EEPROM 230 stores information necessary for communication with Portable device 14.

**[0036]** Fig.4 shows storage areas in EEPROM. As shown, EEPROM 230 has storage areas 231 and 233.

**[0037]** Storage area 231 stores subscriber numbers, outgoing history, incoming history, talk time, telephone book data, and other information specific to user(s) of UIM 18. Storage area 233 stores information used when Portable device 14 starts a payment operation. Specifically, a device ID for identifying Portable device 14 uniquely is stored. For example, a user registers, in advance, Portable device 14 at a provider of this electronic financial transaction service to obtain the service using the device 14. After the registration, the provider gives the user the device ID.

**[0038]** In addition, Storage area 233 stores an address such as Uniform Resource Locator (URL), to connect with Payment gateway 15. Further, Storage area 233 stores pairs of a user ID and a password, each of which is used for an application for payment executed at the Portable device 14 when the user uses the electronic payment service. If the user possesses two or more credit cards, it is possible that each pair of a user ID and a password corresponds to each credit card. Furthermore, Storage area 233 has an area for authentication results which is used for the payment application.

**[0039]** When UIM 18 is attached to Portable device 14, information stored in UIM 18 can be supplied to Portable device via UIM interface 360, thereby allowing for Portable device 14 to carry out various functions including radio communication.

#### A-4. POS terminal

**[0040]** POS terminal 11 is installed at a shop of a merchant participating in the electronic payment service. POS terminal 11 stores data necessary for managing information on financial transactions, sales, and customers, for example.

**[0041]** As shown in fig.5, POS terminal 11 has a control unit 710, a display 720, communication interface 730, and an interface 740.

**[0042]** Control unit 710 includes a CPU, a ROM, and a RAM and controls all units of POS terminal 11. Control unit 710 has the same function as a general POS terminal for managing information on financial transactions, sales, and customers. In addition, Control unit 710 has functions of controlling each unit to perform processing

necessary for the electronic payment service. Display 720 includes a liquid crystal panel, for example, on which information on merchandise such as a name, price, quantity, tax, and total amount is displayed. Communication interface 730 carries out communication with Gateway system 15 via Communication network 10. Interface 740 is, for example, a general interface such as RS-232C or Universal Serial Bus (USB). POS terminal 11 is connected to Mobile terminal 17 through a cable to carry out data communication.

**[0043]** Mobile terminal 17 is, for example, a Personal Digital Assistants (PDA) or a laptop computer, which includes a control unit 810, interface 820, display 840, and radio interface 830.

**[0044]** Control unit 810 includes a CPU, ROM, RAM, and other modules and controls all units of POS terminal. Control unit 810 has the same functions as a general mobile terminal such as PDA. In addition, Control unit 810 has a function of controlling each unit to carry out processing necessary for the electronic transaction service.

**[0045]** Display 840 includes a liquid crystal panel to display information, for example. Interface 820 is, for example, a general interface such as RS-232C or Universal Serial Bus (USB). POS terminal 11 is connected to Mobile terminal 17 through a cable to carry out data communication. Radio interface 830 features short-range wireless communication with Portable device 14 via Bluetooth, for example.

#### A-5. Payment gateway

**[0046]** Payment gateway 15 for providing the electronic payment service using a method for electronic payment based on this embodiment is installed by a provider of the service. As shown in fig.6, Payment gateway 15 includes a payment server 150 connected to a Local Area Network (LAN), direction server 160, and a network interface (I/F) 170.

**[0047]** Network interface 170 is, for example, a router. Payment server 150 and direction server 160 exchanges data with POS terminal 10, Portable device 14, and Credit server 13 via Communication network, Mobile communication network, and Payment network 16, respectively.

**[0048]** Payment server 150 may be a personal computer or a workstation, including a CPU 151, ROM 152, RAM 153, hard drive 154, and LAN interface 155. Further, Payment server 150 includes an input device such as a keyboard and Cathode-ray Tube (CRT) or Liquid Crystal Display (LCD), allowing an administrator of Gateway system 15 to make reconfigurations including registration of users.

**[0049]** LAN interface 155 is used for exchange of data between Network interface 170 and Direction server 160 connected to the LAN.

**[0050]** CPU 151 performs arrhythmic computation as well controls each unit of Payment server 150. ROM 152

stores programs to be read out and executed by CPU 151. CPU uses RAM 153 as a work area.

**[0051]** Hard drive 154 stores application programs and data to be read out and executed by CPU 151 to control each unit for provision of the electronic transaction service. Hard drive 154 includes a user table 154a, transaction table 154b, issuer table 154c, and merchant table 154d.

**[0052]** As shown in fig.7, user table 154a has four areas for user ID 154aa, password 154ab, terminal ID 154ac, and credit card number 154ad. A staffer of the provider of this service inputs the above information into User table 154a when a user subscribes to the service. It is possible that, if a subscriber has more than two credit cards and wants to obtain the service using these credit cards, the subscriber (user) has a plurality of user IDs each of which is corresponding to each credit card.

**[0053]** Area 154aa stores user IDs each of which identifies a subscriber uniquely. Area 154ab stores passwords each of which is used for authentication of a user. Area 154ac stores identification information each to identify Portable device 14 used for the electronic transaction service. The user IDs, passwords, and identification information stored in Hard drive 154 are the same stored in Storage area 233 in EEPROM 230 of UIM18 shown in fig. 4 Area 154ad stores credit card numbers of users. If a user has two or more credit cards, the user can specify one or more credit cards to be used for this service and thus stored in Area 154ad when the user subscribes to the service. In addition, Area 154ad stores expiration dates of the cards, which are not shown in the figures.

**[0054]** Referring back to fig. 6, Transaction table 154ab has areas for storing details of transactions conducted by users. Specifically, as shown in fig. 8, Transaction table 154ab corresponding to a subscriber having a user ID "00001" has four areas for transaction 154ba, for date 154bb, for merchant number 154bc, and for transaction details 154bd. Area 154ba stores IDs each of which identifies a transaction conducted by a user. It is noted that CPU 151 gives a transaction ID every time a transaction is conducted. Area 154bb stores dates and times of transactions each corresponding to each transaction ID. Area 154bc stores merchant numbers each identifying a shop where the transaction was conducted. A unique merchant number is assigned to all merchants in advance. Area 154bd stores details of transactions each corresponding to each transaction ID. Specifically, merchandise name, quantity, price, tax, payment method (lump-sum, installment, payment with bonus, payment partially with bonus, and, revolving, for example), and other related information on the transaction.

**[0055]** Referring again to fig. 6, Issuer table 154c stores information on credit companies and credit cards available for the service. Specifically, as shown in fig. 9, Issuer table 154c has three areas. Area 154ca stores ranges of card numbers. Area 154cb stores company codes each of which identifies corresponding credit

company. Area 154cc stores names of credit companies. For example, fig. 9 shows that a credit card whose number lies within a range between "1525000000" and "1525059999" is issued by credit company "A".

**[0056]** Referring again to fig. 6, Merchant table 154d stores information on which cards and which methods of payment are available at a shop. Specifically, as shown in fig. 10, Merchant table 154d has four areas of 154da, 154db, 154dc, and 154dd. Area 154da stores codes each of which identifies each merchant. Area 154db stores merchant's names. Area 154dc stores codes each of which identifies a credit company, namely, issuer of a credit card available for the merchant, which is the same stored in Area 154cb shown in fig. 9. Area 154dd stores credit company's names. Area 154de stores payment methods in which a user can pay by a card. As an example, fig.10 shows that a user is able to arrange payment in a lump-sum, installments, or revolving system but neither payment with bonus nor payment partially with bonus is accepted. "L", "I", "B", "pB", and "R" represents lump sum, installments, bonus, bonus (partially), and revolving, respectively. Furthermore, detailed information such as the number of payment in installments and an available period in payment with bonus may be stored.

**[0057]** Direction server 160 will now be described referring to fig. 6. Direction server 160 may be a personal computer or a workstation, including a CPU 161, ROM 162, RAM 163, hard drive 164, and LAN interface 165. Further, Payment server 150 includes an input device such as a keyboard and Cathode-ray Tube (CRT) or Liquid Crystal Display (LCD). Detailed description of these devices is omitted.

**[0058]** LAN interface 165 is used for exchange of data between Network interface 170 and Payment server 150 connected to the LAN. CPU 161 performs arrhythmic computation as well controls each unit of Direction server 160. ROM 152 stores programs to be read out and executed by CPU 161. CPU uses RAM 163 as a work area. Hard drive 164 stores application programs and data to be read out and executed by CPU 161, to control each unit for provision of the electronic payment service. In addition, Hard drive 164 stores a mail box 164a used for the electronic transaction service. To be more specific, Mail box 164a includes mailboxes each corresponding to an e-mail account of Portable device 14.

**[0059]** Upon receipt of a request from Payment server 150, CPU 161 generates and stores e-mail into a mail box assigned to each Portable device 14 in Mail box 164a and sends a reception message to the Portable terminal 14 having an address indicated by the request. Upon receipt of the reception message, Portable device 14 accesses Mailbox 164a via Mobile communication network to obtain e-mails for Portable device 14. Namely, Direction server 160 a function as a mail server with features including sending a reception message.

## B. Operations of the system

### B-1. Overall sequence of the operations

**[0060]** An outline of sequence of operations carried out in this electronic payment system will now be described.

**[0061]** Fig. 11 is a sequence flowchart showing an outline of sequence of operations in which a user of Portable device 14 conducts a transaction (purchases goods) at a shop at which POS terminal 11 and Mobile terminal 17 are installed and obtains this electronic payment service for payment using Portable device 14.

**[0062]** As shown in fig. 11, firstly, a clerk inputs information on a transaction including a merchandise name, quantity, price, tax into POS terminal 11 at a shop. If a purchaser wants to pay using this electronic payment service, the purchaser operates his/her Portable device 14 to execute an application program for the electronic payment. And an input screen for a user ID and a password to be used for authentication is displayed on a display of Portable device 14.

**[0063]** The purchaser (the user of Portable device 14) operates ten-key pad or the like, to input a user ID and a password. Portable device 14 checks the user ID and password against those stored in UIM 18, to authenticate the user (step S1).

**[0064]** If the authentication failed, Portable device 14 notifies the user that the user is not a right person and thus rejected before carrying out error processing, for example, terminating the processing. If the authentication is completed, Portable device 14 sends the user ID stored in UIM 18 to Mobile terminal 17 by short-range wireless communication. The user ID is transferred from Mobile terminal 17 to POS terminal 11 (step S2). In addition, Portable device 14 stores the authentication result representing authenticity of the user into Storage area 233 of UIM18. It is noted that Mobile terminal 17 is omitted in fig. 1, for sake of simplicity. But in reality data is exchanged via Mobile terminal 17 between POS terminal 11 and Portable device 14.

**[0065]** Upon receipt of a user ID sent from portable device 14 via Mobile terminal 17, POS terminal 11 sends to Payment gateway 15 via Communication network 10 transaction information, the user ID, and a request for transaction number including information to identify the shop (merchant), which is inputted by a clerk (step S3). Upon receipt of the request sent from POS terminal, Payment gateway 15 stores the transaction information included in the request into Transaction table 154b and adds a transaction number to the transaction information to send back to POS terminal 11 via Communication network 10 (step S4).

**[0066]** Further, Payment gateway 15 sends an e-mail including commands for direction of payment to Portable device 14 indicated by the user ID included in the request (step S5). Upon receipt of the e-mail sent from Payment gateway 15 via Mobile communication system

12, Portable device 14 executes an application for payment according to the commands included in the e-mail.

**[0067]** Specifically, the authentication result and the device ID both stored in UIM 18 are transmitted to Payment gateway 15 via Mobile communication network 12, to make a request for proceeding payment processing (step S6). Therefore, the user need not do complicated procedures for payment, for example inputting information on the transaction which is often bothersome for a user. In this system a request for proceeding payment processing is sent to Payment gateway 15 automatically after completion of the authenticity.

**[0068]** Upon receipt of the authentication result and the request including the device ID both sent from Portable device 14 via Mobile communication network 12, Payment gateway 15 confirms authenticity of the user through the result. Next, Payment gateway 15 authenticates the Portable device 14 by checking the device ID (step S7). Specifically, Payment gateway 15 checks the device ID sent from Portable device 14 against a device ID stored correspondingly to the user ID in User table 154a. If the two IDs coincide, authenticity of Portable device 14 is established. Otherwise Payment Gateway 15 stops payment processing.

**[0069]** If the authenticity of Portable device 14 is established, Payment gateway 15 sends to Portable device 14 via Mobile communication network 12 transaction details including name of goods, quantity, and price and information on possible payment methods (step S8). Upon receipt of a payment method and a confirmation from Portable device 14 (step S9), Payment gateway 15 retrieves transaction information from Transaction table 154b and a credit card number and its expiration date from User table 154a. Next, Payment gateway 15 sends to Credit server 13 via Payment network 16 a request for credit including information on the merchant and the payment method along with the retrieved transaction information (step S10).

**[0070]** Upon receipt of the request, Credit server 13 checks the credit card number and its expiration date, to determine whether to conduct the payment processing. If the credit card number and the expiration date are proper, Credit server 13 carries out payment processing (step S11) and sends a completion report to Payment gateway 15 via Payment network 15 (step S12). This report is transferred from Payment gateway 15 to POS terminal 11 via Communication network 10 and to Portable device 14 via Mobile communication network 12 (step S13 and step S14, respectively). B-2. Operations of portable device

**[0071]** It will now be described that processing carried out by Portable device 14 when a user obtains the electronic payment service. As shown in fig. 12, if a user wants to use the service using his/her Portable device 14 when purchasing goods at a shop, the user inputs with Input device 330 a direction for Portable device to execute an application for payment. Control unit 310 of Portable device 14 displays credit cards available for the

user on a display.

**[0072]** An example of a screen for selection of a credit card displayed on a display of Portable device 14 is shown in fig.13. This screen shows a list of credit cards registered in advance by the user at a provider of the service. When the user operates Input device 330 to select a check box and clicks an "OK" button, a credit card for use in the payment is determined.

**[0073]** After selection of a credit card, Control unit 310 displays an input screen for a user ID and a password on the display. When the user inputs a user ID and a password, Control unit 310 authenticates the user by the inputted user ID and password (step Sa3). Specifically, Control unit 310 compares a user ID and a password each corresponding to the selected credit card stored in Storage area 233 in EEPROM of UIM 18 with the inputted user ID and password. If the two user IDs and two passwords coincide, Control unit 310 confirms authenticity of the user. If not, it confirms inauthenticity. If the authenticity is confirmed (step Sa3 "NO"), Control unit 310 carries out error processing (step Sa4) for example, displays an error message on the display. If the authenticity is confirmed (step S3 "YES"), Control unit 310 stores the authentication result (authenticity) into Storage area 233 (step Sa5) and outputs the user ID stored in Storage area 233 to Radio interface 370 to transmit to Mobile terminal 17 (step Sa6). Then Control unit 310 terminates processing.

**[0074]** It is noted that when storing the authentication result into Storage area 233, Control unit 310 may write an expiration time of the authentication result, which is an hour, for example. After the expiration, Control unit 310 deletes the authentication result.

**[0075]** As a result, a user ID is sent from Portable device 14 to Mobile terminal 17 and subsequently a request for payment is sent from POS terminal to Payment gateway 15 (step S3 in fig. 11). Next, an e-mail including commands to execute an application for payment (step S5 in fig. 11) is transmitted from Payment gateway 15 to Portable device 14.

**[0076]** It will now be described that operations of Portable device 14 after reception of the e-mail sent from Payment gateway 15 referring to fig.14. Firstly, Control unit 310 checks whether an e-mail is received (step Sb1).

**[0077]** If Portable device 14 receives any e-mails, Control unit 310 terminates processing. If Portable device receives e-mail, Control unit 310 determines whether the e-mail is sent from Payment gateway 15 and checks whether the e-mail contains predetermined commands referring to the content of the e-mail (step Sb2).

**[0078]** If a sender of the e-mail is not Payment gateway 15 or the e-mail does not contain predetermined commands, Control unit 310 terminates the processing. If the sender is Payment gateway 15 and the e-mail contains predetermined commands, Control unit 310 executes an application for payment (step Sb3) before ter-

mination.

**[0079]** Control unit 310 repeats the above series of processes periodically so that the application for payment is executed automatically when receiving an e-mail including the commands.

**[0080]** It will now be described that operations of Portable device 14 after execution of the application referring to fig. 15.

**[0081]** Firstly, Control unit 310 reads out from Storage area 233 an address such as Uniform Resource Locator (URL), to access Payment gateway 15 via Mobile communication network 12 (step Sc1). To ensure security, Secure Socket Layer (SSL) is used for data exchange between Portable device 14 and Payment gateway 15.

**[0082]** To be more specific, when sending a request for access to Payment gateway 15, Portable device 14 requests transmission of an electronic certificate issued by a Certificate Authority (CA) which is not shown in the figure. In response to the request, Payment gateway 15 sends the certificate to be confirmed by Portable device 14. Therefore, Portable device 14 is able to check authenticity of Payment gateway 15, thereby avoiding a danger of communication with an unauthorized server posing as an authorized server. After confirmation of authenticity of Payment gateway 15, data exchange starts. Needless to say, SSL is applied for such data exchange. Since SSL has become a common technique, detailed description is omitted.

**[0083]** After establishment of the connection between Portable device 14 and Payment gateway 15, Portable device 14 retrieves an authentication result (authenticity), a user ID, and a device ID from Storage area 233. Next, Portable device 14 transmits a request for authentication of the device 14 to Payment gateway 15 via Mobile communication network 12 to request including the retrieved user ID and device ID (step Sc2). At the same time, Control unit 310 measures time (step Sc3). If Portable device 14 does not receive information from Payment gateway 15 in response to the transmission after predetermined time (two minutes, for example), Control unit 310 terminates this processing and performs time-out processing, for example, displaying a message notifying to a user that this payment processing is aborted and must be carried out from the beginning.

**[0084]** As described before, when Portable device 14 sends an authentication result, a user ID, and a device ID to Payment gateway 15, Payment gateway 15 authenticates confirms the authenticity of the user and device 14. If the authenticity is confirmed, detailed transaction information is sent to Portable device (step S7 and step S8 of fig.11).

**[0085]** When authenticity is confirmed and thus information on transaction details (name of goods, quantity, price, tax, merchant, for example) is transmitted from Payment gateway 15, Control unit 310 displays the transaction details on the display (step Sc4) to be checked by the user.

**[0086]** Fig.16 shows an example of a screen on which



the transaction details is displayed. As shown therein, a name of merchant (shop), a total amount to be paid by the user, and buttons for direction. A user selects one of the buttons of "Agree" and "Not agree" for proceeding or stop paying, respectively. Control unit 310 determines which buttons is selected, in other words, whether the user agrees with this transaction (step Sc5).

**[0087]** If "Not agree" is selected (step Sc5 "NO"), Control unit 310 stops payment processing (step Sc6). If "Agree" is selected (step Sc5 "YES"), Control unit 310 transmits request for proceeding payment to Payment gateway 15 via Mobile communication network 12 (step Sc7).

**[0088]** In response to the request for proceeding payment, information on payment methods is transmitted from Payment gateway 15 via Mobile communication network 12, (step Sc9 in fig.11). Upon receipt of the information on payment methods, Control unit 310 displays a list of available payment methods on the display (step Sc8), one of which is to be selected by the user. Fig.17 shows an example of a screen on which the list is displayed. As shown therein, check-boxes each corresponding to each payment method are displayed. A user selects a check-box and "OK" button, to determine a payment method the user would like.

**[0089]** After the determination, Control unit 310 transmits to Payment gateway 15 via Mobile communication network 12 information for identifying the determined payment method (step Sc9). Upon receipt of the information of payment method, Payment gateway 15 sends a request for credit to Credit server 13. Subsequently, Payment gateway 15 sends a completion message to Portable device 14. Upon receipt of the message, Control unit 310 displays a message such as "Payment has now been completed." on the display.

#### B-3. Operations of POS terminal 11

**[0090]** It will now be described that operations carried out in POS terminal 11 referring to fig. 18. When a user conducts a financial transaction namely, buys goods at a shop, a clerk inputs transaction information including name of goods, quantity, price, and tax into POS terminal (step Sd1) to store the information into storage areas. Control unit then 710 determines whether a user wants to use this electronic payment service (step Sd2).

**[0091]** If the user does not want to use this service, or the user pays in cash (step Sd2 "NO"), Control unit 710 performs processing similarly to a general POS terminal (step Sd3). If the user wants to use the service, in other words, the user inputs a request of this service to POS terminal, Control unit 710 accesses Mobile terminal 17 via Interface 740, to determine whether a user ID is received (step Sd4).

**[0092]** If Mobile terminal 17 has not yet received a user ID sent from Portable device 14 using a short-range radio communication, Control unit 710 repeats accessing periodically until Mobile terminal 17 receives a user ID.

When Mobile terminal 17 has received a user ID, Control unit 710 obtains the user ID via Interface 740. Next, Control unit sends to Payment gateway 15 via Communication network 10 a request for transaction number including the transaction information, the merchant information, and the user ID (step Sd5).

**[0093]** Transaction number is transmitted from Payment gateway 15 to POS terminal 11, in response to the request (step S4 in fig.11). Upon receipt of the transaction number from Payment gateway 15, Control unit 710 stores the received transaction number in relation with the transaction information stored in POS terminal earlier (step Sd6).

**[0094]** After that, Control unit 710 waits for a completion message sent from Payment gateway 15. When receiving a completion message after data exchange between Portable device 14 and Payment gateway 15, Control unit 710 stores the completion message in relation with the transaction information and transaction number (step Sd7) and finally prints out a receipt for the transaction.

#### B-4. Operations of Payment gateway 15

**[0095]** It will now be described that operations performed in Payment gateway 15 referring to fig. 19. Upon receipt of a request for transaction number from POS terminal 11 (step Se1), CPU 151 of Payment server 150 issues a transaction number and sends it to POS terminal 11 via Communication network 10 (step Se2). CPU 151 stores the transaction information, the merchant information, the transaction number, and the date and time included in the request for transaction number into Transaction table 154b (step Se3).

**[0096]** Next, CPU 151 sends the user ID included in the request for transaction number to Direction server 160 (step Se4). Upon receipt of the user ID sent from Payment server 150, CPU 161 of Direction server 160 generates and stores into a mailbox 164a of the user an e-mail including commands for execution of an application for proceeding payment processing stored and executed in Portable device 14 (step Se5). Next, CPU 161 sends a reception message to Portable device 14 identified by the user ID. When Portable device 14 sends, in response to the message, a request for the e-mail to Direction server 160, CPU 161 sends the e-mail to Portable device 14 (step Se7).

**[0097]** Upon receipt of the e-mail, Portable device 14 executes the application to make a request for connection with Payment server. CPU 151 establishes a connection by using SSL (step Se8). After establishment of the connection, Portable device 14 sends the User ID, authentication result (authenticity of the user), and the device ID to Payment server 150. Payment server 150 checks the authentication result and next authenticates Portable device 14 on the basis of the device ID (step Se9). Specifically, CPU 151 compares the device ID sent from Portable device 14 with a device ID stored in

relation with the user ID in User table 154a. If the two device IDs coincide, CPU 151 determines authenticity of the device 14 (step Se10).

**[0098]** If authenticity of the device 14 is not confirmed, namely, the two device IDs do not coincide, CPU 151 sends an error message to Portable device 14 and carries out error processing, for example, stops processing (step Se11). If the authenticity is confirmed, CPU 151 reads out information including transaction details and merchant information stored in Transaction table 154b in step Se3, to send to Portable device 14 via Mobile communication network 12 (step Se12).

**[0099]** Upon receipt of the above information, Portable device 14 urges the user to confirm the transaction details (step Sc4 and Sc5 in fig.15). If the user agrees with the transaction, a confirmation is transmitted to Payment gateway 15. If the user does not agree, nothing is transmitted. CPU 151 determines whether the confirmation is received within a predetermined time from transmission of the information to Portable device 14 (step Se13). If the confirmation is not received within the time, CPU 151 carries out error processing, for example, stops processing (step Se11).

**[0100]** If the confirmation is received within the time, CPU 151 determines payment methods available for the transaction and sends information on the payment methods to Portable device 14 via Communication network 12 so that the user can select one among the methods (step Se14). Specifically, CPU 151 refers to User table 154a of fig.7 to specify a credit card number corresponding to the user ID sent from Portable device 14. When the card number is specified, CPU151 refers to Issuer table 154c shown in fig.9 to specify an issuer of the card.

**[0101]** More specifically, CPU 151 determines within which range the card number lies in 154ca to specify the company. After the company is specified, CPU 151 refers to Merchant table 154d (cf. fig.10), to determine payment methods on the basis of the company and the merchant information included in the request for transaction number sent from POS terminal 11. Suppose that Merchant table 154d shown in fig.10 is stored in HDD 154, that a company "A" whose code number is "2a11111", and that a merchant "A" whose code number is "1111111111". CPU would determine that the user can pay in lump sum, installments, and revolving system and cannot pay with bonus and partially with bonus.

**[0102]** After transmission of the payment methods to Portable device 14, Portable device 14 sends a payment method to Payment gateway 15. Upon receipt of the payment method, CPU 151 make a request for credit with data in a predetermined format containing the credit card number, the expiration date, the transaction details (name of goods, quantity, price), the merchant information, the payment method, and other related information, to transmit to Credit server 13 via Payment network 16 (step Se15). It is possible that the predetermined format is conventional one used for data exchange between a

conventional credit server and a payment device. Finally, CPU 151 terminates processing of the transaction.

**[0103]** After transmission of the request for credit, CPU 151 waits until a completion message notifying a completion of credit sent from Credit server 13 is received. Upon receipt of the completion message, CPU 151 forwards the completion message to POS terminal via Communication network 10 and to Portable device 14 via Mobile communication network 12 (step Se16).

**[0104]** As described above, by using the electronic financial transaction service in which a method for electronic payment based on this embodiment is applied, a purchaser don't have to hand his/her credit card in payment to a third-party including a clerk. Furthermore, a purchaser doesn't have to carry a credit card for shopping. Therefore, the danger of card information leakage and possible abuse of cards decreases drastically.

**[0105]** Also, Portable device 14 authenticates a user at payment, if a third party or other improper person obtains Portable device 14 improperly, the person cannot pay on credit using Portable device 14, thereby preventing the danger of abuse of Portable device 14.

**[0106]** Since information necessary for payment including a card number and an expiration date is stored in Payment gateway 15, not in Portable device14 or UIM 18, if Portable device 14 or UIM is stolen or improperly obtained, there is little danger of card information leakage from Portable device 14 or UIM. Further, sensitive information such as a card number and expiration date is managed by Payment gateway 15 and cannot provided to public networks such as Mobile communication network 12 and Communication network 10. Therefore, the danger of wiretapping such sensitive information via a public network is reduced.

**[0107]** In this embodiment, sensitive information necessary for payment is stored in both Portable device 14 and detachable UIM 18. Thus, a user is able to detach UIM from Portable device 14 when it is not required, to prevent the danger of information leakage. Even if such information is leaked, an improper user cannot pay using the device 14 since Payment gateway 15 authenticates Portable device 14 as well a user. In other words, both a user and a portable device are checked.

**[0108]** In this embodiment, Portable device 14 sends a request for payment to Payment gateway 15 via POS terminal 11; and upon receipt of the request, Payment gateway 15 sends an e-mail to Portable device 14 to obtain a confirmation of transaction from the user. Thus, even if an improper person obtains a user ID and intends to pay using another portable device in combination with the obtained user ID, needless to say, it is the only authorized Portable device 14 that receives the e-mail. Therefore, the improper person does not receive the e-mail and thus is not able to conduct a transaction using the obtained user ID. Namely, the danger of leakage and abuse of a user ID is restricted.

**[0109]** In the prior art, Payment gateway 15 may sends to Portable device 14 an e-mail including a mes-

sage like "Please connect with the Payment server for payment", to obtain an instruction of payment from the user. Namely, a user operates Portable device 14 one after another referring to messages. However, in this way, it is often the case that a user forgets operation procedures, or carries out wrong operations. This will cause a problem that a transaction stops or remains uncompleted. On the other hand, in this embodiment, Portable device 14 "automatically" executes an application for payment according to commands included in the received e-mail, thereby preventing suspension or stop of payment due to a misoperation made by a user.

**[0110]** Further, a user is able to register a plurality of credit cards used for the electronic financial transaction service. Specifically, each password is stored in UIM correspondingly to each credit card. As a result, a user is able to select credit cards for use in its appropriate way by inputting each user ID, for example.

**[0111]** It is noted that a method for payment based on the present embodiment has advantages in a merchant as well in a user described. That is, although a request for transaction number sent from POS terminal 11 to Payment gateway 15 does not contain a card number and expiration date which are sent from a POS terminal 1 to a credit server 4 as shown in fig.21 in a conventional system, Payment gateway 15 does contain transaction details and a merchant information used in a conventional system. Therefore, a merchant can participate in this transaction service simply by making, at POS terminal 11, a data including information necessary for a transaction in a conventional format and sending it to Payment gateway 15. This provides benefits to a merchant because the merchant does not have to install a new POS terminal.

**[0112]** Further, Credit server 13 performs processing in the conventional way because Payment gateway sends a request for credit in a conventional format to Credit sever 13. This provides convenience to a credit company because the company does not have to install a new server.

**[0113]** Since Transaction table 154b stores transaction details conducted by a user, it is possible that Payment gateway collectively manages electronic records on payments (so called electronic receipt). In a conventional credit payment system, generally, a merchant issues a payment voucher on which transaction details are entered and mails it to a depository for managing payment vouchers provided by an issuer. However in this embodiment, Payment gateway 15 is able to manage payment information collectively, thus the cost of issuing and managing payment vouchers can be reduced.

#### C. Modification of the first embodiment

**[0114]** The present invention is susceptible to many modifications as follows.

**[0115]** In the above embodiment, Storage area 233 of

UIM 18 stores a device ID for identifying Portable device 14 used for the electronic financial transaction service. Portable device 14 transmits the device ID to Payment gateway 15 and Payment gateway 15 compares the transmitted device ID and a device ID stored in User table 154a for authentication of the device 14. However, it is possible that the authentication is carried out using SSL, for example. In this case, Portable device 14 sends to Payment gateway 15 a digital certificate for client authentication which has been registered at Certificate Authority (CA). Payment gateway 15 authenticates a device using the certificate.

**[0116]** In the above embodiment, Portable device 14 urges a user to input a user ID and a password for a user authentication. However, it is possible to use biometrics such as fingerprint, iris scan, or combined voice and face patterns for the authentication.

**[0117]** In the above embodiment, a user ID is transmitted to POS terminal 11 via Mobile terminal 17 when the user conducts a financial transaction at a shop. However, the present invention is not only applied to such an actual shop but can be applied to an online shopping via Internet, for example. An example of such applications is shown in fig.20 in which a Web server 130 is provided instead of POS terminal 11 and Mobile terminal 17.

**[0118]** Web server 130, so called an online shop server, receives a request for purchase from terminals including a personal computer and a mobile phone with features of Web browsing. To be more specific, when user selects or inputs a URL for connection with the Web server 130, a web page for selection of goods is displayed on the terminal. The user makes a request for purchase seeing the page and sends it to Web server 130. A method of the present invention can be applied to procedures used for such a system for payment.

**[0119]** Specifically, firstly Portable device 14 authenticates a user. If authenticity is confirmed, a user ID is transmitted from Portable device 14 to Web server 130 via Mobile communication network 12 and a Communication network 10A. Upon receipt of the user ID, Web server 130, instead of POS terminal 11, sends a request for transaction number including transaction information, the user ID, and merchant information. Next, payment processing is performed among Portable device 14, Payment gateway 15, and Credit server 13 similarly to the first embodiment. After completion of the payment processing, a completion message is sent from Payment gateway 15 to Web server 130 via Communication network 10A.

**[0120]** In the first embodiment, transaction information conducted by a user is stored in Transaction table 154b. Thus, it is possible that a user checks transaction information of the user with Portable device 14, personal computer, or a mobile phone with features including Web browsing. Specifically, when receiving a request for the check from a terminal via Internet, Payment gateway 15 retrieves the transaction information from table

154b and transforms it into a HTML format for transmission to the terminal.

**[0121]** In the first embodiment, information necessary for payment is stored in EEPROM 230 of detachable UIM 18 to be read out by Control unit 310. However, it is possible that a memory such as an EEPROM incorporated into Portable device 14 stores such information instead of UIM 18.

**[0122]** Further, a module such as an IC chip having high resistance to tampering in which information for payment including a user ID and a password is stored and read out by Control unit can be used instead of UIM 18. Needless to say, such a module can be mounted detachably.

**[0123]** In the first embodiment, a purchaser uses Portable device capable of communicating with Payment gateway by radio via Mobile communication network 12 for electronic payment. However, a personal computer can be used as a terminal for payment in the system, for example. Specifically, such a computer is connected with Internet via a fix telephone network and has an input device, display, and other devices necessary for the electronic payment.

**[0124]** In the first embodiment, a user ID is transmitted via Mobile terminal 17 to POS terminal 11. However, if POS terminal 11 features Bluetooth for data exchange, Portable device 14 may transmit directly to POS terminal 11. It is possible that a user ID can be transmitted from Portable device 14 to POS terminal 11 using other communication methods.

**[0125]** In the first embodiment, data exchange is carried out between POS terminal 11 and Payment gateway 15 via Communication network 10. It is possible that Mobile terminal 17 is connected with Communication network 10 to exchange data between POS terminal 11 and Payment gateway via Mobile terminal 17 and Communication network 10.

**[0126]** In the first embodiment it is possible that if a user uses two or more credit cards for the electronic transaction system, a user ID or a password is assigned to the cards. In this case, before selection of credit card (step Sa1 of fig.12), a user may input the user ID and a password before Portable device 14 authenticates the user. After the authentication, credit cards corresponding to the user ID and the password are displayed. Then the user selects one among the cards.

**[0127]** In the first embodiment, Control unit 310 executes application programs in data exchange between POS terminal and Payment gateway 11 and authentication of a user and a device 14. It is possible that a storage medium such as a CD-ROM or a floppy disk in which such programs for the electronic payment is stored is provided to users. The programs may be provided via Internet.

(Second embodiment)

**[0128]** A second embodiment of the present invention

will now be described referring to the drawings.

#### D. Configuration of the system

##### 5 D-1. Overall configuration

**[0129]** Fig.22 shows an electronic payment system using a method for electronic paying based on the second embodiment of the present invention.

10 **[0130]** As shown, Electronic payment system 15A has a POS terminal 11A and Credit server 13A. Payment gateway 15A is connected with Terminal 11A and Credit server 13A via a dedicated line (not shown) for data exchange. Terminal 11A and Payment gateway may be  
15 connected via a public network. Payment gateway 15A is also connected to Portable device 14A.

##### D-2. POS terminal

20 **[0131]** POS terminal 11A has a storage unit such as a hard drive and an input device such as a keyboard, a mouse or a card reader, in addition to Display, Control unit including a CPU, ROM, RAM, and a communication interface same as POS terminal 11 of the first embodi-  
25 ment. Fig.23 shows an example of information stored in the storage. As shown, "issuer code", "payment method", and "merchant code" are stored correspondingly. The "issuer code" identifies an issuer (credit card company) of a credit card by which a user can pay at a shop where POS terminal 11A is installed. The "payment  
30 method" is a payment method available for a purchaser at the shop such as a lump sum, installments, or with bonus. The "merchant code" identifies a shop of a merchant.

##### D-3. Credit server

**[0132]** Credit server 13A includes a CPU, a RAM, a ROM, an input device such as keyboard or mouse, a display, a storage unit such as a hard drive, and a communication interface such as a modem.

**[0133]** Figs.24A through 24D shows an example of information stored in the storage unit of Credit server 13A. Fig.24A shows information relating to POS terminal 11A. Specifically, "merchant code for credit", "payment  
45 method", and "merchant code" are stored correspondingly. The "merchant code for credit" allows an issuer (credit company) to identify a merchant or a shop with which a transaction is conducted. It may be an ID number of a shop or of POS terminal 11A.

50 **[0134]** Fig.24B shows information relating to users of credit cards. Specifically, "user name", "user address", "card number", "expiration", and "credit limit" are stored correspondingly.

55 **[0135]** Fig.24C shows an example of histories of transactions conducted by users. "Card number", "decryption key", "type", "date", "transaction number", "merchant number", "amount", "payment method", and

"merchandise code" are stored correspondingly. Information stored in "card number" in fig.24C is same as stored in fig.24B. In fig.24C it is permitted that a card number is stored for several times because a user may conduct transactions several time with the card.

**[0136]** The "decryption key" is used for decrypting an encrypted card number which is sent from Payment gateway 15A to POS terminal 11A. The "type" represents types of transactions. The "date" represents date of payment. The "transaction number" is a serial number each assigned to a transaction. The "merchant number" identifies a shop of a merchant with which a transaction is conducted. The "amount" represents a price of merchandise (possibly including tax). The "payment method" represents payment in a lump sum, or installments, for example. The "merchandise code" identifies merchandise transacted.

**[0137]** Fig.24D shows an example of information on transaction details conducted at each shop. Specifically, "merchant number", "type", "date", "sales", "card number", and "payment method" are stored. Information stored in "merchant number", "type", and "date" is same as stored in fig. 24C. The "sales" represents a price of merchandise, which is same as "amount" in fig.24C if tax is not included in the "amount". The "payment method" represents a payment method selected by a user.

#### D-4. Portable device

**[0138]** Portable device 14A is, for example, a cellular phone capable of carrying out data communications. To be more specific, it may use (Personal Digital Cellular (PDC) of Time Division Multiple Access (TDMA), Code Division Multiple Access (CDMA), General Packet Radio Service (GPRS), or any other schemes for data communication. Further, Third generation (3G) scheme such as IMT-2000 may be applied. Needless to say, PDA and other portable devices can be applied.

#### D-5. Payment gateway

**[0139]** Payment gateway 15A includes a CPU, a RAM, a ROM, an input device such as a keyboard or a mouse, a display, a storage unit such as a hard drive, and a communication interface such as a modem. Functionally, Payment gateway 15A comprises a receiving unit 101, a checking unit 102, encryption unit 103, a number transmitting unit 104, a key generation unit 105, a key transmitting unit 106, a transmitting/receiving unit 107, a notifying unit 108, and a storage unit 109.

**[0140]** Transaction unit 101 receives a user ID to identify a user assigned to the user in advance and a merchant code to identify a shop, which is sent from POS terminal 11A where the user conducts a transaction. Upon receipt of a user ID and a merchant code, Receiving unit 101 transfers the user ID and the merchant code to Checking unit 102 and Transmitting/receiving unit 107.

**[0141]** Checking unit 102 retrieves a card number of

a user from Storage unit 109 on the basis of a user ID received by Receiving unit 101. Specifically, Checking unit 102 retrieves a from Storage unit 109 a card number and an issuer code corresponding to a user ID received by Receiving unit 101. Checking unit 102 outputs the card number, the issuer code, and the merchant code to Encryption unit 103. If the user ID is not found or the expiration date has passed, Checking unit 102 outputs to Notifying unit 108 a message notifying failure of authentication.

**[0142]** Figs.25A and 25B show an example of information stored in Storage unit 109. As shown in Fig.25A, information relating to shops which participate in the electronic payment service provided by Payment gateway 15A is stored. To be more specific, a merchant codes and corresponding shop name.

**[0143]** Fig.25B shows an example of information relating to users. Specifically, user IDs and corresponding passwords, user names, phone numbers, e-mail addresses, terminal numbers, card numbers, issuer codes, and expirations are stored correspondingly. The password is used for authentication of a user.

**[0144]** The phone number is a telephone number of portable device 14A. The e-mail address is an e-mail address for Portable device 14A. The device number is, for example, a serial number assigned for each Mobile station 14A, which identifies Mobile station 14A. The card number is a number of a credit card by which a user pays. A user registers the card number to Payment gateway 15A in advance. The issuer code identifies an issuer of a card (credit company). The expiration represents an expiration date of the credit card.

**[0145]** Encryption unit 103 encrypts a card number obtained by Checking unit 102, to generate a "encrypted card number". Specifically, Checking unit 103 encrypts a card number, in a way that it can be decrypted using an encryption key generated by Key generating unit 105. Suppose that the decryption key is "0123", that the card number is "3456", and that the encryption calculation is an addition, the encrypted card number becomes "3579". In decryption, "0123" is subtracted from "3579" to be generated the card number "3456". Encryption unit 103 outputs to Key generating unit 105 a card number, its encrypted card number, and an issuer code. Further, Encryption unit 103 outputs to Number transmitting unit 104 the encrypted card number and the merchant code.

**[0146]** Number transmitting unit 104 transmits an encrypted card number made by Encryption unit 103 to POS terminal 11A specified by the merchant code obtained from Encryption unit 103.

**[0147]** Key generating unit 105 generates a decryption key used for decryption of a card number. In this embodiment, a card number is encrypted by Encryption unit 103 using a decryption key. It is possible that the decryption key is generated using both the decryption key and the card number. Key generating unit 105 outputs to Key transmitting unit 106 the encrypted card number, the decryption key, and the issuer code.

**[0148]** Key transmitting unit 106 transmits to Credit server 13A an encrypted key generated by Key generating unit 105. Specifically, Key transmitting unit 106 transmits, to Credit server by a credit company specified by the issuer code provided from Key generating unit 105, the encrypted card number and the decryption key.

**[0149]** When Receiving unit 101 receives a user ID, Transmitting/receiving unit 107 transmits to portable device 14A a confirmation e-mail including transaction details. If Portable device 14A does not reply to the e-mail, Transmitting/receiving unit 107 stops at least one of Checking unit 102, Encryption unit 103, Number transmitting unit 104, Key generating unit 105, and Key transmitting unit 106, to cancel the transaction conducted on the basis of the user ID.

**[0150]** To be more specific, Transmitting/receiving unit 107 retrieves from Storage unit 109 an e-mail address on the basis of the user ID provided from Receiving unit 101. Transmitting/receiving unit 107 then transmits a confirmation e-mail including transaction details to Portable device 14A specified by the e-mail address. Upon receipt of a reply e-mail from Portable device 14A, Transmitting/receiving unit 107 checks a password included in the reply e-mail against a password stored in Storage unit 109, to authenticate the user.

**[0151]** If Transmitting/receiving unit 107 does not receive a reply e-mail or the both passwords does not agree, Transmitting/receiving unit 107 stops at least one of Checking unit 102, Encryption unit 103, Number transmitting unit 104, Key generating unit 105, and Key transmitting unit 106, to cancel the transaction conducted on the basis of the user ID. A method for obtaining a confirmation from a user is not limited to the e-mail. For example, Transmitting/receiving unit 107 can transmit to Portable device 14A a reception message which is generally used for cellular phone. It is possible that, in the authentication of a user, Transmitting/receiving unit 107 uses, in addition to a password, information to identify Portable device 14A uniquely such as a device ID.

**[0152]** If Checking unit 102 does not find the credit card corresponding to the user ID in Storage unit 109, Notifying unit 108 notifies POS terminal 11A of failure of authentication.

#### E. Operations of the system

**[0153]** Detailed procedures for payment processing in an electronic financial transaction system based on the second embodiment will now be described referring to figs. 26 and 27.

**[0154]** As shown in fig.26, firstly, POS terminal 11A obtains a user ID from a user and transmits the user ID and a merchant code to Payment gateway 15A (step S01). Specifically, a user inputs a user ID with the input device of POS terminal, for example. POS terminal 11A may obtain the user ID from Portable device 14A. Receiving unit 101 receives the user ID and the merchant code (step S02). Next, Receiving unit 101 forwards the

user ID and the merchant code to Checking unit 102 and Transmitting/receiving unit 107.

**[0155]** Upon receipt of the user ID, Transmitting/receiving unit 107 sends a confirmation e-mail to Portable device 14A corresponding to the user ID (step S03). After the sending, Transmitting/receiving unit 107 is ready for receiving reply e-mail (step S04). If Transmitting/receiving unit 107 does not receive a reply e-mail or the both passwords does not agree, Transmitting/receiving unit 107 stops at least one of Checking unit 102, Encryption unit 103, Number transmitting unit 104, Key generating unit 105, and Key transmitting unit 106, to cancel the transaction conducted on the basis of the user ID (step S05).

**[0156]** When Transmitting/receiving unit 107 receives the reply e-mail, Checking unit 102 retrieves from Storage unit 109 a card number stored correspondingly to the user ID provided from Receiving unit 101 (step S06). It is noted that steps S03 and S04 can be omitted.

**[0157]** Checking unit 102 checks the card number retrieved from Storage unit 109 against the card number provided from Receiving unit 101 (step S07). If the user ID is not found in Storage unit 109 or the expiration date has passed, Checking unit 102 notifies Notifying unit 108 of failure of authentication.

**[0158]** Upon receipt of the message from send from Checking unit 102, Notifying unit 108 sends a message notifying POS terminal of failure of authentication (step S08). POS terminal 11A receives the message to be notified the user (step S09).

**[0159]** If the credit card number corresponding to the user ID is retrieved from Storage unit 109 in step S07, Checking unit 102 outputs the card number, the issuer code, and the merchant code to Encryption unit 103. When Encryption unit 103 receives the card number, the issuer code, and the merchant code, Key generating unit 105 generates a decryption key used for decryption of an encrypted card number (step S10). Key generating unit 105 outputs the key to Encryption unit 103 to obtain the card number and the issuer code. Next, Key generating unit 105 sends to Key transmitting unit 106 the card number and the issuer code along with the key.

**[0160]** Upon receipt of the decryption key from Key generating unit 105, Encryption unit 103 encrypts the card number in a way that the encrypted card number is decrypted with the decryption key (step S11). Next, Encryption unit 103 outputs the encrypted card number and the merchant code to Number transmitting unit 104.

**[0161]** Referring to fig.27, Number transmitting unit 104 transmits the encrypted card number to POS terminal 11A indicated by the merchant code (step S12). Key transmitting unit 106 transmits the encrypted card number and the key to Credit server 13A indicated by the issuer code (step S13). The encryption key may be generated for each user, or for each credit company. In case a common key is used as the decryption key for this system, Key transmitting unit 106 does not necessarily transmit the key to Credit server 13A more than

twice. But needless to say, when the key is updated, Key transmitting unit 106 transmits the updated key. Upon receipt of the encrypted card number and the decryption key, Credit server 13A stores the number and the key into a storage unit of Credit server 13A (step S14).

**[0162]** POS terminal 11A receives and stores into a storage unit of POS terminal 11A the encrypted card number (step S15). Next, POS terminal 11A makes a request for credit to transmit to Credit server 13A (step S16). Specifically, the request includes, a type, date, transaction number, merchant code for credit, amount, payment method, merchant code as described above, in addition to the encrypted card number.

**[0163]** Upon receipt of the request (step S17), Credit server 13A determines whether the request is accepted referring to the encrypted card number (step S18). Specifically, Credit server 13A checks the encrypted card number and the decryption key which has already been transmitted by Payment gateway 15A against the decryption key transmitted by POS terminal 11A. If both keys coincide, Credit server 13A decrypts the encrypted card number using corresponding decryption key which has already been received from Payment gateway 15A. If the encrypted card number is not found, Credit server 13A sends a message notifying a failure of authentication to POS terminal 11A to be provided to the user (step S19). POS terminal 11A receives the message (step S20). If the encrypted card number is found, Credit server 13A sends an allowance message (step S21). POS terminal 11A receives the message to be provided to the user.

**[0164]** A payment program 92 for making a computer to function as Payment gateway 15A and a storage medium 9 will now be described referring to fig.28. Fig.28 shows a functional structure of the storage medium. Storage media 9 is, for example, a magnetic disk, an optical disk including a CR-ROM, or a semiconductor memory.

**[0165]** As shown in fig.9, Storage medium 9 has a program area 91 and a data area 93. Data area stores a database 931 same as Storage unit 109 shown in fig.22.

**[0166]** Program area 91 stores Payment program 92. Payment program 92 includes a main module 921 for controlling the following modules, a module 922 for receiving transaction information, a module 923 for checking a card number, a module 924 for encrypting a card number, a module 925 for transmitting an encrypted card number, a module 926 for generating a decryption key, a module 927 for transmitting a decryption key, a module 928 for transmitting a confirmation message and receiving a reply message, and a module 929 for notifying a message of failure of authentication. These modules 922 through 929 have same functions as the Receiving unit 101, Checking unit 102, Encryption unit 103, Number transmitting unit 104, Key generating unit 105, Key transmitting unit 106, Transmitting/receiving unit 107, Notifying unit 108, respectively.

**[0167]** In the second embodiment, since the encrypt-

ed card number is transmitted from Payment gateway to POS terminal 11A and the encrypted card number is generated by Payment gateway 15A on the basis of a user ID transmitted from POS terminal, a merchant cannot obtain a card number. Therefore, security of transaction is ensured in this system. In other words, a user is able to send a card number safely to Payment gateway 15A to conduct a transaction. Payment gateway transmits a decryption key to Credit server 13A, thus Credit server 13A obtains a decryption key corresponding to the encrypted card number. Therefore, Credit server 13A is able to determine whether a request for credit should be accepted using an encrypted card number and corresponding decryption key. Furthermore, an encrypted card number is generated each time a transaction is conducted, thus a merchant can manage sales at the shop, not knowing a card number.

**[0168]** In this embodiment, when Payment gateway 15A does not receive a reply mail from Portable device 14A, payment processing related to the user ID is stopped. Therefore, if an authorized person obtains a user ID improperly, the person cannot conduct any transactions using the user ID.

**[0169]** If Payment gateway 102 cannot find a card number corresponding to a user ID, Payment gateway 102 transmits a message notifying failure of authentication to POS terminal 11A, thus a merchant and a user can recognize that the card is not available for the transaction.

## Claims

1. An electronic payment method comprising the steps of:

authenticating a user of a user terminal on the basis of user identification information inputted to said user terminal by said user, by said user terminal;  
 storing an authentication result of said user, by said user terminal, when said user terminal confirms authenticity of said user;  
 transmitting a user identification information stored beforehand in said user terminal to a merchant terminal when said user terminal confirms authenticity of said user, by said user terminal;  
 transmitting to payment device via a first communication network said user identification information and transaction information transmitted from said user terminal, by said merchant terminal;  
 receiving said user identification information and said transaction information transmitted from said merchant terminal, by said payment device;  
 identifying said user terminal on the basis of

said user identification information and transmitting commands for instructing transmission of said authentication result to said user terminal via a second communication network; transmitting authenticity of said user to said payment device via said second communication network if said user terminal stores authenticity of said user, by said user terminal; and performing payment processing on the basis of said transaction information upon receipt of said authenticity from said user terminal, by said payment device.

- 2. The method of claim 1, further comprising the steps of:

transmitting said transaction information to said user terminal via said second communication network upon receipt of said authenticity of said user from said user terminal, by said payment device;  
 receiving said transaction information transmitted from said payment device and notifying said user of said transaction information, to be checked by said user, by said user terminal; and  
 when said user inputs an instruction for proceeding payment processing to said user terminal, transmitting to said payment device a request for proceeding payment processing; and wherein upon receipt of said request, said payment device performs payment processing on the basis of said transaction information.

- 3. The method of claim 1, wherein said user terminal transmits to said payment device terminal identification information for identifying said user terminal along with said authentication result; said payment device authenticates said user terminal referring to said terminal identification information; and when authenticity of said user terminal is confirmed, said payment device performs payment processing on the basis of said transaction information.

- 4. The method of claim 1, wherein said second communication network is a mobile communication network and said user terminal is a mobile station.

- 5. The method of claim 1, wherein upon receipt of said authenticity from said user terminal, said payment device retrieves a card number and an expiration date on the basis of said user identification information and sends a request for credit including the card number and the expiration date to a credit server provided by a credit company.

- 6. An electronic payment method comprising the steps

of:

authenticating a user of a user terminal on the basis of user identification information inputted to said user terminal by said user, by said user terminal;  
 transmitting user identification information for identifying a user to a merchant terminal, by said user terminal, when said user terminal confirms authenticity of said user;  
 transmitting to a payment device via a first communication network said user identification information transmitted from said user terminal, by said merchant terminal;  
 receiving said user identification information from said merchant terminal, by said payment device;  
 identifying said user terminal referring to received user identification information and transmitting commands for executing an application for payment stored in said user terminal to identified user terminal via a second communication network, by said payment device;  
 upon receipt of said commands, executing said application to transmit a request for proceeding payment processing to said payment device via said second communication network, by said user; and  
 upon receipt of said request from said user terminal, performing a payment processing.

- 7. An electronic payment system having a payment device, a merchant terminal connected with said payment device via a first communication network, and a user terminal connected with said payment device via a second communication network **characterized in that:**

said user terminal authenticates a user of said user terminal on the basis of user identification information inputted to said user terminal by said user; if authenticity of said user is confirmed, stores authentication result; and transmits to said merchant terminal user identification information stored in said user terminal;  
 said merchant terminal transmits to said payment device via said first communication network said user identification information transmitted from said user terminal and transaction information;  
 said payment device identifies said user terminal on the basis of said user identification information transmitted from said merchant terminal and  
 transmits to said identified user terminal via said second communication network commands for instructing transmission of said au-



thentication result;  
 said user terminal transmits to said payment device via said second communication network according to said commands transmitted from said payment device when said user terminal stores said authentication result; and upon receipt of said authentication result from said user terminal, said payment device performs payment processing on the basis of said transaction information.

- 8. The system of claim 7, wherein after reception of said authentication result from said user terminal, said payment device transmits said transaction information to said user terminal via said second communication network;  
 said user terminal receives said transaction information from said payment device;  
 notifies said user of said transaction information to be checked by said user; and  
 if said user inputs to said user terminal an instruction of proceeding a payment processing, transmits a request for proceeding payment processing to said payment device via said first communication network; and  
 upon receipt of said request, said payment device performs payment processing.
- 9. The system of claim 8, wherein said user terminal transmits to said payment device terminal identification information for identifying said user terminal stored in said user terminal along with said authentication result; and  
 said payment device authenticates said user terminal on the basis of said terminal identification information;  
 if authenticity of said user terminal is confirmed, performs payment processing on the basis of said transaction information.
- 10. The system of claim 7, wherein a detachable storage medium for storing said user identification information is mounted to said user terminal; and when said user terminal confirms authenticity of said user on the basis of said user identification information, said user terminal transmits to said merchant terminal said user identification information stored in said storage medium.
- 11. The system of claim 7, wherein said second communication network is a mobile communication network and said user terminal is a mobile station.
- 12. The system of claim 7, wherein when receiving said authentication result from said user terminal, said payment device retrieves a card number and an expiration on the basis of said user identification information and sends a request for credit including said

card number and said expiration to a credit server managed by a credit company.

- 13. An electronic payment system having a payment device, a merchant terminal connected with said payment device via a first communication network, and a user terminal connected with said payment device via a second communication network **characterized in that:**

said user terminal authenticates a user on the basis of said user identification information inputted to said user terminal by said user;  
 if authenticity of said user is confirmed, transmits to said merchant terminal a user identification information for identifying said user;  
 said merchant terminal transfers said user identification information to said payment device via said first communication network;  
 said payment device identifies said user terminal on the basis of said user identification information and transmits to said identified user terminal via said second communication network commands for executing an application for payment stored in the user terminal;  
 said user terminal executes said application according to said commands and transmits a request for proceeding payment processing to said payment device via said second communication network; and  
 said payment device performs said payment processing according to said request.

- 14. A user terminal used for an electronic payment system having a payment device connected with a first and a second communication network and a merchant terminal connected with said payment device via a first communication network, comprising:

an authenticating means for authenticating a user of said communication terminal on the basis of a user identification information inputted to said user terminal by said user;  
 a storing means for storing an authentication result when authenticity of said user is confirmed by said authenticating means;  
 a storage medium for storing said user identification information;  
 a first transmitting means for transmitting, when authenticity of said user is confirmed, said user identification information stored in said storage means to said merchant terminal so that said merchant terminal transmits to said payment device a request for payment processing including said user identification information;  
 a receiving means for receiving commands for instructing transmission of said authentication result which is transmitted, in response to said

request for payment, from said payment device via said second communication network; and a second transmitting means for transmitting, upon receipt of said commands, a request for proceeding said payment processing including said authentication result to said payment device via said second communication network.

15. The user terminal of claim 14, wherein said storage medium further stores a terminal identification information for identifying said user terminal; and said second transmitting means transmits, along with said authentication results, said terminal identification information stored in said storage medium to said payment device via said second communication network.

16. The user terminal of claims 14 or 15, wherein said storage medium is mounted detachably to said user terminal; and said first transmitting means transmits to said merchant terminal said user identification information stored in said storage medium, when authenticity of said user is confirmed by said authenticating means on the basis of said user identification information.

17. The user terminal of claim 14 or 15, wherein said second communication network is a mobile communication network; and said user terminal further comprises a radio communication means for exchanging data via said mobile communication network.

18. A user terminal used for an electronic payment system having a payment device connected with a first and a second communication network and a merchant terminal connected with said payment device via a first communication network, comprising:

an authenticating means for authenticating a user of said communication terminal on the basis of a user identification information inputted to said user terminal by said user; a first transmitting means for transmitting, when authenticity of said user is confirmed, said user identification information stored in said storage means to said merchant terminal so that said merchant terminal transmits to said payment device a request for payment processing including said user identification information a receiving means for receiving commands for executing an application for payment which is transmitted from said payment device via said second communication network; and a second transmitting means for executing said application for payment stored in said user terminal and transmitting, according to said application, a request for proceeding payment

processing to said payment device via said second communication network.

19. A payment device comprising:

a receiver for receiving a request for payment including a user identification information for identifying a user of a user terminal from a merchant terminal via a first communication network; an identifying means for identifying said user terminal among registered user terminal on the basis of said received user identification information; a transmitter for transmitting to said identified user terminal via a second communication network commands for executing an application for payment stored in the user terminal; and a processing means for performing a payment processing on the basis of a request sent from the user terminal via said second communication network after transmission of said commands.

20. A computer program product for making a computer incorporated into a communication terminal used for an electronic payment system having a payment device connected with a first and a second communication network and a merchant terminal connected with said payment device via a first communication network to execute the steps of:

authenticating a user of said communication terminal on the basis of a user identification information inputted to said user terminal by said user; storing an authentication result into a storage means when authenticity of said user is confirmed by said authenticating means; transmitting, when authenticity of said user is confirmed, said user identification information stored in said storage means to said merchant terminal so that said merchant terminal transmits to said payment device a request for payment processing including said user identification information; receiving commands for instructing transmission of said authentication result which is transmitted, in response to said request for payment, from said payment device via said second communication network; and transmitting, upon receipt of said commands, a request for proceeding said payment processing including said authentication result to said payment device via said second communication network.

21. A storage medium for storing a computer program product for making a computer incorporated into a

communication terminal used for an electronic payment system having a payment device connected with a first and a second communication network and a merchant terminal connected with said payment device via a first communication network to execute the steps of:

authenticating a user of said communication terminal on the basis of a user identification information inputted to said user terminal by said user; storing an authentication result into a storage means when authenticity of said user is confirmed by said authenticating means; transmitting, when authenticity of said user is confirmed, said user identification information stored in said storage means to said merchant terminal so that said merchant terminal transmits to said payment device a request for payment processing including said user identification information; receiving commands for instructing transmission of said authentication result which is transmitted, in response to said request for payment, from said payment device via said second communication network; and transmitting, upon receipt of said commands, a request for proceeding said payment processing including said authentication result to said payment device via said second communication network.

22. A payment device comprising:

a storage unit for storing a user identification information for identifying a user of a user terminal and a card number of a credit card correspondingly; a receiving unit for receiving from a merchant terminal a user identification information; a retrieving unit for retrieving from said storage unit a card number corresponding to said identified user; an encrypting unit for encrypting the retrieved card number; a generating unit for generating a key for decryption of said encrypted card number; a first transmitting unit for transmitting to said merchant terminal said encrypted card number; and a second transmitting unit for transmitting said key to a credit server managed by an issuer of the credit card.

23. The payment device of claim 22, further comprising a confirming means for transmitting, when said receiving means receives said user identification, information said receiving unit transaction information to said user terminal and if confirmation of said

transaction information from said user terminal is not received, stopping processing performed by any of said a receiving unit, an encrypting unit, a generating unit, a first transmitting unit, and a second transmitting unit, to terminate payment processing corresponding to the user identification information.

24. The payment device of claim 22 or 23, further comprising a notifying means for transmitting to said merchant terminal a rejection message if the card number is not stored in said storage unit.

25. An electronic payment method comprising the steps of:

receiving from a merchant terminal a user identification information for identifying a user of a user terminal, by a receiving unit; retrieving from a storage unit a card number corresponding to said identified user, by a retrieving unit; encrypting the retrieved card number, by an encrypting unit; generating a key for decryption of said encrypted card number, by a generating unit; transmitting to said merchant terminal said encrypted card number, by a first transmitting unit; and transmitting said key to a credit server managed by an issuer of the credit card, by a second transmitting unit.

26. The electronic payment method of claim 25, further comprising the step of transmitting, when said receiving means receives said user identification, information said receiving unit transaction information to said user terminal and if confirmation of said transaction information from said user terminal is not received, stopping processing performed by any of said a receiving unit, an encrypting unit, a generating unit, a first transmitting unit, and a second transmitting unit, to terminate payment processing corresponding to the user identification information, by a confirming means.

27. The electronic payment method of claim 25 or 26, further comprising the step of transmitting to said merchant terminal a rejection message if the card number is not stored in said storage unit, by a notifying means.

28. A computer program product for making a computer to execute the steps of:

receiving from a merchant terminal a user identification information for identifying a user of a user terminal;

retrieving from a storage unit a card number corresponding to said identified user; encrypting the retrieved card number; generating a key for decryption of said encrypted card number; transmitting to said merchant terminal said encrypted card number; and transmitting said key to a credit server managed by an issuer of the credit card.

29. The computer program product of claim 28, for making said computer to further execute the step of transmitting, when said receiving means receives said user identification, information said receiving unit transaction information to said user terminal and if confirmation of said transaction information form said user terminal is not received, stopping processing performed by any of said a receiving unit, an encrypting unit, a generating unit, a first transmitting unit, and a second transmitting unit, to terminate payment processing corresponding to the user identification information.

30. The computer program product of claim 28 or 29, for making said computer to further execute the step of transmitting to said merchant terminal a rejection message if the card number is not stored in said storage unit.

31. A computer readable storage medium for storing a computer program product for making a computer to execute the steps of:

receiving from a merchant terminal a user identification information for identifying a user of a user terminal; retrieving from a storage unit a card number corresponding to said identified user; encrypting the retrieved card number; generating a key for decryption of said encrypted card number; transmitting to said merchant terminal said encrypted card number; and transmitting said key to a credit server managed by an issuer of the credit card.

32. The storage medium of claim 31, for storing a computer program product for making said computer to further execute the steps of transmitting, when said receiving means receives said user identification, information said receiving unit transaction information to said user terminal and if confirmation of said transaction information form said user terminal is not received, stopping processing performed by any of said a receiving unit, an encrypting unit, a generating unit, a first transmitting unit, and a second transmitting unit, to terminate payment processing corresponding to the user identification information.

33. The storage medium of claim 31 or 32, for storing a computer program product for making said computer to further execute the step of transmitting to said merchant terminal a rejection message if the card number is not stored in said storage unit.

FIG. 1

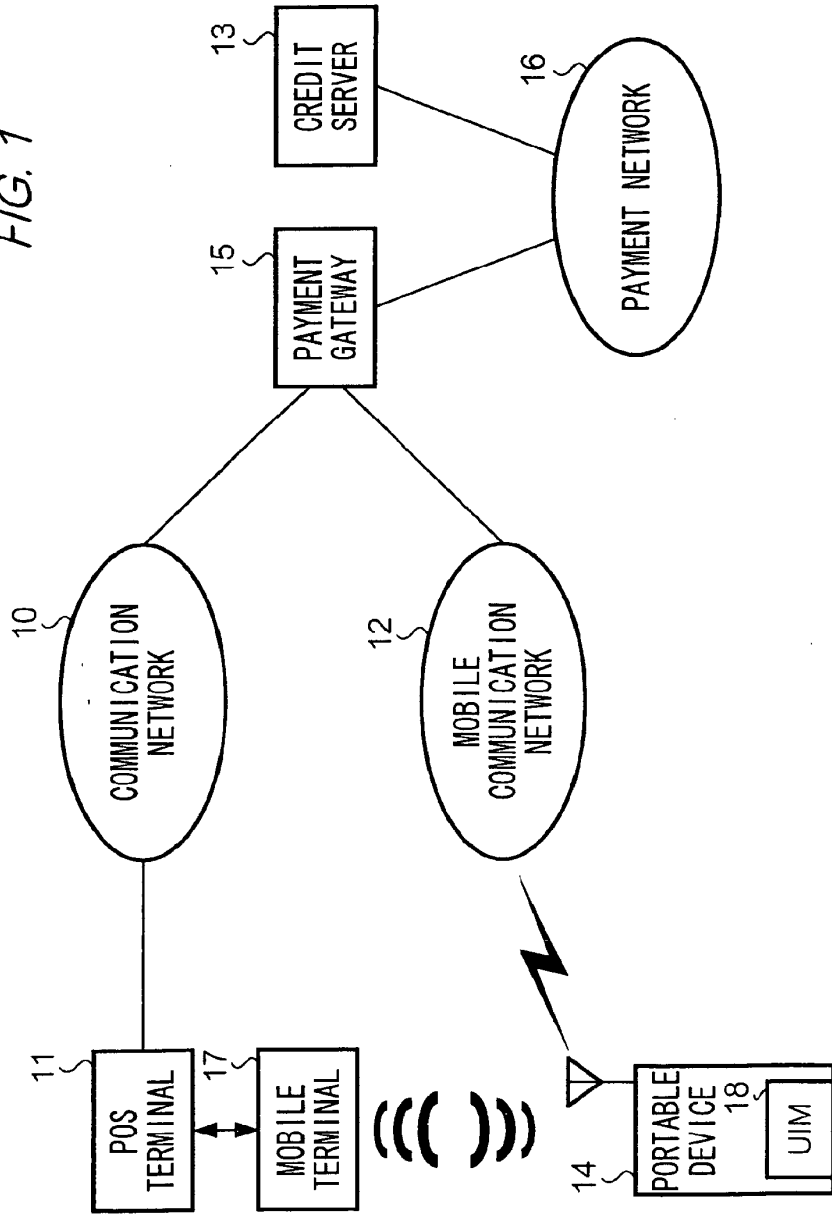


FIG. 2

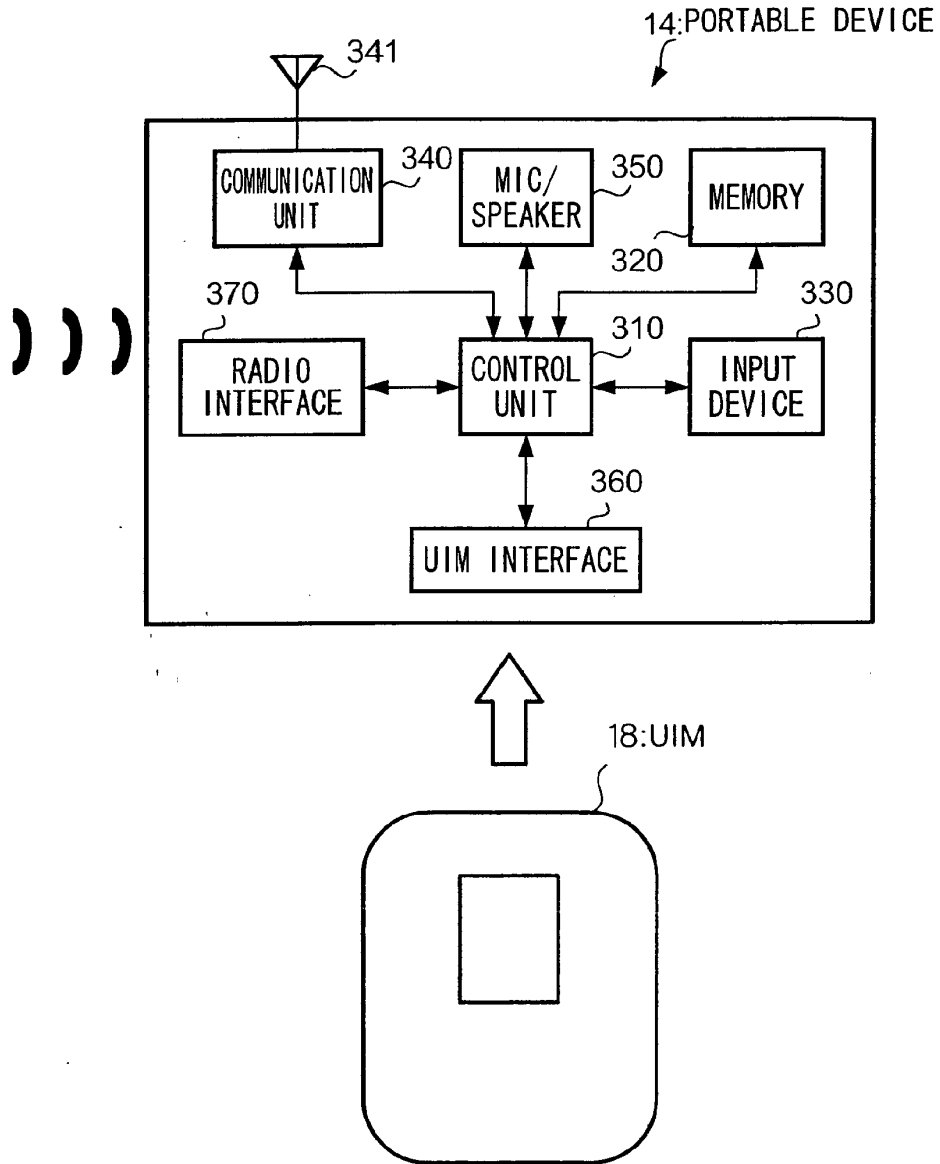


FIG. 3

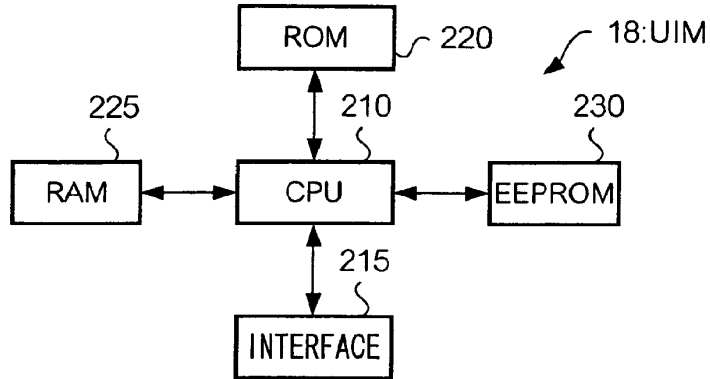


FIG. 4

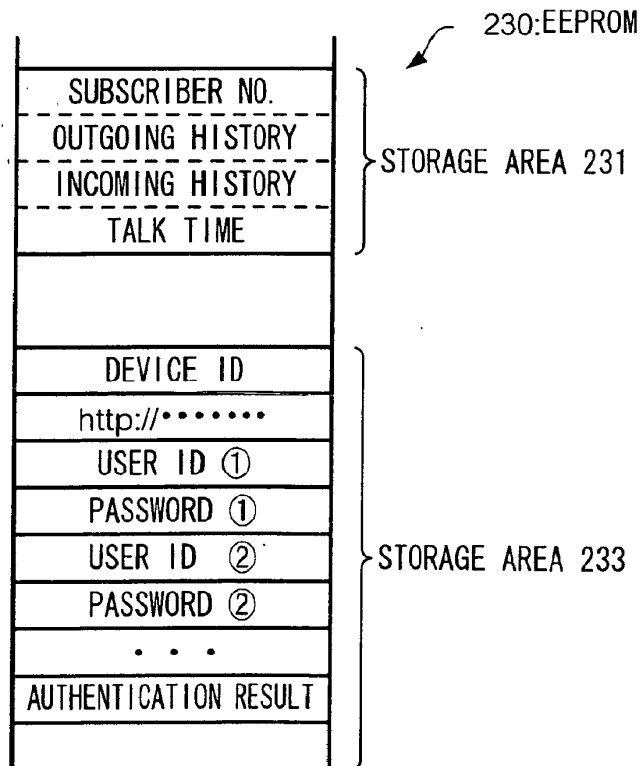
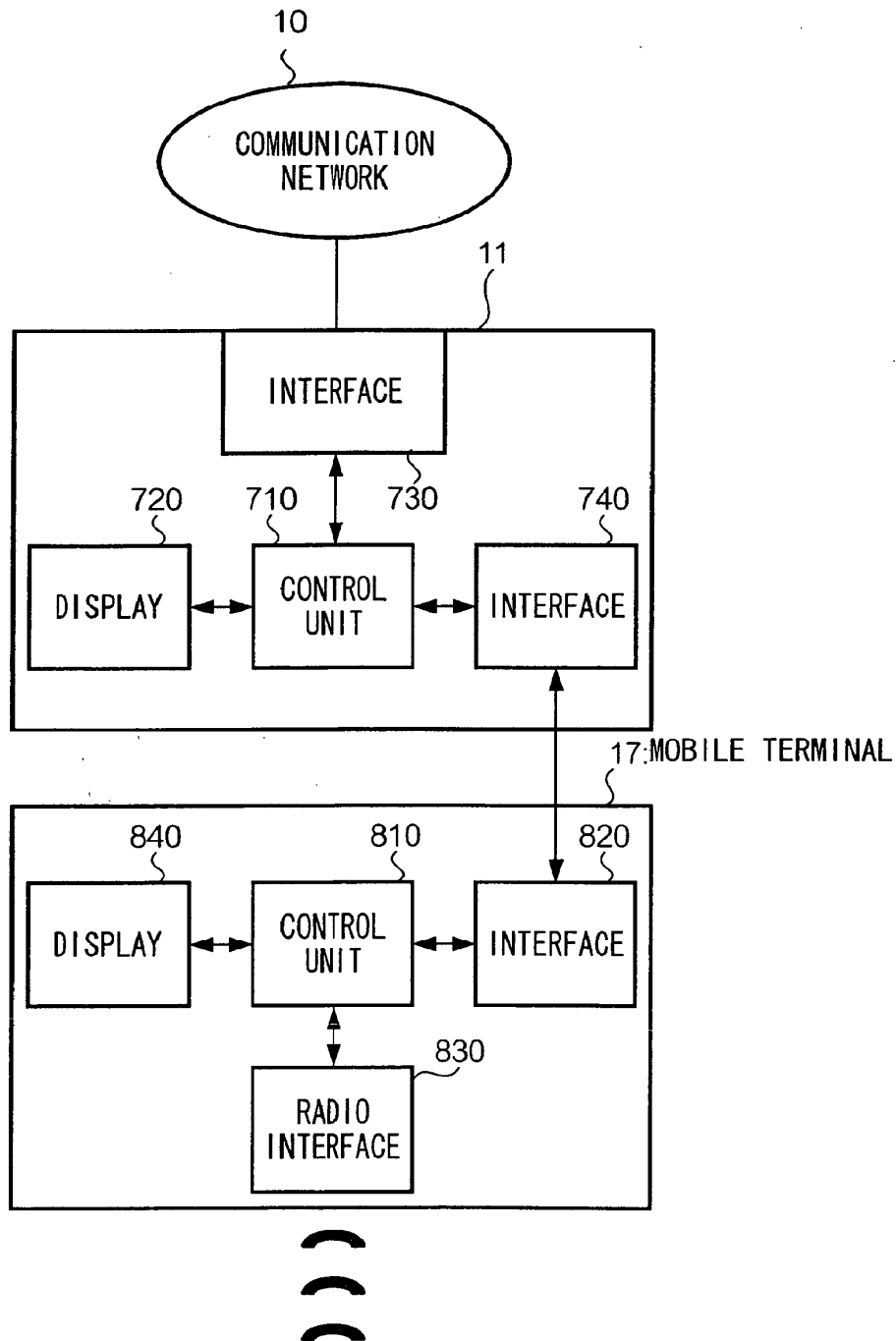


FIG. 5





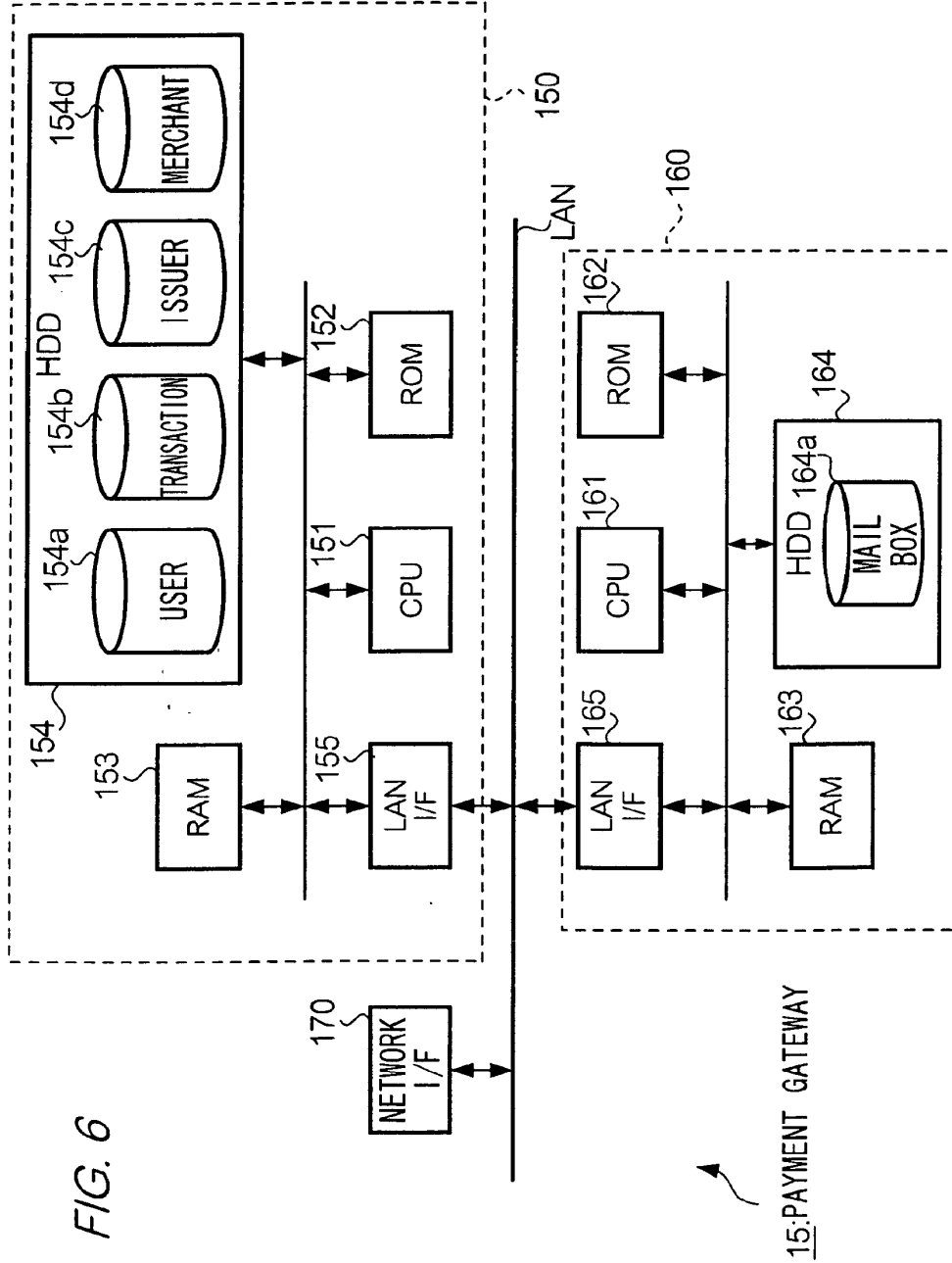


FIG. 7

154aa USER ID	154ab PASSWORD	154ac DEVICE ID	154ad CARD NUMBER
00001	ABCDEF	1234567	1234-2234-3234-4234
00002	FEDCBA	2234567	2234-3234-4234-5234
00003	CDEFAB	3345678	3234-4234-5234-6234
⋮	⋮	⋮	⋮

FIG. 8

154ba TRANSACTION ID	154bb DATE/TIME	154bc MERCHANT NUMBER	154bd TRANSACTION DETAILS
100001	2001/7/3 10:20	543210	NAME, QUANTITY, PRICE, TAX, PAYMENT METHOD
100005	2001/7/5 14:15	654320	
100008	2001/7/7 15:13	765432	
⋮	⋮	⋮	⋮

154b  
USER ID=00001

FIG. 9

CARD NUMBER	ISSUER CODE	ISSUER NAME
1525000000~1525059999	2a11111	A
145259000~1452590000	2a22222	B
153996010~153996010	2s33333	C
13500~13560	2a11111	A
13600~13600	2s44444	D

FIG. 10

MERCHANT CODE	MERCHANT NAME	ISSUER NAME	ISSUER NAME	PAYMENT METHOD				
				L	I	B	PB	R
1111111111	A	2a11111	A	○	○	×	×	○
2222222222	B	2a22222	B	○	○	×	○	○
2222222222	B	2s44444	D	○	×	○	×	×
3333333333	C	2a22222	B	○	×	○	○	×
4444444444	D	2s33333	C	○	×	×	×	○

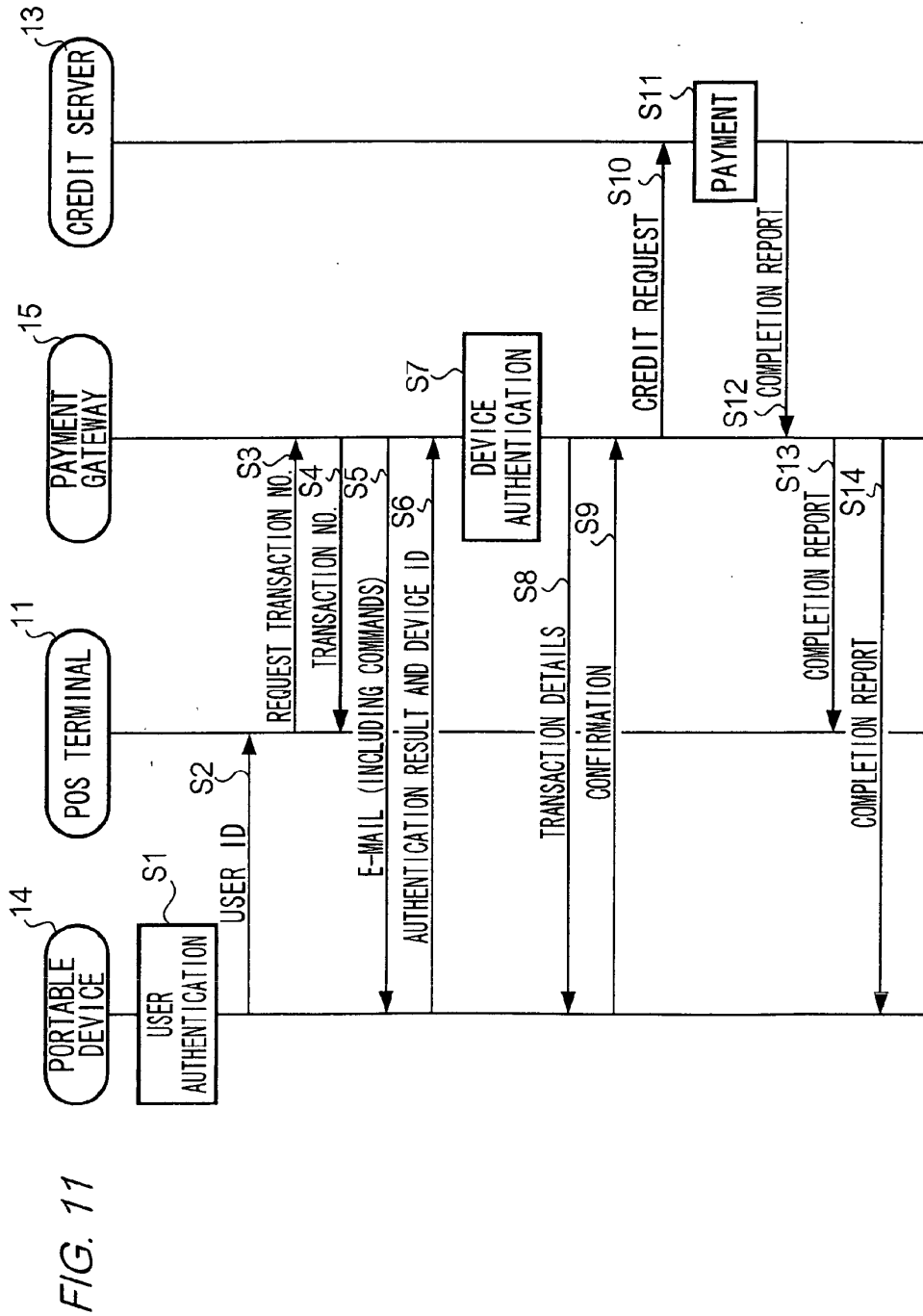


FIG. 12

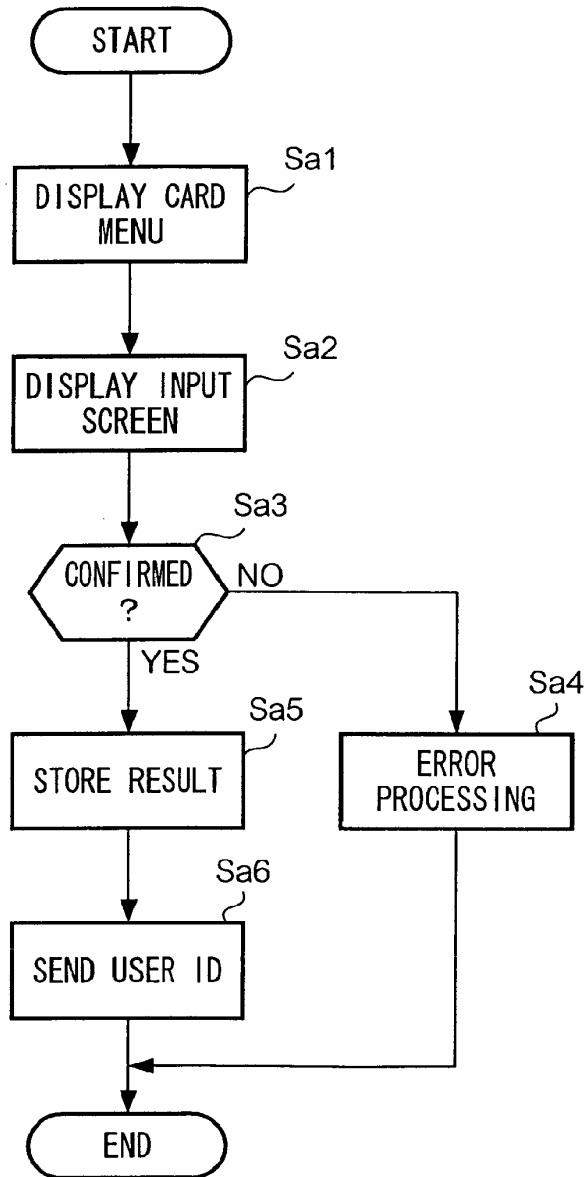


FIG. 13

PLEASE SELECT A CREDIT CARD

CARD A     CARD B

CARD C

FIG. 14

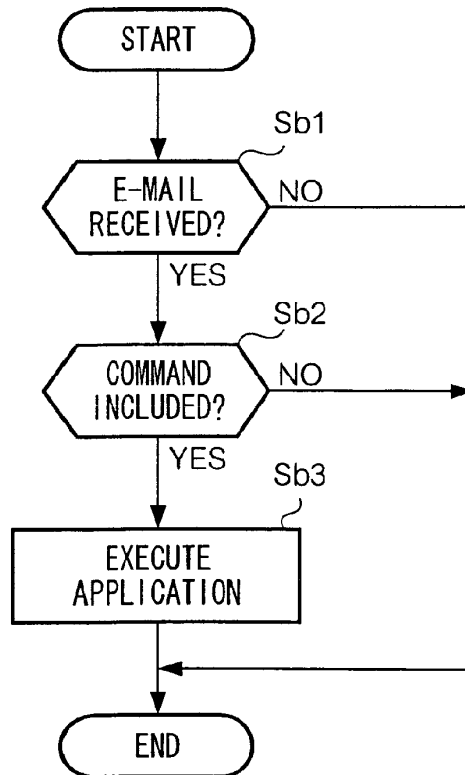
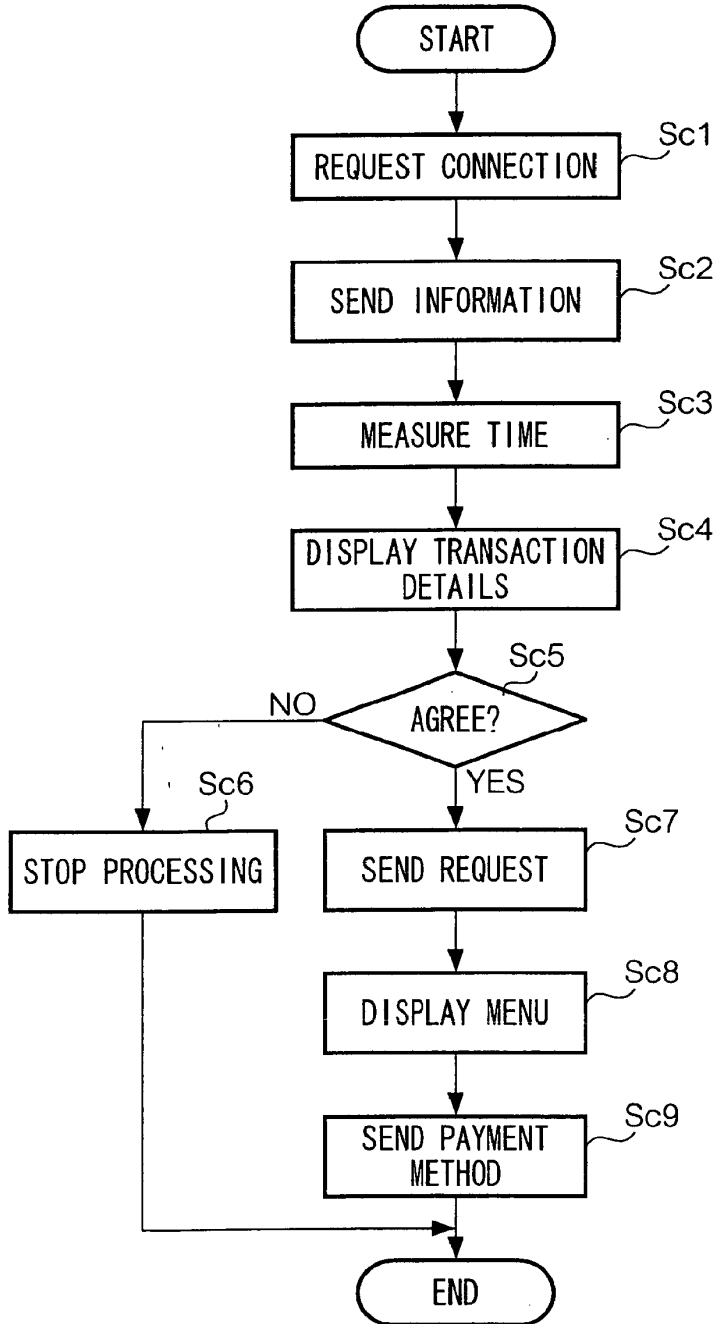


FIG. 15



*FIG. 16*

THIS TRANSACTION IS  
CONDUCTED AT SHOP XX  
OF MERCHANT YY

TOTAL AMOUNT IS XXX DOLLARS

AGREE       NOT AGREE

*FIG. 17*

PLEASE SELECT A PAYMENT METHOD.

LUMP SUM       INSTALLMENT

BONUS       BONUS (PARTIAL)

REVOLVING

OK



FIG. 18

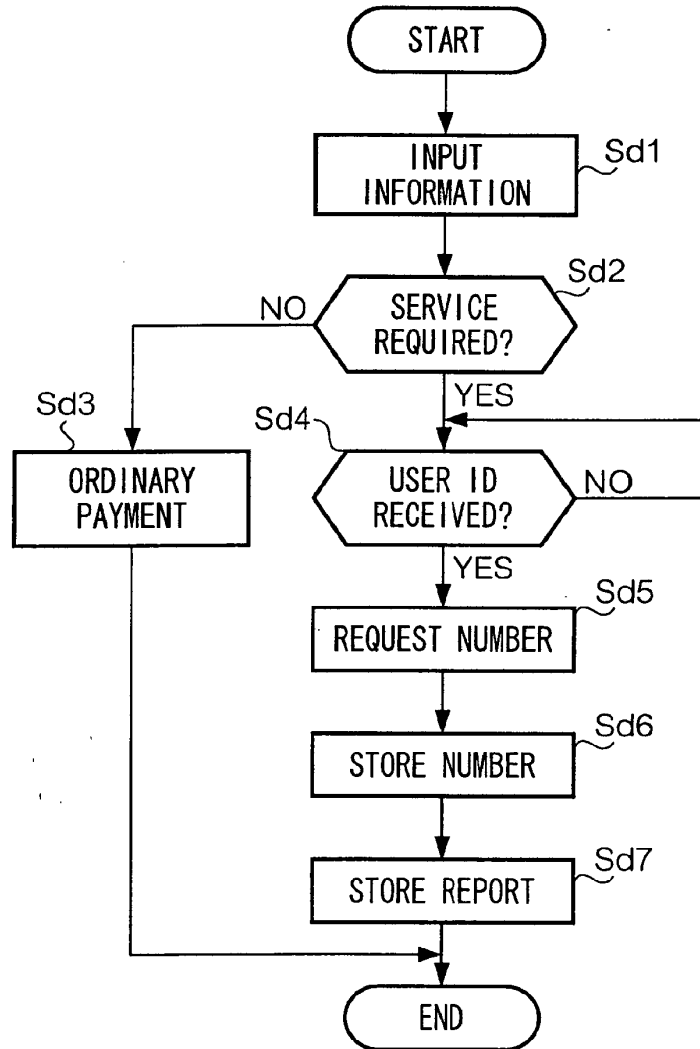
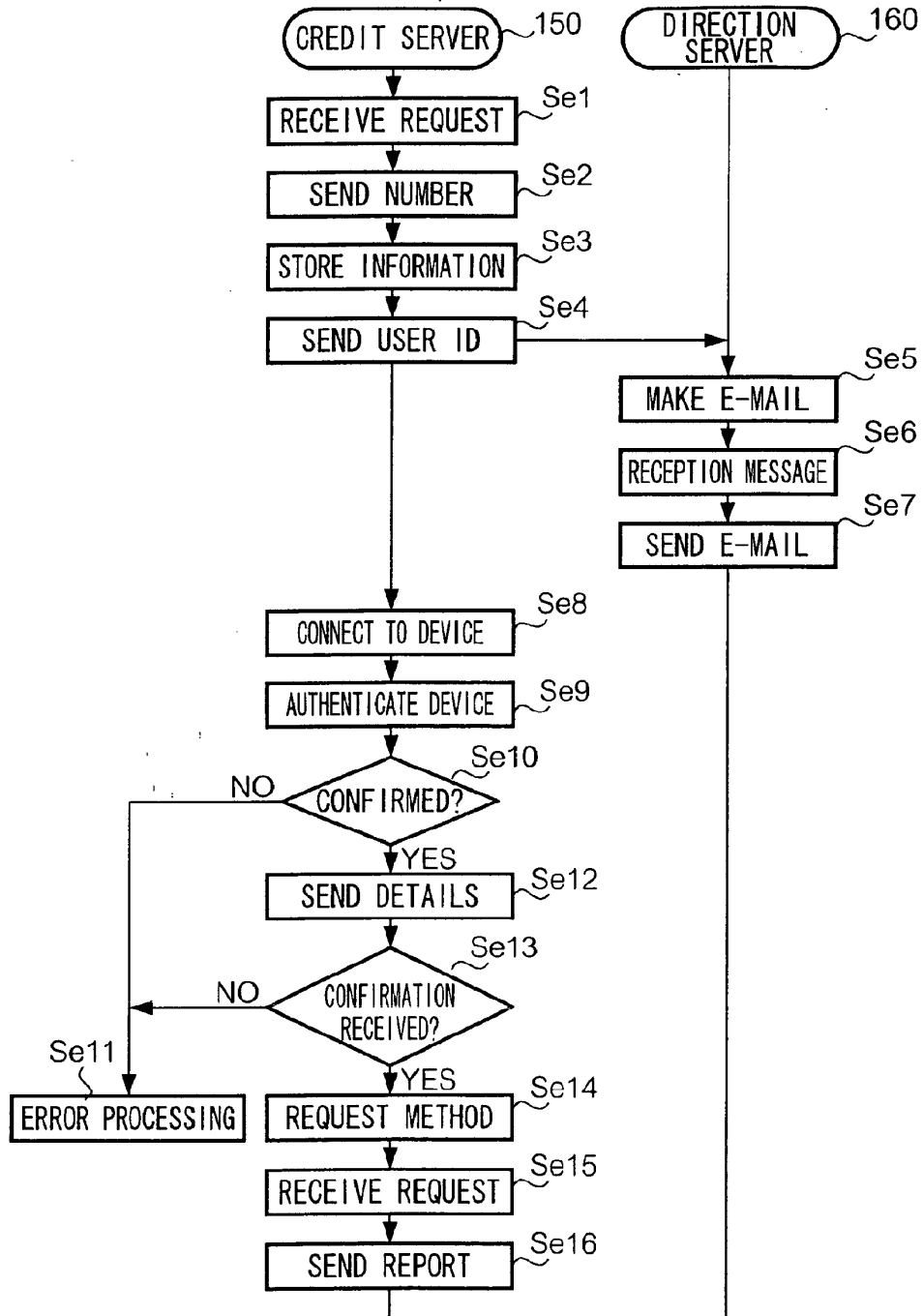


FIG. 19



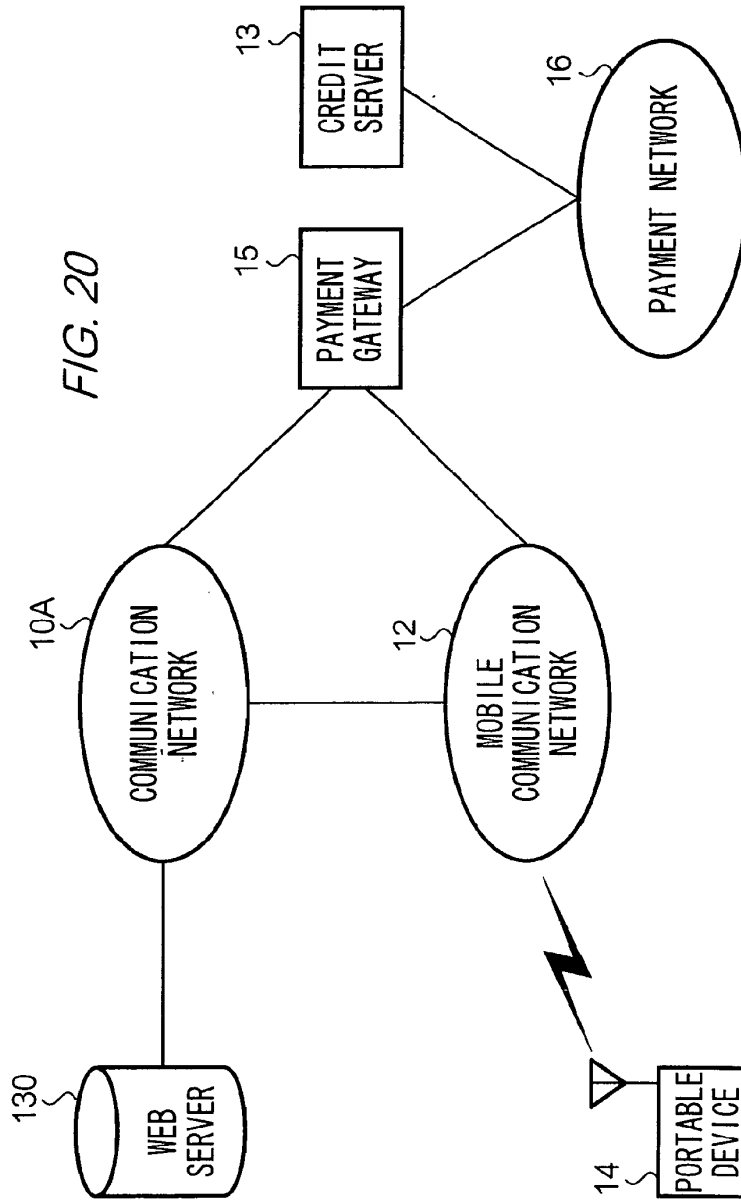


FIG. 21

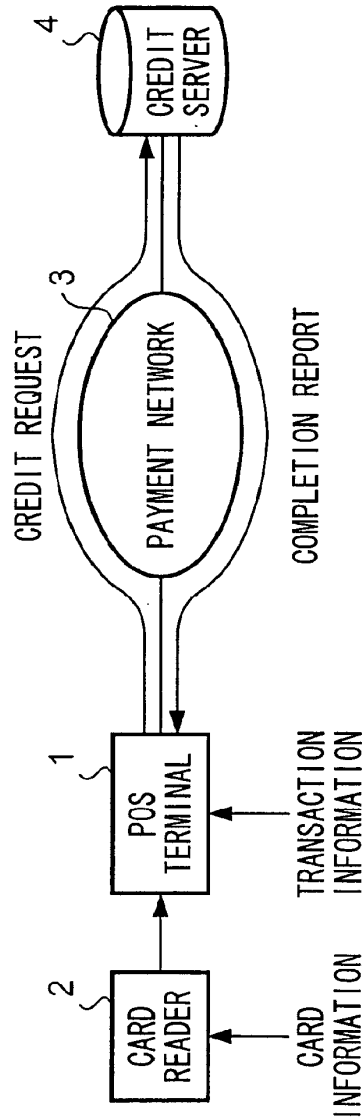




FIG. 23

ISSUER CODE	PAYMENT METHOD	MERCHANT CODE
. . . . .	. . . . .	. . . . .
. . . . .	. . . . .	. . . . .
. . . . .	. . . . .	. . . . .
⋮	⋮	⋮

MERCHANT CODE FOR CREDIT	PAYMENT METHOD	MERCHANT CODE
.	.	.
.	.	.
.	.	.
.	.	.
:	:	:

FIG. 24A

USER NAME	ADDRESS	CARD NUMBER	EXPIRATION	LIMIT
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
:	:	:	:	:

FIG. 24B

CARD NUMBER	KEY	TYPE	DATE	SERIAL NO.	MERCHANT NUMBER	AMOUNT NO.	PAYMENT METHOD	MERCHANT USE CODE
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
:	:	:	:	:	:	:	:	:

FIG. 24C

MERCHANT NUMBER	TYPE	DATE	SALES	CARD NUMBER	PAYMENT METHOD
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
.	.	.	.	.	.
:	:	:	:	:	:

FIG. 24D

MERCHANT CODE	MERCHANT NAME
.	.
.	.
.	.
.	.
:	:

FIG. 25A

USER ID	PASSWORD	USER NAME	PHONE NUMBER	E-MAIL ADDRESS	DEVICE NO.	CARD NUMBER	ISSUER CODE	EXPIRATION
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
.	.	.	.	.	.	.	.	.
:	:	:	:	:	:	:	:	:

FIG. 25B



FIG. 26

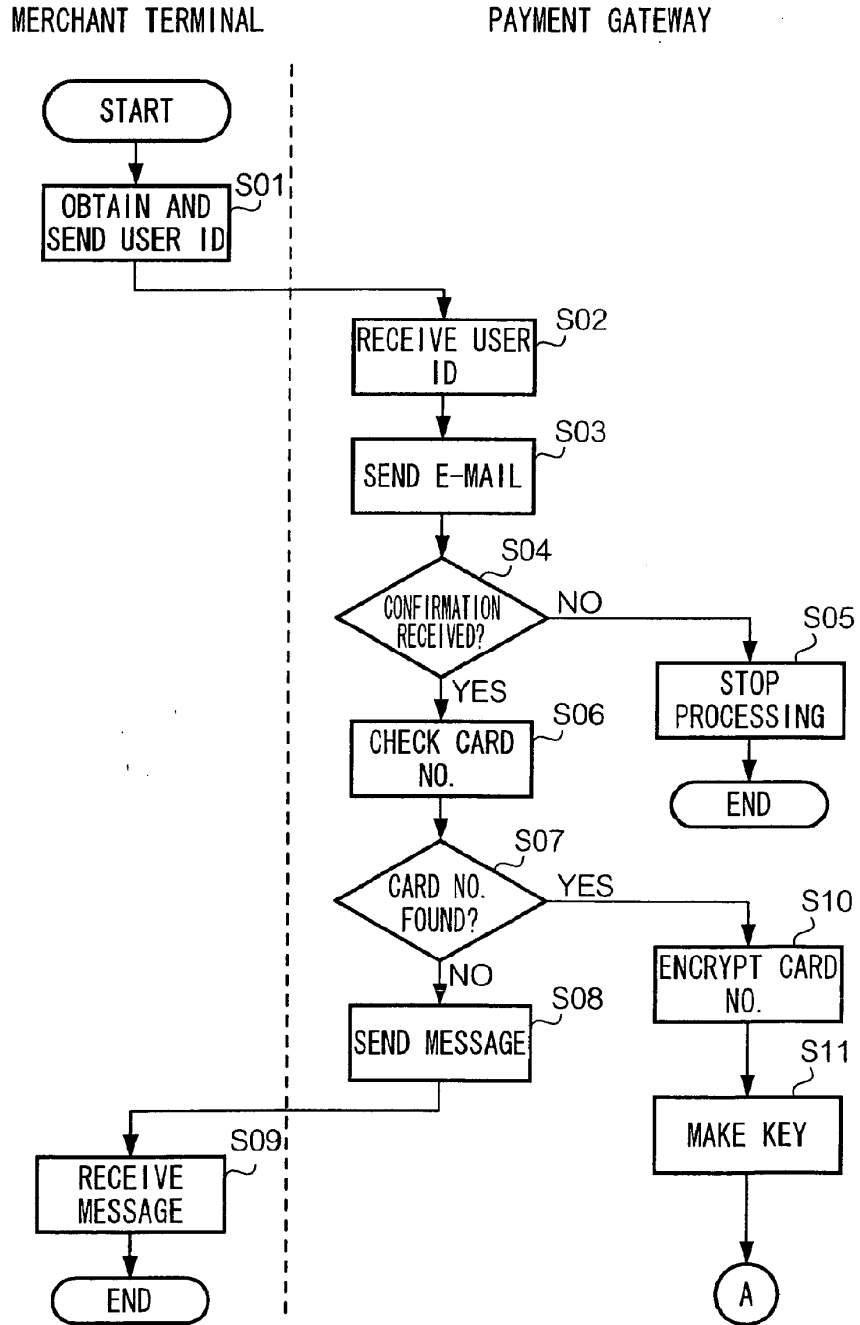


FIG. 27

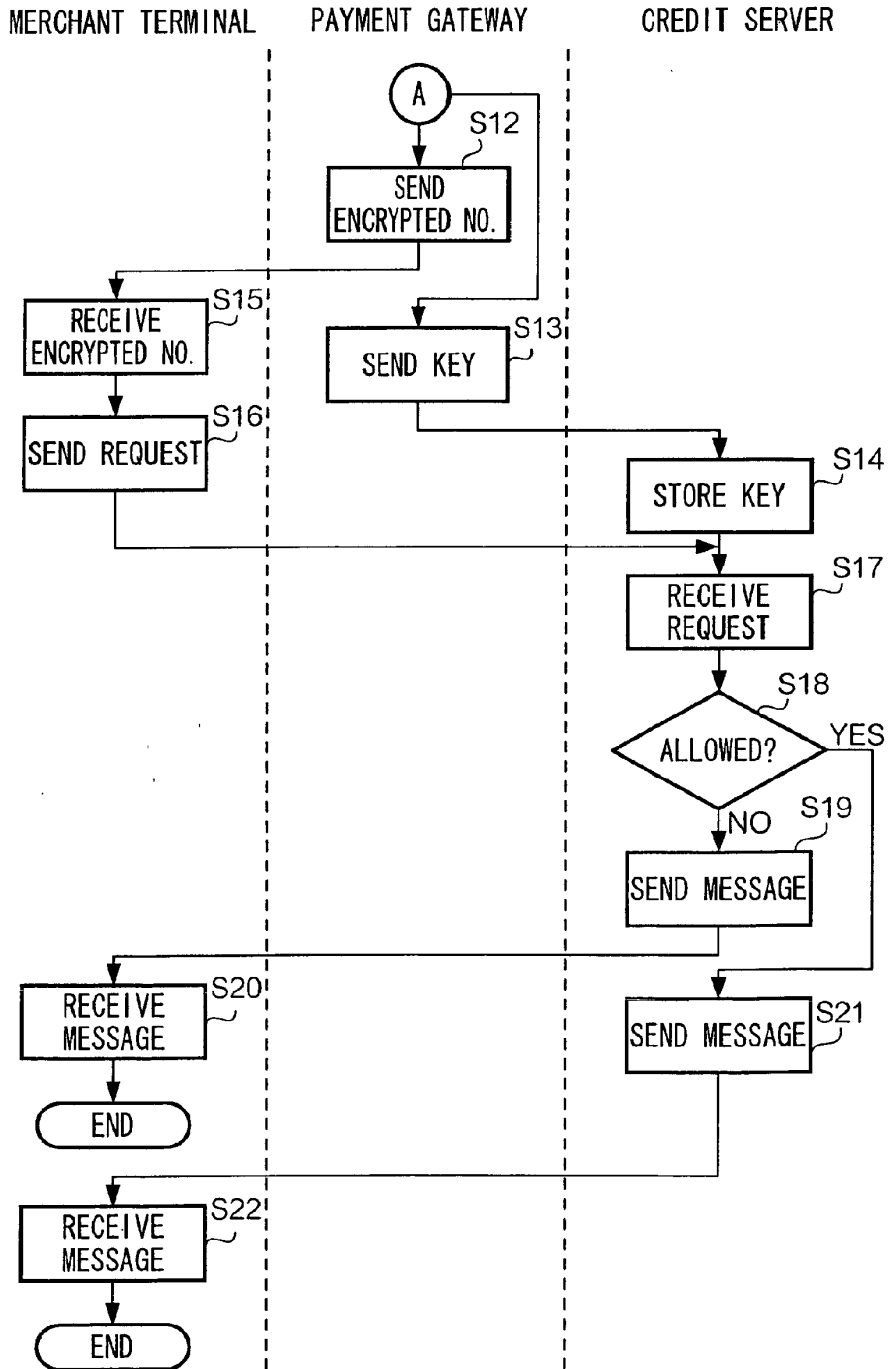
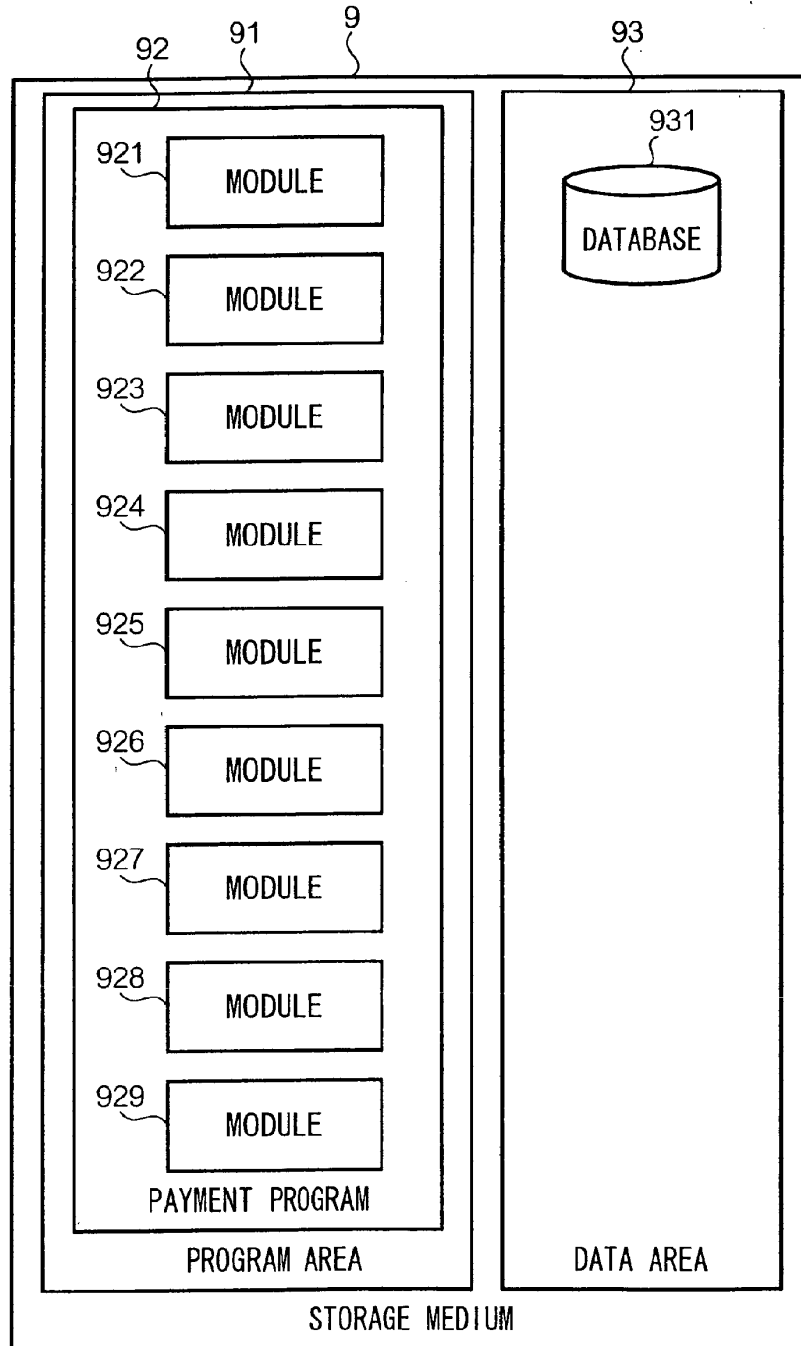


FIG. 28



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G 0 6 F 17/60	2 5 0	G 0 6 F 17/60	2 5 0 3 E 0 4 0
	2 3 4		2 3 4 Z 5 B 0 4 9
	2 3 6		2 3 6 A 5 B 0 5 5
	2 3 8		2 3 8 5 K 0 2 7
	5 0 6		5 0 6 5 K 1 0 1

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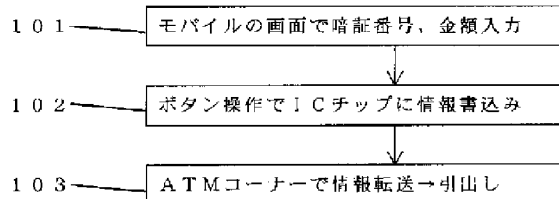
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(54) 【発明の名称】 携帯電話に組み込まれる金融処理システム

(57) 【要約】

【課題】 携帯電話に種々の金融コンテンツを組込むことにより、携帯電話を利用してATMからの迅速な現金引出し、各種入出金処理の実行等を容易に行う。

【解決手段】 携帯電話に組み込まれる金融処理システムにおいて、携帯電話がICチップを内蔵すると共に、ICチップからATMへ非接触にてデータ転送するためのデータ転送手段を設け、暗証番号及びATMにおける金融処理情報を前記携帯電話に入力した後ICチップに書込み、データ転送手段を介してICチップからATMへ転送し、ATMは転送された入力情報に基づいて金融処理を実行する。



## 【特許請求の範囲】

【請求項1】 ATMにおける金融処理を実行するべく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、前記携帯電話がICチップを内蔵すると共に、該ICチップから前記ATMへ非接触にてデータ転送するためのデータ転送手段を設け、

前記入力手段を用いて銀行口座に係る暗証番号及び前記ATMにおける金融処理に係る情報を前記携帯電話に入力した後、該入力した情報を前記ICチップに書込み、前記データ転送手段を介して前記携帯電話の前記ICチップから前記入力情報を前記ATMへ転送し、前記ATMは転送された前記入力情報に基づいて前記銀行口座に係る前記金融処理を実行することを特徴とする携帯電話に組み込まれる金融処理システム。

【請求項2】 前記金融処理が、残高照会、引出し、入出金明細照会、振込み及び振替を含む群の中から選択されることを特徴とする請求項1に記載の携帯電話に組み込まれる金融処理システム。

【請求項3】 銀行口座の入出金状況を確認するべく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、前記携帯電話により前記銀行口座の入出金状況に係る情報を格納したデータベースへ電話回線によりアクセスしデータを取得し、前記取得したデータを前記表示手段に表示することを特徴とする携帯電話に組み込まれる金融処理システム。

【請求項4】 前記銀行口座の入出金状況に係る情報が、該銀行口座からの引落しに関する情報であって、引落日、引落内容及び引落金額を含むことを特徴とする請求項3に記載の携帯電話に組み込まれる金融処理システム。

【請求項5】 家計の収入支出状況を入力するべく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、家計の収入支出状況に係る情報を前記入力手段により入力し、前記家計の収入支出状況に係る情報を格納したデータベースへ電話回線によりアクセスすることにより前記入力されたデータを格納することを特徴とする携帯電話に組み込まれる金融処理システム。

【請求項6】 現在地及び最寄りのATM設置場所に関する情報を取得するべく表示手段を具備する携帯電話に組み込まれるシステムにおいて、電話回線により携帯基地局へアクセスし、携帯基地局がGPSを実施することにより前記現在地及び前記最寄りのATM設置場所に関する情報を取得し、前記取得した情報を前記携帯電話へ返送し、前記返送された情報を前記表示手段により表示することを特徴とする携帯電話に組み込まれるシステム。

【請求項7】 前記表示手段による表示に地図が含まれることを特徴とする請求項6に記載の携帯電話に組み込まれるシステム。

【請求項8】 請求項1乃至請求項7のいずれかに記載のシステムを組み込まれたことを特徴とする携帯電話。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は、携帯電話に組み込まれるアプリケーションシステム、特に、金融処理機能及び金融処理に関連する機能を具備するアプリケーションシステムに関する。

【0002】

【従来技術】昨今、携帯電話の機能は目覚しく発展しつつあり、インターネットのウェブページの閲覧や電子メールの送受信等、様々な機能が提供されている。その中には、個人の銀行口座の入出金処理いわゆるテレフォンバンキング機能も含まれる。テレフォンバンキングでは、利用者が電話機のプッシュボタンにより暗証番号等を入力した後、入出金処理の種類（振込み、振替等）や金額の入力操作を行うことにより所望する処理が行われる。入力操作に当たっては、自動音声案内または携帯電話の表示画面に表示される指示に従ってプッシュボタンにより適宜の項目を選択する。

【0003】

【発明が解決しようとする課題】このように、携帯電話における金融処理機能いわゆる金融コンテンツを提供するアプリケーションが種々提供されているが、未だ、口座からの現金の引出し及び口座からの出金による商品代金の決済並びに当該口座の入出金データの整理・保存による家計簿機能等の総合的な個人バンキング処理を実行するアプリケーションは提示されていない。

【0004】一方、口座からの現金の引出しは、専らATMを利用して行われることが多いが、キャッシュカードをATMに挿入してから、暗証番号や引出し金額等の必要な情報をATMの入力装置に入力しなければならない。現状では、接触型のキャッシュカードが一般的に用いられており、カード挿入及びその後の入力操作に所定の時間が掛かるため、ATMの混雑時にはいっそうその混雑を増長させることとなる。

【0005】以上の現状に鑑み、本発明は、携帯電話のアプリケーションとして個人バンキング処理を含めた総合的な機能を具備する金融コンテンツを組込むことにより、携帯電話を利用してATMからの迅速な現金引出し、各種入出金処理の実行、商品代金の決済、商品受渡し、入出金データの管理を容易に行うことを目的とする。

【0006】

【課題を解決するための手段】上記の目的を達成するべく、本発明は以下の構成を提供する。

【0007】

(1) ATMにおける金融処理を実行する

べく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、前記携帯電話がICチップを内蔵すると共に、該ICチップから前記ATMへ非接触にてデータ転送するためのデータ転送手段を設け、前記入力手段を用いて銀行口座に係る暗証番号及び前記ATMにおける金融処理に係る情報を前記携帯電話に入力した後、該入力した情報を前記ICチップに書き込み、前記データ転送手段を介して前記携帯電話の前記ICチップから前記入力情報を前記ATMへ転送し、前記ATMは転送された前記入力情報に基づいて前記銀行口座に係る前記金融処理を実行する。

【0008】(2)上記(1)の構成において、前記金融処理が、残高照会、引出し、入出金明細照会、振込み及び振替を含む群の中から選択される。

【0009】(3)銀行口座の入出金状況を確認するべく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、前記携帯電話により前記銀行口座の入出金状況に係る情報を格納したデータベースへ電話回線によりアクセスしデータを取得し、前記取得したデータを前記表示手段に表示する。

【0010】(4)上記(3)の構成において、前記銀行口座の入出金状況に係る情報が、該銀行口座からの引落しに関する情報であって、引落日、引落内容及び引落金額を含む。

【0011】(5)家計の収入支出状況を入力するべく入力手段及び表示手段を具備する携帯電話に組み込まれる金融処理システムにおいて、家計の収入支出状況に係る情報を前記入力手段により入力し、前記家計の収入支出状況に係る情報を格納したデータベースへ電話回線によりアクセスすることにより前記入力されたデータを格納する。

【0012】(6)現在地及び最寄りのATM設置場所に関する情報を取得するべく表示手段を具備する携帯電話に組み込まれるシステムにおいて、電話回線により携帯基地局へアクセスし、携帯基地局がGPSを実施することにより前記現在地及び前記最寄りのATM設置場所に関する情報を取得し、前記取得した情報を前記携帯電話へ返送し、前記返送された情報を前記表示手段により表示する。

【0013】(7)上記(6)の構成において、前記表示手段による表示に地図が含まれる。

【0014】(8)上記(1)乃至上記(7)のいずれかに記載のシステムを組み込まれた携帯電話である。

【0015】

【発明の実施の形態】以下、図面を参照して本発明の実施の形態を説明する。本発明における携帯電話(図中では、「モバイル」と称する)は、ICカードに内蔵されると同様のICチップを内蔵し、非接触にてICチップへデータを入出力するために手段を具備する。ICチップは、磁気記録媒体と比べてセキュリティ性が高くかつ

大量の情報を記憶できることで知られている。さらに、この携帯電話は、データを入力するためのプッシュボタンまたは類似の入力手段並びにデータを表示するためのディスプレイを具備する。

【0016】一方、自動取引装置すなわちATMは、通常、タッチパネルまたはプッシュボタン等のデータの入力手段と表示手段を具備するが、本発明においては特に、非接触にて携帯電話のICチップへデータを書込みまたデータを読み取るための手段もまた具備する。

【0017】斯かる携帯電話の所有者は、ATMを設置している銀行またはその銀行と提携する銀行に、口座を保有するものとする。当該口座に関連して、口座保有者のみが認知する暗証番号が設定されている。通常、口座保有者はキャッシュカードを所有しており、キャッシュカードをATMに適用することにより現金の引出しを行うことができる。

【0018】図1は、本発明による携帯電話における金融処理システムの1つである現金引出し機能を利用する場合の操作フローを示す概略的な流れ図である。ステップ101において、口座保有者は、携帯電話の入力手段を用いて暗証番号を入力する。暗証番号は高度の機密事項であるので、入力の際に画面上には暗証番号は明示されず、代わりに「\*」等の記号により入力文字のみが表示される。暗証番号の入力後、口座保有者は、引出し金額を入力する。

【0019】入力後、ステップ102において携帯電話上に設けられた所定のボタンを押すことにより、あるいは他の適宜の操作により、携帯電話に内蔵されたICチップに入力された情報を書込む。

【0020】ステップ101及び102は、ATM設置場所へ赴く前に予め行っておくことが好ましい。本発明の利点の1つは、ATM設置場所以外の任意の場所で、予め現金引出しのための必要な操作を行うことができることである。

【0021】ステップ103において、口座保有者はATMに赴き、携帯電話のICチップ内の情報をATMの読取り手段に読取らせることにより、ICチップ内の情報を転送する。これは、非接触にて行われる。ATMからオンラインにてホストコンピュータへの照会が実行され、暗証番号により本人確認できたならば、ATMから入力情報で指定された金額の現金が出金される。

【0022】図2は、携帯電話での現金引出し操作における携帯電話のディスプレイ上の表示例を示した図である。まず、初期画面においては、携帯電話に組み込まれる金融コンテンツの一覧が示される。例えば、残高照会、引出し、入出金明細照会、振込み、振替、マネーカレンダーである。マネーカレンダーについては後述する。ここでは「2.引出し」を選択するとする。すると、次画面で、暗証番号と引出し金額の入力が促される。

【0023】図3は、図2の初期画面において「4. 振込み」を選択する場合の表示例を示した図である。次画面において、本人確認のための暗証番号、振込み金額及び振込先を入力する。さらに、振込み操作においては、振込み相手に対するメッセージを添付することができる。メッセージを添付したい場合は、メッセージ内容及び相手のメールアドレスを入力する。これらの入力を終えたならば、入力情報をICチップに書込む。その後、ATMにおいて入力情報をATMに読取らせると、直ちに振込みが実行される。メッセージがある場合は、相手にメッセージが送られる。この振込み機能により、ショッピングが可能となる。例えば、商品販売する店舗の口座へ振込みを行うと共に、所望する商品内容をメッセージにて店舗に伝えることにより、商品代金の決済が完了し、後日商品が届けられることとなる。

【0024】図4は、図2の初期画面において「6. マネーカレンダー」を選択する場合の表示例を示した図である。「マネーカレンダー」においては、銀行口座の入出金状況の確認及び家計の収入支出に関する情報の入出力を行う。図4では、マネーカレンダーの項目として、引落日情報及び家計簿入力挙げられている。「1. 引落日情報」を選択した場合、電話回線を通して銀行のホストコンピュータの管理するデータベースへアクセスすることにより、近日中に口座引落しされる項目の情報を取得し、それが表示される。情報には、引落日の日付、内容及び金額が示されている。これにより口座保有者は、必要な口座残高を確保するよう注意することができる。

【0025】マネーカレンダーの「2. 家計簿入力」を選択した場合は、家計簿へ記録すべき内容すなわち家計における収入支出状況を入力することができる。図5は、家計簿入力を選択した場合の表示例を示した図である。入力は、画面に表示された指示に沿って行えば容易に行える。まず、利用金額を入力し、次に利用用途を複数の項目から選択することにより入力すると、確認画面が表示される。確認画面では、入力内容がまとめて示され、間違いなければ、「2. 追加入力」を選択することにより、電話回線を通して銀行のホストコンピュータの管理するデータベースへアクセスし、入力データが送られ、データベースに入力データが格納される。家計簿情報は、入力を修正する場合は、「PDAで編集」を選択することにより編集する。尚、ショッピング内容を家計簿入力する場合、店舗のPOSと携帯電話が互いに通信し、店舗のPOSから入力データが転送されることにより、自動入力してもよい。

【0026】本発明に係る携帯電話は、好適にはJAVA言語を搭載しており、入力操作及びメモ・編集操作を効率的に行うことができる。

【0027】種々の金融コンテンツからなる金融処理システムを組み込んだ本発明の携帯電話は、近年、コンビ

ニエンスストアに設置されるようになったATMや24時間営業ATMにおいて利用する場合に特に有用である。場所や時間を限定されることなく、いつでも容易にバンキング処理が可能となるからである。

【0028】従って、図6に示すATM設置場所情報提供機能を付加することにより、本発明に係る携帯電話は、さらに効果的に利用されることとなる。図6は、ATMの設置場所情報を提供する機能を具備する携帯電話のディスプレイ表示例を示す。ディスプレイ上には、現在の周辺の地図が表示されると共に、最も近い24時間営業の銀行ATM、及び、ATM設置コンビニエンスストアが表示されている。具体的な実施方法としては、携帯電話の基地局を活用してGPS（広域位置情報機能）サービスを実施する。携帯電話はJAVA言語を搭載しており、まず、利用者が携帯電話を用いて基地局のホストへアクセスする。基地局のホストは、GPSを実施することにより携帯電話の現在位置情報を取得し、最寄りのキャッシュポイントすなわちATM設置場所の情報を地図及びテキストデータで携帯電話へ返送する。利用者はディスプレイに表示された地図を見て最寄りのATMを知ることができる。

【0029】

【発明の効果】本発明においては、携帯電話自体がICチップを搭載し、ICチップに書込んだ情報を非接触にてATMに読取らせることができる。従って、携帯電話をキャッシュカードの代わり用いてATM操作することができる。携帯電話のICチップには、予め必要な個人情報を書込んでおくことができるため、ATM設置場所においては、現金引出しや振込み等の処理を容易かつ速やかに行うことができる。よってATMの混雑緩和に多大に寄与することとなる。

【0030】振込み機能にはメッセージ添付機能があり、オンラインショッピングの代金決済が可能であると同時に、商品の受渡しに関する情報をメッセージで伝えることができる。

【0031】また、携帯電話により、銀行口座の入出金及び家計の収入支出に関する情報の入力及び出力を行うことができるため、いつでも、どこでも簡単に日々のお金の利用状況を確認したり編集したりすることが可能となる。家計簿を継続的につけることは面倒であり長続きしないことが多いが、本発明のシステムを用いれば、クレジットカード等の引落日を確認しながら、無駄なく上手にお金を消費することができる。

【0032】さらに、携帯電話を通して24時間営業のATMや、ATMを設置したコンビニエンスストアの位置情報を得られるため、携帯電話に組み込まれた金融コンテンツを利用できる場所へ利用者を用意に導くことができ、極めて利便性の高いシステムが実現される。

【図面の簡単な説明】

【図1】本発明による携帯電話における金融処理システ

ムの1つである現金引出し機能を利用する場合の操作フローを示す概略的な流れ図である。

【図2】携帯電話での現金引出し操作における携帯電話のディスプレイ上の表示例を示した図である。

【図3】図2の初期画面において「4. 振込み」を選択する場合の表示例を示した図である。

【図4】図2の初期画面において「6. マネーカレンダー」を選択する場合の表示例を示した図である。

【図5】図4の次画面において「2. 家計簿入力」を選択した場合の表示例を示した図である。

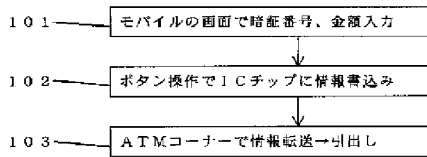
【図6】ATMの設置場所情報を提供する機能を具備する携帯電話のディスプレイ表示例を示す図である。

【符号の説明】

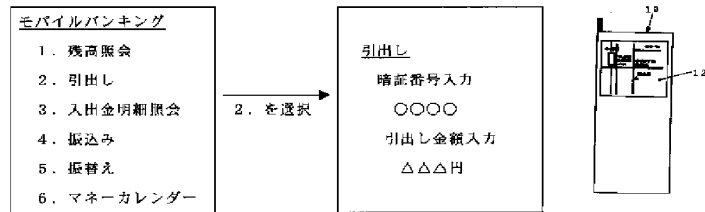
10 携帯電話

12 ディスプレイ

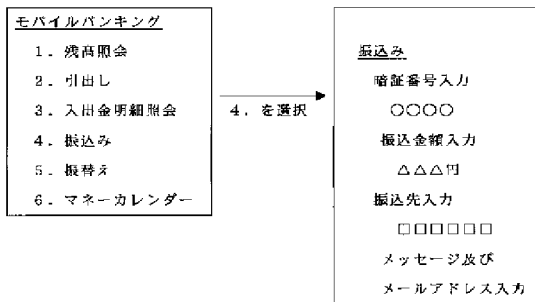
【図1】



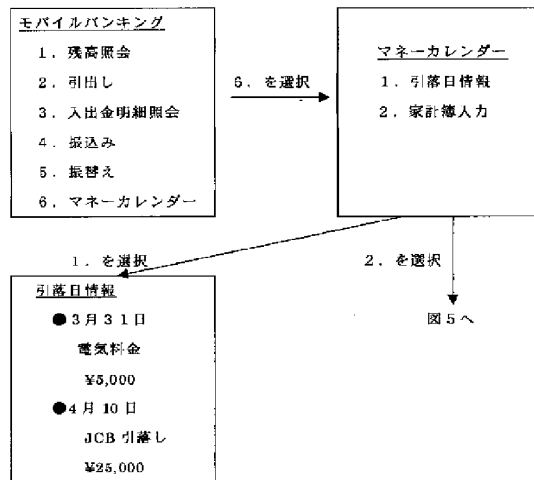
【図2】



【図3】

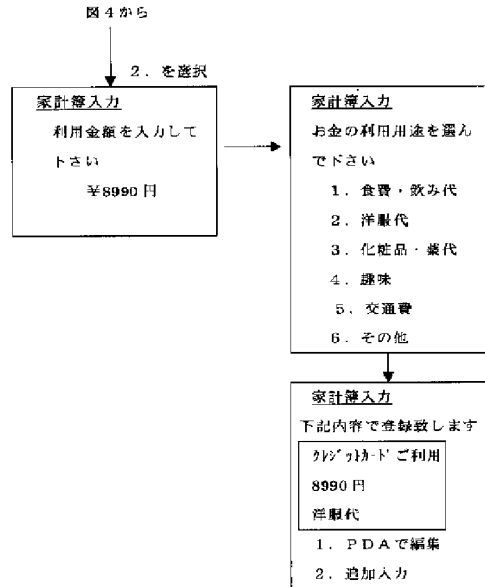


【図4】





【図5】



フロントページの続き

(51)Int.Cl. <sup>7</sup>	識別記号	F I	テームコード <sup>8</sup> (参考)
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G 0 7 F 19/00		H 0 4 M 1/00	R
H 0 4 M 1/00		1/725	
11/00	3 0 3	11/00	3 0 3
		G 0 7 D 9/00	4 7 6

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 9A001 JJ64 KK56 KK58

**DERWENT- 2002-023233**

**ACC-NO:**

**DERWENT- 200203**

**WEEK:**

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**TITLE:** Financial processing system in mobile telephones, has integrated circuit chip built in telephone, which stores input financial process information including bank account number which is then transmitted to ATM

**INVENTOR:** ASHIZAKI T; MISAGO H ; MORITA N ; NAKAMURA Y ;  
YAMAMOTO T

**PATENT-ASSIGNEE:** MIWA GINKO KK[MIWAN]

**PRIORITY-DATA:** 2000JP-113414 (April 14, 2000)

**PATENT-FAMILY:**

<b>PUB-NO</b>	<b>PUB-DATE</b>	<b>LANGUAGE</b>
JP 2001297198 A	October 26, 2001	JA

**APPLICATION-DATA:**

<b>PUB-NO</b>	<b>APPL-DESCRIPTOR</b>	<b>APPL-NO</b>	<b>APPL-DATE</b>
JP2001297198A	N/A	2000JP-113414	April 14, 2000

**INT-CL-CURRENT:**

<b>TYPE</b>	<b>IPC DATE</b>
CIPP	G07D9/00 20060101
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CIPS	G06Q40/00 20060101
CIPS	G07F19/00 20060101
CIPS	H04M1/00 20060101
CIPS	H04M1/725 20060101
CIPS	H04M11/00 20060101

**ABSTRACTED-PUB-NO:** JP 2001297198 A

**BASIC-ABSTRACT:**

NOVELTY - The financial process information input as a code number along with the bank account number is written in an integrated circuit (IC) chip built in a telephone. A data transmitter transmits the data from the IC chip to an automatic teller machine (ATM) which executes the financial process based on the transferred information.

USE - Is built in the mobile telephone for financial processing in banks.

ADVANTAGE - Performs quick and easy execution of various deposit and withdrawal processes, etc.

DESCRIPTION OF DRAWING(S) - The figure shows the flow diagram of operation of financial processing system. (Drawing includes non-English language text).

**CHOSEN-** Dwg.1/6  
**DRAWING:**

**TITLE-** FINANCIAL PROCESS SYSTEM MOBILE TELEPHONE  
**TERMS:** INTEGRATE CIRCUIT CHIP BUILD STORAGE INPUT  
INFORMATION BANK ACCOUNT NUMBER TRANSMIT ATM

**DERWENT-CLASS:** T01 T05 W01

**EPI-CODES:** T01-J05A; T05-L; T05-L03; W01-C01; W01-C01D1; W01-C05;

**SECONDARY-ACC-NO:**

**Non-CPI Secondary Accession Numbers:** 2002-018604

**Espacenet****Bibliographic data: JP2001357164 (A) — 2001-12-26**

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**METHOD AND CENTER FOR FUND MANAGEMENT**

**Inventor(s):** SAKAMOTO HIROAKI; TAKAHASHI YOSHIO; TABUCHI EIJI; OGURO HIROAKI; HANIYUDA HIRONORI; HASEGAWA TAKESHI; IIJIMA MIKIMASA; SUDO MASANORI ± (SAKAMOTO HIROAKI, ; TAKAHASHI YOSHIO, ; TABUCHI EIJI, ; OGURO HIROAKI, ; HANIYUDA HIRONORI, ; HASEGAWA TAKESHI, ; IIJIMA MIKIMASA, ; SUDO MASANORI)

**Applicant(s):** NTT DATA CORP ± (NTT DATA CORP)

**Classification:** - international: **G06Q50/00; G07C13/00;** (IPC1-7): G06F17/60;  
G07C13/00

- Euro:

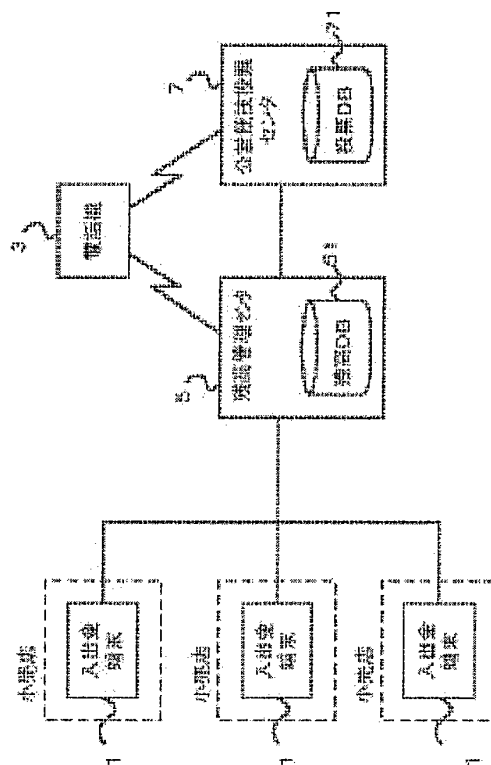
**Application number:** JP20000178134 20000614


**Priority number(s):** JP20000178134 20000614

**Abstract of JP2001357164 (A)**

**PROBLEM TO BE SOLVED:** To provide a method and a center for fund management which is convenient for a betting system. **SOLUTION:** A balance management center 5 having a balance database 51 which stores balance data consisting of a telephone number for authentication, the balance, and a password code for each user adds a paid-back amount to the balance of the balance data of a winner according to winning data received from a municipally operated race betting center 7 and pays winning money back. Further, the balance management center 5 answers a payment request from a telephone set 3, specifies balance data corresponding to a specified telephone number for authentication in the balance database 51, and updates the balance according to an withdrawal amount and supplies a withdrawal reception number to the user after authenticating the user. The balance management center 5, after verifying the withdrawal reception number on a reception number verification request from a money paying and receiving terminal 1, allows money to be paid. In response, the store where the money paying and receiving terminal 1 is installed supplies the cash corresponding to the withdrawal amount to the user.

Last updated: 24.09.2012 Worldwide  
Database 5.7.44.2; 93p




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## Electronic settlement system (05-Apr-2002)

[Front Page](#)

[First Page Image](#)

[Description](#)

[Claims](#)

**Japanese Application Publication** (Source: PAJ)  
*Publication No.* JP 2002-99716 A *published on* 05-Apr-2002  
*Application No.* JP 2000-289921 *filed on* 25-Sep-2000

**Abstract (English)**

**PROBLEM TO BE SOLVED:** To provide an electronic settlement system capable of preventing a user's privacy from being leaked to outside by preventing a payment code from being used illegally by another person.

**SOLUTION:** A user connects his/her portable telephone set with a settlement center and inputs the user's ID, password, etc., to request issuing of the payment code. When they are coincident with a user's ID and a password registered in advance, the settlement center issues the payment code. The user notes the payment code. The settlement center gives the information of confirmation to the portable telephone set. The payment code is validated by the user's answering to the information of confirmation. After then, the user does shopping at a store and presents the payment code to the store when paying for it. The store reports the payment code, a charging amount, etc., to the settlement center and after confirmation, the store regard the confirmation as the finish of payment and delivers merchandise. Hereafter, the payment code is invalidated and becomes unusable.

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**Inventors**  
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**Applicants**  
KUNINOBU MASANAO

**Classifications**  
*International:* **G06F 17/60**

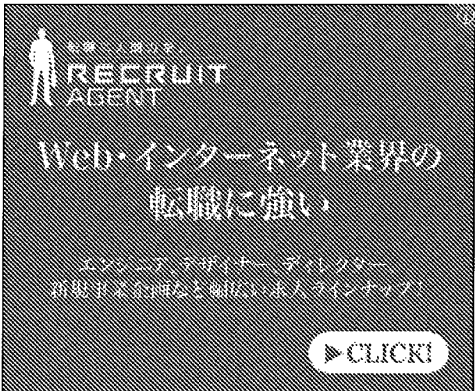
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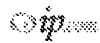
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**Priority**  
JP 2000-289921 A 25-Sep-2000

**Classifications**  
*International (2006.01):* **G06Q 50/00**; G06Q 20/00; G06Q 40/00  
*International:* G06F 17/60





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JP 2000-289921 A 25-Sep-2000

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*International:* G06F 17/60

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(19) **KOREAN INTELLECTUAL PROPERTY OFFICE**

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**KOREAN PATENT ABSTRACTS**

(11)Publication number: **1020020065989**  
**A**

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(21)Application number: **1020010006133**

(71)Applicant: **STARBRIDGE COMMUNICATIONS CO., LTD.**

(22)Date of filing: **08.02.2001**

(72)Inventor: **CHOI, JONG HO**

(30)Priority: ..

(51)Int. Cl **G06F 17/60**

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**(54) PAYMENT METHOD USING PAYMENT CODE ON MOBILE TERMINAL**

(57) Abstract:

PURPOSE: A payment method is provided to make a payment on a mobile terminal by using an identifiable payment code downloaded at a mobile terminal via an online network or an offline media or given at every transaction. CONSTITUTION: The method comprises steps of a user requesting a payment on a mobile phone(S101), a mobile payment management company setting a monthly payment limit to the user by considering a vocation, an age or an income, and transmitting a payment code to the user(S102), the user downloading the payment code at the mobile phone(S103), in a case of buying a commodity or using a service by using a mobile payment, the user inputting a secret code at the mobile terminal for receiving a user approval(S104), the mobile phone displaying the payment code on a display(S105), a payment code reader, installed at an affiliated store, reading the payment code displayed on the mobile phone(S106), the payment code reader allowing an operator to input a transaction money or an installment month as well as the payment code, and transmitting a transaction approval request to the mobile payment management company(S107), the company transmitting a transaction approval code and specification to the reader and the mobile phone after checking if the requested transaction is normal(S110), and a mobile communication company calculating a total payment amount and sending a bill to the user(S111).

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Legal Status

Date of request for an examination (20010208)

Notification date of refusal decision ( )

<http://kpa.kipris.or.kr/XML/200100006133A0/kpa.xml>

1/6/2010

Final disposal of an application (rejection)  
Date of final disposal of an application (20031209)  
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Date of opposition against the grant of a patent ( )  
Number of trial against decision to refuse ( )  
Date of requesting trial against decision to refuse ( )  
Date of extinction of right ( )



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(19) **KOREAN INTELLECTUAL PROPERTY OFFICE**

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**KOREAN PATENT ABSTRACTS**

(11)Publication number: **1020030068603**  
**A**  
 ..

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(21)Application number:	<b>1020020008052</b>	(71)Applicant:	<b>NARU SYSTEM CO., LTD.</b>
(22)Date of filing:	<b>15.02.2002</b>	(72)Inventor:	<b>KIM, GYEONG SIK</b>
(30)Priority:	..		
(51)Int. Cl	<b>G06F 17/60</b>		

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**(54) SYSTEM AND METHOD FOR SETTLING CHARGE USING CELLULAR PHONE**

(57) Abstract:

PURPOSE: A system and a method for settling charge using a cellular phone are provided to realize a micro remittance function and an accumulation function as well as a micro payment function by using the cellular phone of the wireless communication without the wired Internet environment. CONSTITUTION: A user section(52) is a buyer checking processor generated when a buyer starts transaction. An input server(54) stores a transaction request as a queue format. A customer information confirmation part(56) verifies a cellular phone number of the buyer and a seller by linking with a mobile communication companys data part(58). A mobile account(62) is a virtual account linked with a real account of a bank or a credit card company(64). A limit/remainder confirmation part (60) decides the transaction by checking the remainder or a credit limit of the mobile account(62). A certification number generating part(66) generates a number for the identification and the approval of the transaction. A transaction particulars server(68) changes the virtual account of the buyer and the seller after confirming the transaction particulars and the certification number from the buyer.

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## Legal Status

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Number of trial against decision to refuse ( )  
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(19) **KOREAN INTELLECTUAL PROPERTY OFFICE**

**KOREAN PATENT ABSTRACTS**

(11)Publication number: **1020070092400**  
**A**

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(21)Application number: **1020060022464**

(71)Applicant: **SHIN HAN BANK**

(22)Date of filing: **10.03.2006**

(72)Inventor: **JUNG, JONG PIL**

**KIM, KI JUNG**

(30)Priority: ..

(51)Int. Cl **G06Q 20/00**

**(54) SYSTEM AND A METHOD FOR PROVIDING A CONVENIENT/SAFE ONE-STOP NON-FACIAL CHANNEL PAYMENT SERVICE BY USING A NICKNAME**

(57) Abstract:

PURPOSE: A system and a method for processing payment by using a nickname are provided to offer an one-stop non-facial channel payment service for online non-facial channel payment by replacing a payment account number for a non-facial channel with the nickname. CONSTITUTION: An information inputting part(115) receives nickname information set to a virtual account connected to a real account of a customer. An information storing part(120) stores the nickname to a storage medium(130) by linking with virtual/real account and customer information. An interface provider(110) transmits a payment form or window to a customer terminal when the customer performs the payment in the online network. A payment processor receives mobile number/nickname information from the customer terminal and transmits an authentication code to the mobile terminal by using the mobile number. If the authentication code is received from the customer terminal, the payment processor authenticates the customer and processes an approval for the payment by checking the virtual account.

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**Legal Status**

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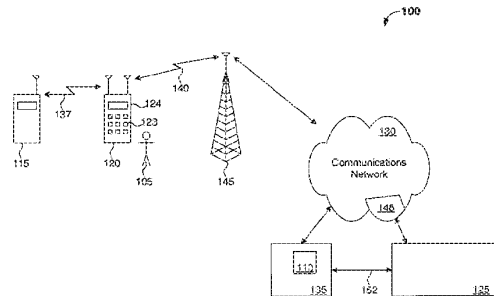
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.



(54) Title: A METHOD AND SYSTEM FOR WIRELESS ELECTRONIC COMMERCE USING A PORTABLE, WIRELESS COMMUNICATION DEVICE HAVING UNIQUE IDENTIFYING INFORMATION



WO 01/71627 A2

(57) Abstract: A method and system for effecting an electronic commerce (e-commerce) transaction, wherein a mobile subscriber/user initiates and controls the transaction at or near a local point-of-transaction (POT) terminal using a portable Wireless Communication Device (WCD). An e-commerce support provider (ESP) computer connected with the Internet participates in and facilitates the e-commerce transaction. Using the WCD, the user electronically transfers user owned assets, such as money, credit, or bonus points, held in a remote consumer asset account, from the asset account to the POT terminal as payment for goods and/or services at the POT. The WCD is uniquely identified by unique identifying information stored in the WCD. The WCD includes a first wireless interface for communicating with a wireless interface in the local POT terminal. First e-commerce transaction data is transmitted between the WCD and the POT terminal using the first wireless interface. The WCD includes a second wireless interface for communicating with the ESP computer. Encrypted second e-commerce transaction data generated as a function of the unique identifying information and the first e-commerce transaction data is transmitted between the WCD and the ESP computer connected with the Internet, using the second wireless interface of the WCD. The exchange of first and second e-commerce transaction data between the POT terminal, the WCD, and the ESP computer, results in the transfer of user assets between the POT terminal and the WCD necessary to effect the e-commerce transaction.

**A METHOD AND SYSTEM FOR WIRELESS  
ELECTRONIC COMMERCE USING A PORTABLE,  
WIRELESS COMMUNICATION DEVICE HAVING  
UNIQUE IDENTIFYING INFORMATION**

5

**BACKGROUND OF THE INVENTION**

**Field of the Invention**

10 The present invention relates generally to electronic commerce, and more particularly, to effecting a wireless electronic commerce transaction using a wireless communication device.

**Related Art**

15 Many commerce transactions require a consumer to be physically at or near a point-of-sale or point-of-transaction (POT) where the consumer exchanges money, or a money substitute, to pay for goods and/or services. Such transactions include, for example, purchasing goods or merchandise at a grocery or department store cash register, buying a meal at a restaurant,  
20 depositing money in a parking meter, and a cash exchange between two co-located individuals. In these transactions, a typically mobile consumer uses cash, a credit card, or a check as a medium of exchange or payment directly at the POT. Such forms of payment have certain disadvantages. For example, the cash,  
25 check and credit card are easily lost. The credit card, when lost, and even when not lost, is a frequent target of fraudulent use by unscrupulous individuals. Also, point-of-sale paper work involved with the credit card and check, and the additional personal identification (usually a driver's license) required to consummate a check transaction, can be a hassle.  
30

Nowadays, the Internet provides a consumer with a rich medium for electronic commerce (herein referred to as e-commerce). A powerful Internet infrastructure, including a plethora of Internet service and support providers, provides the consumer with many beneficial services related to electronic commerce transactions. For example, a consumer can conveniently "shop" in the privacy of his or her own home using a relatively cheap personal computer connected with the Internet. Typically, the consumer purchases goods and/or service from a remote or distant e-commerce shopping partner, also connected with the Internet, by authorizing a credit payment to the shopping partner. Such e-commerce transactions are disadvantageously limited to the extent that the e-commerce shopping partner must be Internet accessible. In other words, the transaction requires a network connection between both partners in the transaction.

Hence, there is a need to effect a commerce transaction in such a way as to overcome the above mentioned disadvantages.

There is a further need to provide security in a commerce transaction to thereby protect the privacy of the transaction and the consumer effecting the transaction.

There is an even further need to effect an electronic commerce transaction between first and second partners and using a network such as the Internet, wherein only one of the partners requires network access.

There is a need to effect an electronic commerce transaction using the Internet, wherein a mobile consumer can be at or near a point-of-transaction, as required, to pay for goods and/or services or to receive payment from the point-of-transaction.

## SUMMARY OF THE INVENTION

The present invention provides a method and system for effecting an e-commerce transaction, wherein a mobile subscriber/user initiates and controls the transaction at or near a local POT terminal using a portable Wireless Communication Device (WCD). An e-commerce support provider (ESP) computer connected with the Internet participates in and facilitates the e-commerce transaction. Using the WCD, the user electronically transfers user owned assets, such as money, credit, or bonus points, held in a remote consumer asset account, from the asset account to the POT terminal as payment for goods and/or services at the POT.

The WCD is uniquely identified by unique identifying information stored in the WCD. The WCD includes a first wireless interface for communicating with a wireless interface in the local POT terminal. First e-commerce transaction data is transmitted between the WCD and the POT terminal using the first wireless interface. The WCD includes a second wireless interface for communicating with the ESP computer. Encrypted second e-commerce transaction data generated as a function of the unique identifying information and the first e-commerce transaction data is transmitted between the WCD and the ESP computer connected with the Internet, using the second wireless interface of the WCD. The exchange of first and second e-commerce transaction data between the POT terminal, the WCD, and the ESP computer, results in the transfer of user assets between the POT terminal and the WCD necessary to effect the e-commerce transaction.

30



### Features and advantages

5           The present invention advantageously preserves the  
mobility of a consumer in an e-commerce transaction, whereby  
the consumer can participate in the e-commerce transaction at or  
near a POT. The present invention permits the consumer to  
initiate and control an electronic transfer of consumer owned  
10           assets, such as money, to pay for goods and services at the POT.  
The present invention thereby avoids the need for and pitfalls  
associated with using conventional mediums of exchange, such as  
cash, a credit card, or a check.

          The present invention advantageously provides Internet  
15           connectivity and support to a mobile user in an e-commerce  
transaction while adding a level of security and privacy to the  
transaction. Also, a POT terminal in accordance with the present  
need not be Internet accessible to participate in the e-commerce  
transaction.

20           The WCD of the present invention serves as a kind of  
"electronic wallet" that is convenient to carry, and private and  
secure in use.

### **BRIEF DESCRIPTION OF THE FIGURES**

25           The foregoing and other features and advantages of the  
invention will be apparent from the following, more particular  
description of a preferred embodiment of the invention, as  
illustrated in the accompanying drawings.

          FIG. 1 is an overview of a system for effecting an e-  
30           commerce transaction in accordance with the present invention

          FIG. 2A is an illustration of exemplary memory buffer in  
the WCD of FIG. 1.

FIG. 2B is an exemplary format of an encrypted e-commerce transaction digital data packet exchanged between a WCD and an ESP computer of FIG. 1.

5 FIG. 2C is an exemplary format of an e-commerce transaction digital data packet exchanged between a WCD and a POT terminal of FIG. 1.

FIG. 3 is a block diagram of an embodiment of a logical architecture corresponding to the system of FIG. 1.

10 FIG. 4 is an e-commerce transaction process of corresponding to an e-commerce transaction in the system of FIG. 1.

FIG. 5 is an illustration of an encryption/decryption function of FIG. 3.

15 FIG. 6 is a block diagram of an arrangement for an electronic transfer of assets from a WCD to another WCD.

FIG. 7 is a block diagram of an arrangement for effecting an e-commerce transaction using a WCD capable of scanning merchandise bar codes.

20 FIG. 8 is a block diagram of an embodiment of the WCD of FIG. 1.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

25 FIG. 1 is an overview of a system 100 for effecting an e-commerce transaction in accordance with the present invention. In system 100, a subscriber/user 105 owns assets held in an asset account 110. User 105 initiates and controls an electronic transfer of assets between the asset account 110 and a POT terminal 115 using a portable WCD 120. Portable WCD 120 includes an input device 123 and a display device 124 enabling user 105 to participate in the e-commerce transaction via the WCD. In an example transaction where asset account 110 is a user bank

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account, user 105 uses system 100 to electronically transfer money from his or her bank account 110 to POT terminal 115 to purchase goods or services at the POT terminal. In an alternative arrangement, the user electronically transfers assets in an opposite direction, that is, from POT terminal 115 to his or her bank account 110. In the e-commerce transaction of the present invention, POT terminal 115 and WCD 120 are relatively nearby or local to one another while asset account 110 is relatively distant or remote from both POT terminal 115 and WCD 120.

To facilitate the above mentioned electronic transfer of assets, system 100 includes an ESP computer 125 linked with a communication network 130. ESP computer 125, which can reside in an Internet support provider facility, preferably provides centralized, Internet processing support in many e-commerce transactions of the present invention. In the embodiment of FIG. 1, ESP computer 125 communicates with both WCD 120 and an e-commerce facility 135, such as a bank, holding asset account 110, such that asset account is electronically accessible to ESP computer 125.

WCD 120 includes a first wireless interface for wirelessly communicating with a compatible wireless interface in POT terminal 115 over a short-range wireless communications link 137. WCD 120 exchanges e-commerce transaction messages in the form of digital data packets with POT terminal 115 over short-range wireless communications link 137. WCD 120 also includes a second wireless interface for wirelessly communicating with ESP computer 125. WCD 120 is uniquely identified by unique identifying information stored in WCD 120, and also available to ESP computer 125. To maintain a required level of security and privacy in the e-commerce transaction, WCD 120 and ESP computer 125 exchange encrypted e-commerce transaction

messages, also in the form of digital data packets, generated as a function of the unique identifying information.

Since WCD 120 communicates wirelessly with both POT terminal 115 and ESP computer 125, system 100 advantageously permits user mobility in any e-commerce transaction of the present invention. Thus, portable WCD 120 conveniently functions as a kind of "electronic wallet" or "pocket book" because user 105 carries WCD 120 to the POT (that is, near to POT terminal 115) and uses WCD 120 as the conduit for a secure and private electronic transfer of money or other asset to or from POT terminal 115. Another advantage of the present invention is that POT terminal 115 can be a stand-alone electronic device, since POT terminal 115 need not be network accessible.

WCD 120 and ESP computer 125 communicate via 1) a wireless communication link 140 between the WCD and a communication network access device 145, such as a radio base station or the like, and 2) communication network 130. Communication network 130 encompasses the world wide packet data communications network commonly referred to as the Internet, local area networks, and the public switched telephone network. ESP computer 125 can be connected to the Internet via, for example, an Internet service provider 148. An Internet address corresponding to ESP computer 125 is stored in the memory of WCD 120, and an Internet address corresponding to WCD 120 is stored in a memory of ESP computer 125. This enables WCD 120 and ESP computer 125 to establish Internet connections between each other for the exchange of encrypted data packets during an e-commerce transaction.

As previously mentioned, ESP computer 125 also communicates with e-commerce facility 135, such as a bank, wherein asset account 110 is typically held. ESP computer 125 and e-commerce facility 135 communicate with each other via

communication network 130 and/or a dedicated communication link 152. In an alternative arrangement of system 100, asset account 110 is co-located with ESP computer 125, thus obviating the need for additional communications between ESP computer 125 and e-commerce facility 135.

In the present invention, WCD 120 and ESP computer 125 both include memory for storing the unique identification information associated with WCD 120. Such identification information includes an Electronic Serial Number (ESN), a Mobile Subscriber Number (MSN), and a user/subscriber access Personal Identification Number (PIN) or password. The ESN uniquely identifies WCD 120 and is programmed into the memory device of WCD 120 at a factory where WCD 120 is manufactured. The MSN also uniquely identifies WCD 120 and can serve as a network address of WCD 120. The user selects the PIN and enters the PIN into the memory buffer of WCD 120 using input device 123. The PIN thus serves as a password required for using WCD 120. WCD 120 and ESP computer 125 use the unique identification information to establish a network connection between each other, to uniquely identify each e-commerce transaction, and to generate the encrypted e-commerce transaction data packets.

An exemplary memory buffer 200 of WCD 120 for storing the unique identifying information of the WCD, is depicted in FIG. 2A. Memory buffer 200 includes memory locations 202, 204, 206 and 208 for respectively storing an ESN, an MSN, a PIN and an Internet address for ESP computer 125. A similar memory buffer resides in ESP computer 125, except that the memory buffer of ESP computer 125 includes an Internet address for WCD 120.

FIG. 2B is an exemplary format of an encrypted e-commerce transaction digital data packet 220 exchanged between WCD 120 and ESP computer 125. Packet 220 includes a message

type field 222, a WCD address field 224, and an encrypted data payload 226. Message type field 222 contains a message type specifier indicating a message type, such as a request, response or any other message type. WCD address field 224 includes a network address, such as an MSN (for example, the MSN of WCD 120), corresponding to the WCD that is either the originator or destination of the message in data packet 220. Data payload 226 includes the encrypted content of a message. Packet 220 also includes any additional fields required to support a particular application or communication protocol, such as an Internet communication protocol (IP). In the preferred embodiment, data packet 220 is further formatted in accordance with Internet communication protocols, such as an Internet Point-to-Point protocol (PPP) and TCP/IP.

FIG. 2C is an exemplary format of an e-commerce transaction digital data packet 230 exchanged between WCD 120 and POT terminal 115, over wireless link 137. Data packet 230 includes a header field 235 containing any header information required to support a particular application. Packet 230 also includes a data payload 240 containing the content of a message. The content of the message can be formatted as a simple ASCII character string, in the HyperText Markup Language (HTML), in the Wireless Markup Language (WML)( also known as the Hand held Devices Markup Language (HDML)), or in accordance with any other format, so long as a message received by WCD 120 can be displayed to user 105 by WCD 120, when necessary, and as described below.

FIG. 3 is an embodiment of a logical architecture corresponding to system 100. POT terminal 115, WCD 120 and ESP computer 125 each include memory and computer processing capability sufficient to host and execute software programs or applications required to support an e-commerce transaction.

WCD 120 hosts an e-commerce client application 300, including for example, a known browser application, and an e-commerce server application 325. ESP computer 125 hosts an ESP application 330, including new transaction, billing/accounting, and communication software applications. Also, WCD 120 and ESP computer 125 host complementary encryption/decryption functions 335 and 340, respectively, for generating the encrypted e-commerce transaction data packets mentioned in connection with FIG. 1, and for decrypting these encrypted packets. POT terminal 115 hosts an e-commerce application server 345 and is capable of electronically receiving assets, such as money, as payment for goods and/or services.

E-commerce client 300 of WDC 120 transmits request messages to and receives response messages from ESP application 330. E-commerce client application 300 also includes a user control interface for respectively displaying messages to and receiving e-commerce transaction control commands from user display device 124 and user input device 123 of WCD 120, thus allowing user 105 to participate in and control the e-commerce transaction. E-commerce client 300 transmits request messages to and receives response messages from e-commerce application server 345 in POT terminal 115. Messages received by e-commerce client application 300 can be displayed to the user device as and when appropriate. For example, an HTML or HDML command sequence transmitted by POT terminal 115 can be displayed by client 300, as is done with known browser applications.

An e-commerce transaction process of the present invention is depicted in FIG. 4. FIG. 4 corresponds to an e-commerce transaction in the system of FIG. 1. The process begins at a step 402 when user 105 initiates the e-commerce transaction using WCD 120, for example, by pressing a start key or the like on

the WCD. At a step 405, WCD 120 transmits a request message to POT terminal 115 requesting POT terminal specific e-commerce information from the POT terminal. At a step 410, POT terminal 115 transmits a response message including the specific e-commerce information to WCD 120. At a step 415, WCD 120 receives the response message. WCD 120 displays necessary information relating to and/or received from POT terminal 115 to user 105 and prompts the user for input if necessary. WCD 120 accepts information and/or commands entered by user 105 via input device 123 of WCD 120.

At a step 420, WCD 120 generates an encrypted request message based on or as a function of some or all of the information and/or commands received from POT terminal 115 and user 105, and using the unique identification information associated with the WCD. A typical encrypted request message, in accordance with the format of message 220, includes a "request" message type specifier in message type field 222, the MSN of WCD 120 in address field 224, and an encrypted message as payload 226. One or more of the MSN, ESN and PIN of WCD 120 are used to generate encrypted payload 226. WCD 120 transmits the encrypted request message to ESP computer 125.

At a step 425, ESP computer 125 receives the encrypted request message, verifies the address in field 224, and decrypts the encrypted message using the same unique identification information, for example the ESN, MSN, and/or PIN, as was used to encrypt the message in step 420. Next, at a step 427, ESP computer 125 establishes communications with remote e-commerce facility 135 to verify/validate the e-commerce transaction in real-time, that is, right away, and in relation to user asset account 110 held at the e-commerce facility. For example, ESP computer 125 validates the e-commerce transaction by



verifying there are sufficient assets in asset account 110 to satisfy an asset amount requested in the request message from WCD 120.

5 In one exemplary verification/validation process, ESP computer 125 transmits the MSN (and PIN if required) to e-commerce facility 135. In turn, e-commerce facility 135 identifies user asset account 110 using the MSN (and PIN if required). This being done, ESP computer 125 solicits an "approval" from e-commerce facility 135 indicating there are sufficient funds available in asset account 110 to satisfy or "cover" an asset amount  
10 requested in the request message from WCD 120, that is necessary to complete the e-commerce transaction at the POT terminal.

At a step 430, ESP computer 125 generates an encrypted verification/validation response message using the same unique identification information as was used in step 420, and transmits  
15 the message to WCD 120. The response message indicates whether the e-commerce transaction is approved. At a step 435, after receiving the verification/validation response message, WCD 120 transmits a message including required assets to POT terminal 115 if the received verification/validation response  
20 message indicates an approved or validated e-commerce transaction. At a step 440, after further communication between ESP computer 125 and facility 135, asset account 110 is debited to reflect the consummated e-commerce transaction, that is, the electronic transfer of user owned assets from asset account 110 to  
25 POT terminal 115.

With regard to the user PIN, different levels of security are advantageously provided in the present invention. For example, WCD 120 can provide the user with a menu of security options. Such options, when selected, can require the user to enter the PIN  
30 1) before every e-commerce transaction, 2) periodically, for example, every X hours (where X is 1, 2 etc.), 3) upon powering on WCD, or 4) when the e-commerce transaction involves at least a

predetermined amount of assets or money. Such security features decrease the chances of any fraudulent use of WCD 120 in an e-commerce transaction.

5 FIG. 5 is an illustration of encryption/decryption function 335 of FIG. 3. Encryption/decryption functions 335 and 340 are the same, and therefore, a description of one suffices for the other. Encryption/decryption function 335 includes an encryption sub-function 500 for encrypting transaction data 505 with unique identification information 510, to generate encrypted e-commerce transaction data 515. Encryption sub-function 500 uses any known encryption algorithm providing the level of security and privacy required for the e-commerce transaction, so long as the unique identification information of WCD 120 can be used to encrypt the transaction data 505. Exemplary encryption/decryption protocols useable in the present invention include, but are not limited to, the Data Encryption Standard (DES) encryption protocol, and the Pretty Good Privacy (PGP) protocol commonly used to encrypt electronic mail and Internet files.

20 Encrypted data 515 generated by encryption sub-function 500 represents payload 226 of message 220. Transaction data 505 is based on information received from POT terminal 115 and user input at WCD 120. Unique identification information 510 includes at least one of the MSN, ESN and PIN associated with WCD 125. Encryption/decryption function 335 also includes a decryption sub-function 520 for decrypting encrypted transaction data 525 with unique identification information 510, to generate decrypted e-commerce transaction data 530.

30 In the following exemplary "parking meter" e-commerce transaction, POT terminal 115 is a parking meter capable of accepting electronic money deposits transmitted to the meter by WCD 120. User 105 initiates the parking meter e-commerce