UNITED STATES PATENT AND TRADEMARK OFFICE

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

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/647,859	03/05/2019	10223692	20533.40a.1	5414

22913 7590 02/13/2019

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 273 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):

Min Hwan JEON, Gwangju-si, KOREA, REPUBLIC OF;
MOZIDO CORFIRE - KOREA, LTD., Seongnam-si Gyeonggi-do, KOREA, REPUBLIC OF;

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.

Via E-File

PATENT APPLICATON
Docket No: 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:		)
	Min Hwan Jeon	)
Serial No:	14/647,859	) Art Unit) 3695
Filed:	May 28, 2015	)
Confirmation No.:	5414	)
For:	METHOD FOR SETTING TEMPORRY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)
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 October 18, 2018, 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.

X 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:

X The $1,000.00 government issue fee pursuant to 37 C.F.R. § 1.18.

___ The $_____ government publication fee pursuant to 37 C.F.R. § 1.18.(d)

X 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 15th day of January, 20__.

Respectfully submitted,

JOHN C. STRINGHAM
Registration No. 40,831
WORKMAN NYDEGGER
Attorneys for Applicant
Customer No. 022913
Telephone No. 801.533.9800
jstringham@wnlaw.com

38697405_1.doc

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 10/18/2018
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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

TITLE OF INVENTION: METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/18/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBINSON, KITO R	3695	705-041000

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

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

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Workman Nydegger
2
3

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: Mozido Corfire - Korea, LTD.

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Republic of Korea

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

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies

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

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 23-3178

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: 1/15/19

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

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	14647859
Filing Date:	28-May-2015
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Filer:	John C. Stringham/Sue Held
Attorney Docket Number:	20533.40a.1

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
			Total in USD ($)	**1000**

Electronic Acknowledgement Receipt

EFS ID:	34861069
Application Number:	14647859
International Application Number:	
Confirmation Number:	5414
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Customer Number:	22913
Filer:	John C. Stringham/Sue Held
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20533.40a.1
Receipt Date:	15-JAN-2019
Filing Date:	28-MAY-2015
Time Stamp:	16:00:02
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1000
RAM confirmation Number	011619INTEFSW16013300
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 1.17 (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)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	20533_40a_1_Transmittal_of_Issue_Fee.pdf	62040 74cf0bedf4f0c4ee326c138022f52cf9236153c1	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)	20533_40a_1_Fees_Transmittal.pdf	100662 c34f24dabad3b93d8901c523a62b4b60e411e2e7	no	1
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	30629 043b7bfd2bfa829f9e4aeb1a487c3895ba76fd0f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	193331		

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.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

22913 7590 10/18/2018

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
ROBINSON, KITO R

ART UNIT	PAPER NUMBER
3695	

DATE MAILED: 10/18/2018

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

TITLE OF INVENTION: METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/18/2019

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.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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 10/18/2018
Workman Nydegger
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Salt Lake City, UT 84111

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Certificate of Mailing or Transmission

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(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

TITLE OF INVENTION: METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1000	$0.00	$0.00	$1000	01/18/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBINSON, KITO R	3695	705-041000

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

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

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-09 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1_____
2_____
3_____

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

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

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

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

4a. Fees submitted: ❑Issue Fee ❑Publication Fee (if required) ❑Advance Order - # of Copies _____

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

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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.
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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. _____

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.
14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

22913 7590 10/18/2018

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER	
ROBINSON, KITO R	
ART UNIT	**PAPER NUMBER**
3695	

DATE MAILED: 10/18/2018

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.

PTOL-85 (Rev. 02/11)

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 30 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.

Notice of Allowability	Application No. 14/647,859	Applicant(s) JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	AIA Status 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 request for continued examination 26 February 2018.
   ☐ 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 1-2,4-5 and 7-15 . 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** 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 _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. 09/28/2018.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/KITO R ROBINSON/
Primary Examiner, Art Unit 3695

DETAILED ACTION

Status of Claims

1. This action is in reply to the request for continued examination filed on 26 February 2018.

2. Claim 1 and 15 have been amended.

3. Claim 3 and 6 have been canceled.

4. Claims 1, 2, 4, 5, 7-15 are currently pending and have been examined.

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

6. The Examiner respectfully rescinds the U.S.C. 103(a) rejection on claims 1, 2, 4, 5, 7-15 in view of claimed amendments.

Continued Examination Under 37 CFR 1.114

7. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 26 February 2018 has been entered.

EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with W. Brad Barger on 28 September 2018.

The application has been amended as follows:

Claim 1 (Currently Amended) A method for setting a temporary payment card, comprising:

displaying a list of mobile payment cards at a first portion of a touch screen interface;

receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, setting, as a temporary card, the mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card;

displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount;

simultaneously:

moving the mobile payment card a first distance from the first portion of the screen towards a [[the]] second portion of the touch screen, and

decrementing the numerical indicator a first difference to display a remaining payable time,

wherein:

the first distance is proportional to an amount of payable time that has passed, and

the first difference is proportional to the amount of payable time that has passed: and

resetting the setting of the temporary payment card when the payable time passes such that the mobile payment card is no longer set as the temporary card and payments are made through a main card.

Claim 15 (Currently Amended) A mobile device comprising:

a touch screen configured to display a list of mobile payment cards; and a processor configured to:

displaying a list of mobile payment cards at a first portion of a touch screen interface;

receive, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detect the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, set as temporary card, [[a]] the mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card;

displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount;

simultaneously:

moving the mobile payment card a first distance from the first portion of the screen towards a [[the]] second portion of the touch screen, and

decrementing the numerical indicator a first difference to display a remaining payable time,

wherein:

the first distance is proportional to an amount of payable time that has passed, and

the first difference is proportional to the amount of payable time that has passed: and

reset the setting of the temporary payment card when the payable time passes.

Allowable Subject Matter

8. The following is an examiner's statement of reasons for allowance: The instant application is directed towards setting a temporary payment card. More specifically, the Applicants claim a system and method for setting a temporary payment card, comprising: displaying a list of mobile payment cards at a first portion of a touch screen interface; receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card; detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface; based upon the user input sliding the mobile payment card, setting, as a temporary card, the mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card; displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount; simultaneously: moving the mobile payment card a first distance from the first portion of the screen towards a second portion of the touch screen, and decrementing the numerical indicator a first difference to display a remaining payable time, wherein: the first distance is proportional to an amount of payable time that has passed, and the first difference is proportional to the amount of payable time that has passed: and resetting the setting of the temporary payment card when the payable time passes such that the

mobile payment card is no longer set as the temporary card and payments are made through a main card.

9. Furthermore, Hertel [US 2009/0288012 A1] discloses "A configuration (a system and/or a method) are disclosed that includes a unified and integrated configuration that is composed of a payment system, an advertising system, and an identity management system as well as their associated methods such that the unified system has all of the benefits of the individual systems as well as several additional synergistic benefits. Also described are specific configurations (subsystems and/or methods) including the system's access point architecture, a user interface that acts as a visual wallet simulator, a security architecture, coupon handling as well as the system's structure and means for delivering them as targeted advertising, business card handling, membership card handling for the purposes of login management, receipt handling, and the editors and grammars provided for customizing the different types of objects in the system as well as the creation of new custom objects with custom behaviors. The configurations are operable on-line as well as through physical presence transactions, e.g., mobile transaction through a mobile phone or dedicated device at a physical site for a transaction." Spodak [US 2012/0123937 A1] discloses "Universal cards are used in place of all the other traditional cards which a person may want to carry. The universal card can include a short range communications transceiver to communicate with a mobile device. The mobile device can include a user interface and an e-wallet application so that the user can interface with the e-wallet

application for programming the universal card via the short range communication link. Once programmed, the universal card emulates a function of a traditional card."

10. However, in the instant application none of the prior arts of record either individually or in combination teach or suggest based upon the user input sliding the mobile payment card, setting, as a temporary card, the mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card; displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount; simultaneously: moving the mobile payment card a first distance from the first portion of the screen towards a second portion of the touch screen, and decrementing the numerical indicator a first difference to display a remaining payable time, wherein: the first distance is proportional to an amount of payable time that has passed, and the first difference is proportional to the amount of payable time that has passed: and resetting the setting of the temporary payment card when the payable time passes such that the mobile payment card is no longer set as the temporary card and payments are made through a main card.

For these reasons claims 1 and 15 are deemed to be allowable over the prior art of record, and claims 2, 4, 5, and 7-14 are allowed by dependency on an allowed claim.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure is listed on the enclosed PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KITO R ROBINSON whose telephone number is (571)270-3921. The examiner can normally be reached on M-F 8:30am-5:30pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ryan Donlon can be reached on (571) 270-36023602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KITO R ROBINSON/
Primary Examiner, Art Unit 3695

26 September 2018

Examiner-Initiated Interview Summary	Application No. 14/647,859	Applicant(s) JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	AIA Status No

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

(1) KITO R. ROBINSON. (3) _____.

(2) W. BRAD BARGER. (4) _____.

Date of Interview: 28 September 2018.

Type: ☑ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☑ No.
If Yes, brief description: _____.

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☑ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1 and 15.

Identification of prior art discussed: None.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

Applicant's attorney W. Brad Barger gave the Examiner permission in an Examiner's Amendment to fix antecedent basis issues with independent claim 1, lines 16 and independent claim 15, lines 11 and 17. These amendments place the application in condition for allowance..

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☐ Attachment

/KITO R ROBINSON/ Primary Examiner, Art Unit 3695	

Notice of References Cited	Application/Control No. 14/647,859	Applicant(s)/Patent Under Reexamination JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	Page 1 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-4717815-A	01-1988	Tomer; Natan	G06Q20/0652	235/378
*	B	US-6490601-B1	12-2002	Markus; Matthew A.	G06F17/243	705/80
*	C	US-20030225642-A1	12-2003	Baker, Daniel Guy	G06Q20/10	705/35
*	D	US-7065195-B1	06-2006	Smith; Denise E.	G06K19/041	379/114.01
*	E	US-20060179404-A1	08-2006	Yolleck; Stephen Mark	G06F17/243	715/272
*	F	US-20060208065-A1	09-2006	Mendelovich; Isaac	G06Q20/04	235/380
*	G	US-20080059379-A1	03-2008	Ramaci; Jonathan E.	G06Q20/105	705/66
*	H	US-20090069056-A1	03-2009	Lee; Sang-Hyun	G06F1/3203	455/566
*	I	US-20090173781-A1	07-2009	Ramachandran; Natarajan	G06Q20/042	235/379
*	J	US-20090288012-A1	11-2009	Hertel; Philipp Frank Hermann Udo	G06Q20/02	715/738
*	K	US-9361606-B2	06-2016	Hertel; Philipp Frank Hermann Udo	G06Q20/02	1/1
*	L	US-20090309701-A1	12-2009	Peled; Amram	G06Q20/341	340/5.83
*	M	US-20100094774-A1	04-2010	Jackowitz; Kenneth S.	G06Q40/00	705/36R

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	Ghag, O., & Hegde, S. (2012). A comprehensive study of google wallet as an NFC application. International Journal of Computer Applications, 58(16), n/a. doi:http://dx.doi.org/10.5120/9369-3825 (Year: 2012)
	V	Kutler, J. (1999). Trintech virtual card uses new digital standard @sh#1st consumer application of electronic commerce modeling language. American Banker, 164(117), 17(1). Retrieved from https://dialog.proquest.com/professional/docview/667560331?accountid=142257 (Year: 1999)
	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.

Notice of References Cited	Application/Control No. 14/647,859	Applicant(s)/Patent Under Reexamination JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	Page 2 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-7707113-B1	04-2010	DiMartino; Allison	G06Q20/105	705/41
*	B	US-7967196-B1	06-2011	Bierbaum; Christopher J.	G06Q20/127	235/375
*	C	US-7984510-B2	07-2011	Morikawa; Shigenori	G06Q20/04	235/380
*	D	US-20120123937-A1	05-2012	Spodak; Douglas	G06K19/06187	705/41
*	E	US-20130084797-A1	04-2013	Avadhanam; Phani Bhushan	G06F9/44505	455/41.1
*	F	US-8768249-B2	07-2014	Avadhanam; Phani Bhushan	G06F9/44505	340/501
*	G	US-20130346302-A1	12-2013	Purves; Thomas	G06Q20/102	705/40
*	H	US-8639291-B1	01-2014	Gailloux; Michael A.	H04W52/0274	455/558
*	I	US-20140040120-A1	02-2014	Cho; Kyoungmin	G06Q20/3278	705/39
*	J	US-20140040128-A1	02-2014	PARK; Jong-han	G06Q20/108	705/42
*	K	US-20140122563-A1	05-2014	Singh; Dickey B.	H04L67/34	709/203
*	L	US-8959143-B2	02-2015	Singh; Dickey B.	H04L67/34	709/203
*	M	US-20140222597-A1	08-2014	Nadella; Sekhar	G06Q20/204	705/21

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.

Notice of References Cited	Application/Control No. 14/647,859	Applicant(s)/Patent Under Reexamination JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	Page 3 of 3

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-8887997-B2	11-2014	Barret; Patrick Marie	G06Q20/02	235/375
*	B	US-20150073983-A1	03-2015	Bartenstein; Christopher Joseph	G06Q20/3415	705/41
*	C	US-20150134513-A1	05-2015	Olson; Thiago	G06K19/06206	705/39
*	D	US-20150346994-A1	12-2015	Chanyontpatanakul; Yothin	G06F3/04883	715/828
*	E	US-9990126-B2	06-2018	Chanyontpatanakul; Yothin	G06F3/04883	1/1
*	F	US-20160027002-A1	01-2016	CHOI; Byoungkab	G06Q20/367	705/41
*	G	US-D763888-S	08-2016	Patel; Paresh K.		D14/486
*	H	US-D803869-S	11-2017	Kuhn; Stephen		D14/488
	I					
	J					
	K					
	L					
	M					

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.

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	**Art Unit**
	KITO R ROBINSON	3695

CPC						
Symbol					**Type**	**Version**
G06Q	/	20	/	36	F	2013-01-01
G06Q	/	20	/	32	I	2013-01-01
G06Q	/	20	/	363	I	2013-01-01
G06F	/	3	/	0482	I	2013-01-01
G06F	/	3	/	04842	I	2013-01-01
G06Q	/	20	/	227	I	2013-01-01
G06Q	/	20	/	322	I	2013-01-01
G06Q	/	20	/	3278	I	2013-01-01
G06Q	/	20	/	0652	I	2013-01-01

CPC Combination Sets							
Symbol					**Type**	**Set**	**Ranking**	**Version**
	/		/					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	13	
/KITO R ROBINSON/ Primary Examiner, Art Unit 3695	26 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	17

U.S. Patent and Trademark Office — Part of Paper No.: 20180924

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	**Art Unit**
	KITO R ROBINSON	3695

INTERNATIONAL CLASSIFICATION				
CLAIMED				
G06Q	/	20	/	36

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
705	41

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	13	
/KITO R ROBINSON/ Primary Examiner, Art Unit 3695	26 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	17

U.S. Patent and Trademark Office — Part of Paper No.: 20180924

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	**Art Unit**
	KITO R ROBINSON	3695

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

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	8	10												
2	2	9	11												
	3	10	12												
3	4	11	13												
4	5	12	14												
	6	13	15												
5	7														
6	8														
7	9														

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	13	
/KITO R ROBINSON/ Primary Examiner, Art Unit 3695	26 September 2018	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	17

U.S. Patent and Trademark Office — Part of Paper No.: 20180924

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	Art Unit
	KITO R ROBINSON	3695

CPC - Searched*		
Symbol	**Date**	**Examiner**
G06Q 20/36	09/26/2018	KR
G06F 3/0482	09/26/2018	KR
G06F 3/04842	09/26/2018	KR
G06Q 20/0652	09/26/2018	KR
G06Q 20/227	09/26/2018	KR
G06Q 20/32	09/26/2018	KR
G06Q 20/322	09/26/2018	KR
G06Q 20/3278	09/26/2018	KR
G06Q 20/363	09/26/2018	KR

CPC Combination Sets - Searched*		
Symbol	**Date**	**Examiner**

US Classification - Searched*			
Class	**Subclass**	**Date**	**Examiner**
705	41	09/26/2018	KR

* 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: INVENTOR SEARCH, BACKWARD/FORWARD	09/26/2018	KR
PROQUEST	09/26/2018	KR

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	Art Unit
	KITO R ROBINSON	3695

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
705	41	09/26/2018	KR

APPL-1002
APPLE INC. / Page 33 of 3598

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	**Art Unit**
	KITO R ROBINSON	3695

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

CLAIMS

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

CLAIM		DATE								
Final	Original	03/16/2017	08/21/2017	09/25/2018						
1	1	✓	✓	=						
2	2	✓	✓	=						
	3	✓	✓	-						
3	4	✓	✓	=						
4	5	✓	✓	=						
	6	✓	✓	-						
5	7	✓	✓	=						
6	8	✓	✓	=						
7	9	✓	✓	=						
8	10	✓	✓	=						
9	11	✓	✓	=						
10	12	✓	✓	=						
11	13	✓	✓	=						
12	14	✓	✓	=						
13	15	✓	✓	=						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	temporar$4 with setting near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:56
S2	4	temporar$4 with setting near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:57
S3	729	temporar$4 near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:58
S4	3	temporar$4 near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S5	7	temporar$4 near6 (payment or debit or credit) near2 card near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S6	16	temporar$4 with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:01
S7	795	temporar$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S8	18	temporar$4 near4 ((payment or debit or credit) near2 card) near4 select$3	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S9	192	(limit$3 or momentary or alternative or substitute or temp) with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S10	80	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S11	19	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S12	6	(momentary or alternative or substitute or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:34
S13	6	(momentary or alternative or substitut$3 or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:37
S14	4	temporar$4 near4 ((payment or debit or credit) near2 card) near4 automatic$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:46
S15	13	temporar$4 near6 ((payment or debit	US-PGPUB;	OR	ON	2017/03/16

		or credit) near2 card) near6 automatic$4	USPAT; USOCR			09:49
S16	0	temporar$4 near6 ((payment or debit or credit) near2 card) near6 overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S17	0	temporar$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S18	282	overrid$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S19	282	overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S20	105	overrid$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S21	22	overrid$4 near4 default$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:52
S22	22	overrid$4 near6 default$4 near6 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:53
S23	22	overrid$4 near8 default$4 near8 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S24	40	overrid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S25	0	over-rid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:59
S26	25	overrid$4 with exist$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:00
S27	0	temporar$4 with overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:01
S28	33912	temporar$4 with overrid$4 with default$4 (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S29	0	temporar$4 with overrid$4 with default$4 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S30	5	temporar$4 with default$4 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:03
S31	3	temporar$4 with desir$3 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S32	32	temporar$4 with desir$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S33	0	temporar$4 with ((virtual) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:06
S34	0	temporar$4 with ((payment or debit	US-PGPUB;	OR	ON	2017/03/16

		or credit) near2 account) with default$4	USPAT; USOCR			10:07
S35	0	temporar$4 with default$4 with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S36	100678	temporar$4 with setting ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S37	2	temporar$4 with setting with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S38	26	temporar$4 with setting with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:08
S39	0	default near4 ((payment or debit or credit) near2 card) near4 limited near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S40	2	default with ((payment or debit or credit) near2 card) with limited with time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S41	95	default$4 with ((payment or debit or credit) near2 card) near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:17
S42	20	default$4 near4 ((payment or debit or credit) near2 card) near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:17
S43	1	("20090173781").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/03/16 13:36
S44	42	("20020071076" | "20030132298" | "20040111320" | "20040225567" | "20040230489" | "20050187873" | "20050230472" | "20060165060" | "20060219780" | "20070210155" | "20080242274" | "20090094100" | "20090228966" | "20100063893" | "20100082447" | "20100174649" | "20100205045" | "20100287057" | "20110082765" | "20110254796" | "20110320293" | "20120054841" | "20120099756" | "20120172026" | "20120172089" | "20120197743" | "20120290420" | "20130041752" | "20130080289" | "20130185150" | "20130215116" | "20140058944" | "20140337230" | "20140351071" | "6512919" | "6587835" | "6636833" | "6755342" | "7707113" | "8271344" | "8403215" | "8849706").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:29
S45	0	S44 and (default$4 near4 ((payment or debit or credit) near2 card) near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S46	0	S44 and (temporar$4 with ((payment or debit or credit) near2 account) with default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S47	0	S44 and (temporar$4 same ((payment or debit or credit) near2 account) same default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S48	1	S44 and (overrid$4 near4 ((payment	US-PGPUB;	OR	ON	2017/03/16

		or debit or credit) near2 card))	USPAT; USOCR			14:31
S49	5	705/41 and (overrid$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:31
S50	0	705/41 and (moving near4 ((payment or debit or credit) near2 card) near wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:49
S51	2	705/41 and (finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S52	252	(finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S53	1	(finger near4 moving near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S54	2	(finger near8 moving near8 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S55	12	(finger with moving with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:51
S56	0	(finger with rearrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S57	0	(finger with re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S58	10049087	(f re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S59	1	(re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S60	2512	(arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S61	17	(arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S62	1	(rearrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:53
S63	0	(re-arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S64	0	(re-arrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S65	1	(rearrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S66	11	(changing near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:23
S67	0	((select$4 or overrid$3) near3	US-PGPUB;	OR	ON	2017/03/16

		((payment or debit or credit) near2 card) near4 limited near4 time)	USPAT; USOCR			16:24
S68	2	((using) near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:25
S69	154	(((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:26
S70	27	((resetting near4 (payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:26
S71	44	((resetting near8 (payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:37
S72	12	((resetting near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:46
S73	103	((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:48
S74	34	((reset near4 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S75	9	705/$$ and ((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S76	0	705/$$ and ((reset$4 near8 (prefer$3) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:51
S77	38	705/$$ and ((reset$4 near4 card near4 used))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:55
S78	66	((revert$4 near8 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S79	54	((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S80	29	705/$$ and ((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S81	0	((((payment or debit or credit or default or prefer$4) near2 card) with activat$4 with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:56
S82	12	((((payment or debit or credit or default or prefer$4) near2 card) with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:56
S83	1	((((payment or debit or credit or default or prefer$4) near2 card) near6 few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58
S84	1	((((payment or debit or credit or default or prefer$4) near2 card) with few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58

S85	9	(((payment or debit or credit or default or prefer$4) near2 card) near6 (restrict$4 or frozen or freeze or activat$4)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:59
S86	25	(((payment or debit or credit or default or prefer$4) near2 card) near6 (buy$4 or purchas$4) near4 time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:02
S87	8	(((payment or debit or credit or default or prefer$4) near2 card) near6 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:03
S88	9	(((payment or debit or credit or default or prefer$4) near2 card) near8 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:04
S89	15	(((payment or debit or credit or default or prefer$4) near2 card) with timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:05
S90	57	(((payment or debit or credit or default or prefer$4) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
S91	19	705/$$ and (((payment or debit or credit or default or prefer$4 or smart) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
S92	2	705/$$ and ((electronic near2 wallet) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:08
S93	3	(sliding with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:20
S94	0	(reposition with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S95	139	((position or arrange or move or slide or sliding) with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S96	9	705/41 and ((position or arrange or move or slide or sliding) with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S97	48	705/$$ and ((position or arrange or move or slide or sliding) with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:22
S98	18	705/$$ and ((position or arrange or move or slide or sliding) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:24
S99	4	705/$$ and ((drag) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:27
S100	4	705/$$ and ((drag or dragging) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:27
S101	23	705/$$ and ((drag or dragging) with card with ((electronic near2 wallet)	US-PGPUB; USPAT;	OR	ON	2017/08/21 12:27

		or ewallet or e-wallet or touchscreen or (touch near2 screen)))	USOCR			
S102	3	705/$$ and ((drag near3 drop) with card with ((electronic near2 wallet) or ewallet or e-wallet or touchscreen or (touch near2 screen)))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S103	134	705/$$ and ((drag near3 drop) with card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S104	0	705/$$ and ((drag near3 drop) near4 card same temporar$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S105	35	705/$$ and ((drag near3 drop) near4 card and temporar$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:34
S106	5	705/$$ and ((temporar$4 near4 select$4 near4 card) same ((touch near2 screen) or touchscreen or drag or dragging or drop))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:36
S107	2	(("20150002879") or ("20060065715")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/21 13:36
S108	35	(time near2 remain$4) with distance with card	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:03
S109	6	(time near2 remain$4) with (moving near4 distance) with object	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:05
S110	49	(time near2 remain$4) with (moving near4 distance)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06
S111	0	(time near2 remain$4) with (moving near4 distance) with proportion	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06
S112	9	(time near2 remain$4) with (distance) with proportion	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06
S113	4	((setting or set) near4 (default or temporary) near4 card) same timer	US-PGPUB; USPAT; USOCR	OR	ON	2018/09/26 09:27
S114	4	((setting or set) near4 (default or temporary) near4 card) same timer	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 09:27
S115	235	((setting or set) near4 (default or temporary) near4 card) same time	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 09:28
S116	1	((setting or set) near4 (default or temporary) near4 card) same (time near4 remaining)	US-PGPUB; USPAT; USOCR; FPRS;	OR	ON	2018/09/26 09:28

			EPO; JPO; DERWENT; IBM_TDB			
S117	0	((setting or set) near4 (default or temporary) near4 card) same (time near4 remaining).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 09:28
S118	118	((setting or set) near4 card) same (time near4 remaining)	US-PGPUB; USPAT; USOCR	OR	ON	2018/09/26 09:29
S119	3	JEON-Min-Hwan$.inv.	US-PGPUB; USPAT; USOCR	OR	ON	2018/09/26 09:51
S120	28	JEON-Min-Hwan$.inv.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 09:51
S121	1	S120 and ((setting or set) near4 card)	US-PGPUB; USPAT; USOCR	OR	ON	2018/09/26 09:53
S122	34	((setting or set) near2 (default or temporary) near4 card).clm.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 09:53
S123	946	((setting or set) near2 (default or temporary) near4 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:08
S124	263	S123 AND ((G06Q20/3278 OR G06Q20/322 OR G06Q20/36 OR G06Q20/363 OR G06Q20/227 OR G06Q20/32 OR G06Q20/382 OR G06Q20/385 OR G06Q20/3276 OR G06Q20/341 OR G06Q20/354 OR G06Q20/425 OR G06Q30/0267 OR G06Q20/24 OR G06F3/04842 OR G06F3/0482 OR G06F3/0485 OR G06F3/0488 OR G06F3/04817).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:13
S125	278354	((G06Q20/3278 OR G06Q20/322 OR G06Q20/36 OR G06Q20/363 OR G06Q20/227 OR G06Q20/32 OR G06Q20/382 OR G06Q20/385 OR G06Q20/3276 OR G06Q20/341 OR G06Q20/354 OR G06Q20/425 OR G06Q30/0267 OR G06Q20/24 OR G06F3/04842 OR G06F3/0482 OR G06F3/0485 OR G06F3/0488 OR G06F3/04817).CPC.)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:13

S126	35	S125 and ((setting or set) near2 (default or temporary) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:14
S127	17	("2015/0346994").URPN.	USPAT	OR	ON	2018/09/26 10:38
S128	32	("20010037294" | "20010043148" | "20020059196" | "20020099665" | "20020178074" | "20030050776" | "20050267804" | "20060180664" | "20060236258" | "20070168266" | "20080098082" | "20080225810" | "6141653" | "6260024" | "6754636" | "6920319").PN. OR ("9361606").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2018/09/26 10:42
S129	42	("2012/0123937").URPN.	USPAT	OR	ON	2018/09/26 10:42
S130	0	S128 and ((setting or set) near2 (default or temporary) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:42
S131	0	S129 and ((setting or set) near2 (default or temporary) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:43
S132	20	S129 and ((setting or set) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:43
S133	1	S128 and ((setting or set) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:44
S134	2	S128 and (timer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:44
S135	2	S129 and (timer)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT;	OR	ON	2018/09/26 10:44

			IBM_TDB			
S136	372	705/41 and ((setting or set) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2018/09/26 10:47

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S137	0	((setting or set) near4 (default or temporary) near4 card) same (time near4 remaining).clm.	US-PGPUB; USPAT	OR	ON	2018/09/26 09:29
S138	3	JEON-Min-Hwan$.inv.	US-PGPUB; USPAT	OR	ON	2018/09/26 09:53
S139	372	705/41 and ((setting or set) near4 (financial or transaction or credit or debit) near3 card)	US-PGPUB; USPAT	OR	ON	2018/09/26 10:47
S140	24	705/41 and ((setting or set) near4 (financial or transaction or credit or debit) near3 card and (time near4 remaining))	US-PGPUB; USPAT	OR	ON	2018/09/26 10:47

9/ 26/ 2018 11:53:04 AM
C:\ Users\ krobinson1\ Documents\ EAST\ Workspaces\ Temporary Payment Card.wsp

Search Strategy from ProQuest Dialog

September 26 2018 11:51

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Search Strategy

Databases: AdisInsight: Drugs, AdisInsight: Safety Reports, AdisInsight: Trials, Adis Pharmacoeconomics & Outcomes News, Allied & Complementary Medicine™, Analytical Abstracts, Aqualine, Aquatic Science & Fisheries Abstracts (ASFA), BIOSIS Previews®, CAB ABSTRACTS, Chemical Engineering & Biotechnology Abstracts, EconLit, Ei Compendex®, Embase®, Foodline®: MARKET, Foodline®: PRODUCT, Foodline®: SCIENCE, FSTA®, Gale Group Health Periodicals Database, Gale Group PharmaBiomed Business Journals, Gale Group PROMT®, GeoRef, Global Health, Inspec®, KOSMET: Cosmetic Science, MEDLINE®, Meteorological & Geoastrophysical Abstracts, Northern Light Life Sciences Conference Abstracts, NTIS: National Technical Information Service, Oceanic Abstracts, Polymer Library, ProQuest Technology Research Professional, SciSearch®: a Cited Reference Science Database, ToxFile®, TULSA™ (Petroleum Abstracts)

Set#	Searched for	Results
S1	((setting near temporary near card) AND phone) and (pd(<20121128))	0°
S2	((setting near temporary near card)) and (pd(<20121128))	2°
S3	((setting near default near card)) and (pd(<20121128))	11°
S4	((setting near default near card) AND phone) and (pd(<20121128))	3°
S5	((setting near default near credit near card) AND phone) and (pd(<20121128))	0°
S6	((default near credit near card) AND phone) and (pd(<20121128))	84°
S7	((temporary near credit near card) AND phone) and (pd(<20121128))	16°
S8	((temporary near default near card) AND phone) and (pd(<20121128))	0°
S9	((temporary near default near card) AND mobile) and (pd(<20121128))	0°
S10	((temporary near default near card)) and (pd(<20121128))	0°
S11	((temporary near virtual near wallet)) and (pd(<20121128))	0°
S12	((setting near default near credit near card)) and (pd(<20121128))	0°
S13	((setting near temporary near credit near card)) and (pd(<20121128))	1°
S14	((setting near temporary near debit near card)) and (pd(<20121128))	0°
S15	((setting near temporary near financial near card)) and (pd(<20121128))	0°
S16	((setting near credit near card near default)) and (pd(<20121128))	0°
S17	((default near credit near card) AND (mobile near wallet)) and (pd(<20121128))	0°

S18	((default near credit near card) AND (virtual near wallet)) and (pd(<20121128))	0°
S19	((default near card) AND (virtual near wallet)) and (pd(<20121128))	1°
S20	((temporary near card) AND (virtual near wallet)) and (pd(<20121128))	1°

° Duplicates are removed from the search and from the result count.

APPL-1002
APPLE INC. / Page 47 of 3598

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Bibliographic Data

Application No: 14/647,859

Foreign Priority claimed: (•) Yes ( ) No

35 USC 119 (a-d) conditions met: [✓] Yes [ ] No [ ] Met After Allowance

Verified and Acknowledged: /KITO R ROBINSON/ Examiner's Signature [ ] Initials

Title: METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME

FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
05/28/2015	705	3695	20533.40a.1
RULE			

APPLICANTS

MOZIDO CORFIRE - KOREA, LTD., Seongnam-si Gyeonggi-do, KOREA, REPUBLIC OF

INVENTORS

Min Hwan JEON Gwangju-si, KOREA, REPUBLIC OF

CONTINUING DATA

This application is a 371 of PCT/KR2013/007775 08/29/2013

FOREIGN APPLICATIONS

KOREA, REPUBLIC OF 10-2012-0135940 11/28/2012

IF REQUIRED, FOREIGN LICENSE GRANTED**

07/06/2015

STATE OR COUNTRY

KOREA, REPUBLIC OF

ADDRESS

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111
UNITED STATES

FILING FEE RECEIVED

$1,480

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	14647859	Filing Date	2015-05-28	Docket Number (if applicable)	20533.40a.1	Art Unit	3695
First Named Inventor	Min Hwan JEON			Examiner Name	Kito R. Robinson		

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

SUBMISSION REQUIRED UNDER 37 CFR 1.114

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

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

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

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☐ Other _____

MISCELLANEOUS

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

☐ Other _____

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 233178

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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	/W. Brad Barger/	Date (YYYY-MM-DD)	2018-02-26
Name	W. Brad Barger	Registration Number	69566

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

Application Number:	14647859
Filing Date:	28-May-2015
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Filer:	William Brad Barger/Lindsey Gifford
Attorney Docket Number:	20533.40a.1

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1400	1400
Miscellaneous:				
RCE- 1st Request	1801	1	1300	1300
		Total in USD ($)		**2700**

Electronic Acknowledgement Receipt

EFS ID:	31881413
Application Number:	14647859
International Application Number:	
Confirmation Number:	5414
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Customer Number:	22913
Filer:	William Brad Barger/Lindsey Gifford
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20533.40a.1
Receipt Date:	26-FEB-2018
Filing Date:	28-MAY-2015
Time Stamp:	11:54:57
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2700
RAM confirmation Number	022618INTEFSW11563700
Deposit Account	233178
Authorized User	Willilam Barger
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 1.19 (Document supply fees)	

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Transmittal Letter	20533-40a-1_2018-02-26_Transmittal-for-Amendment-B.pdf	107489 8861c8bd1e0f3f55dc421ef74d320241601b7c70	no	2
Warnings:					
Information:					
2	Response After Final Action	20533-40a-1_2018-02-26_Amendment-B-and-Response.pdf	152423 a2a8178942a3e0a016e15a5707be4e3bda6a8034	no	8
Warnings:					
Information:					
3	Extension of Time	20533-40a-1_2018-02-26_Petition-for-Extension-of-Time.pdf	95577 0c96ab96968ddb013dcfd921eb7a37c8881bdb6b	no	2
Warnings:					
Information:					
4	Request for Continued Examination (RCE)	20533-40a-1_2018-02-26_RCE.PDF	714466 1d165f8b7c8976c7a534219025a680cd31ecdd01	no	3
Warnings:					
Information:					
5	Fee Worksheet (SB06)	fee-info.pdf	32840 37abfa97d2c20048d1e8f28fbcf9fa9cdc788b86	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1102795		

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.

VIA eFILE

PATENT APPLICATION
Docket No. 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Min Hwan JEON	)
Serial No.:	14/647,859	) Art Unit) 3695
Filed:	May 28, 2015	)
Conf. No.:	5414	)
For:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)
Customer No.:	22913	)

TRANSMITTAL FOR AMENDMENT "B"
AND RESPONSE AFTER FINAL WITH RCE AND EXTENSION OF TIME

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

Dear Sir:

Transmitted herewith is an Amendment "B" and Response for entry in the above-identified application.

_____

_X_ To render the transmitted Amendment "B" and Response timely filed enclosed are the following:

_X_ Request for Continued Examination ($1,300.00).

_X_ Petition for Three Month Extension of Time ($1,400.00).

The fee has been calculated as follows:

			SMALL ENTITY		LARGE ENTITY	
CLAIMS REMAINING AFTER	**HIGHEST NO. PREVIOUSLY PAID FOR**	**PRESENT EXTRA**	**RATE**	**ADDT'L FEE**	**RATE**	**ADDT'L FEE**
TOTAL 15	MINUS 15	= 0	X		X $80.00	00.00
INDEPENDENT 2	MINUS 2	= 0	X		X $420.00	00.00
1st PRESENTATION OF MULTIPLE DEPENDENT CLAIM			+_____=		+_____=	
			TOTAL		**TOTAL**	00.00

_X_ Payment in the amount of $2,700.00 using the Credit Card payment option in E-Filer with RAM will be used to cover the payment of the fees with respect to this RCE and Extension of Time.

_X_ 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; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to **Deposit Account No. 23-3178**.

Dated this 26th day of February, 2018.

Respectfully submitted,

/W. BRAD BARGER/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
Registration No. 69,566
WORKMAN | NYDEGGER
Attorneys for Applicant
Customer No. 22913

PATENT APPLICATION
Docket No. 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Min Hwan JEON	)
Serial No.:	14/647,859	) Art Unit) 3695
Confirmation No.:	5414	)
Filed:	May 28, 2015	)
For:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)

AMENDMENT B AND RESPONSE

AFTER FINAL WITH RCE AND THREE (3) MONTH EXTENSION OF TIME

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

Dear Sir:

In response to the Office Action of August 25, 2017 ("*Office Action*"), (Paper No. 20170821), please amend and reconsider the above-identified application, in which:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 6 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A method for setting a temporary payment card, comprising:

displaying a list of mobile payment cards at a first portion of a touch screen interface;

receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, setting, as a temporary card, the mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card;

displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount;

simultaneously:

moving the mobile payment card a first distance from the first portion of the touch screen toward a the second portion of the touch screen, and

decrementing the numerical indicator a first difference to display a remaining payable time,

wherein:

the first distance is proportional to an amount of payable time that has passed, and

the first difference is proportional to the amount of payable time that has passed; and

resetting the setting of the temporary payment card when ~~a~~ the payable time passes such that the mobile payment card is no longer set as the temporary card and payments are made through a main card.

2. (Previously Presented) The method of claim 1, further comprising:

receiving, through the touch screen interface, a user input selecting the mobile payment card;

detecting the user input sliding the mobile payment card from the second portion of the touch screen interface to an original position within the first portion of touch screen interface;

based upon the mobile payment card being moved to the original position by the user, resetting the setting of the temporary payment card.

3. (Cancelled)

4. (Original) The method of claim 1, further comprising, when a payment is made within the payable time, resetting the setting of the temporary payment card.

5. (Previously Presented) The method of claim 1, further comprising:

determining that the payable time has passed;

based upon the determination that the payable time has passed, displaying the mobile payment card being moved to an original position.

6. (Cancelled)

7. (Original) The method of claim 1, further comprising, when the mobile payment card set as the temporary payment card is moved again by the user prior to the payable time passing, extending the payable time.

8. (Original) The method of claim 7, wherein the movement by the user in the setting operation is performed in the same method as the movement by the user in the extending operation.

9. (Original) The method of claim 1, further comprising, when the mobile device is moved by the user in a specific pattern prior to the payable time passing, extending the payable time.

10. (Original) The method of claim 1, further comprising, when the payable time passes, making the mobile payment card moved by the user disappear.

11. (Original) The method of claim 1, further comprising making the mobile payment card moved by the user gradually disappear according to a remaining payable time.

12. (Original) The method of claim 1, further comprising, when the remaining payable time is shorter than or equal to a threshold, outputting an alarm.

13. (Original) The method of claim 1, further comprising:

displaying a list of additional services issued to the mobile devices; and

setting an additional service moved by the user from among the additional services listed in the list to be used.

14. (Original) The method of claim 13, further comprising, when a usable time passes, setting the additional service to be disabled.

15. (Currently Amended) A mobile device comprising:

a touch screen configured to display a list of mobile payment cards; and

a processor configured to:

displaying a list of mobile payment cards at a first portion of a touch screen interface;

receive, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detect the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, set as a temporary payment card, a mobile payment card, wherein while the mobile payment card is set as the temporary card, payments will be made by the mobile payment card;

displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount;

simultaneously:

moving the mobile payment card a first distance from the first portion of the touch screen toward a the second portion of the touch screen, and

decrementing the numerical indicator a first difference to display a remaining payable time,

wherein:

the first distance is proportional to an amount of payable time that has passed, and

the first difference is proportional to the amount of payable time that has passed;- and

reset the setting of the temporary payment card when a payable time passes.

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed August 25, 2017, considered claims 1-15.

By this amendment claims 1 and 15 have been amended. Claims 3 and 6 are cancelled and no new claims are added. Accordingly, claims 1, 2, 4, 5, and 7-15 are pending, of which claims 1 and 15 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims, including the disclosure presented in at least paragraphs [0066-0072] and Figures 15-19.

35 U.S.C. §103(a) Rejection of Claims 1, 2, 4, 5, 12 & 15

The *Office Action* rejected claim(s) 1, 2, 4, 5, 12 & 15 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Publication No. 2009/0288012 Hertel ("Hertel") in view of U.S. Patent Publication No. 2012/0123937 Spodak ("Spodak"). The *Office Action* also rejected claim(s) 3, 7, 8, 10, 11, 13 & 14 under 35 U.S.C. § 103(a) as being unpatentable over Hertel in view of Spodak and in further view of U.S. Patent No. 7,967,196 Bierbaum ("Bierbaum"). The *Office Action* also rejected claim(s) 9 under 35 U.S.C. § 103(a) as being unpatentable over Hertel in view of Spodak in further view of Bierbaum and in further view of U.S. Patent Publication No. 2013/0084797 Avadhanam ("Avadhanam").

Applicants respectfully submit that the art of record fails to teach at least:

> displaying a numerical indicator of a payable time, wherein the numerical indicator initially indicates a first remaining time amount;
> simultaneously:
> moving the mobile payment card a first distance from the first portion of the touch screen toward a the second portion of the touch screen, and
> decrementing the numerical indicator a first difference to display a remaining payable time,
> wherein:

the first distance is proportional to an amount of payable time that has passed, and

the first difference is proportional to the amount of payable time that has passed;

as is currently recited in both Independent Claim 1 and Claim 15. In particular, none of the cited references teach the simultaneous use of both a numerical indicator and a visualization of a "sinking" card to indicate the remaining amount of payable time. Accordingly, Applicants respectfully request the prompt allowance of Independent Claim 1, and its associated dependent claims, and Independent Claim 15.

Conclusion

In view of the foregoing, Applicants respectfully submit that the remaining rejections of record are also now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that Applicants have not acquiesced to any of the purported teachings or assertions made in the Office Action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any official notice, explicitly or implicitly, Applicants specifically request that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event the Examiner finds any other issues that would need to be addressed before allowance, the Examiner is invited to contact Applicants' undersigned Attorneys directly.

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; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 26th day of February, 2018.

Respectfully submitted,

/W. Brad Barger/

John C. Stringham
Registration No.: 40,831
W. Brad Barger
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VIA eFILE

PATENT APPLICATION
Docket No: 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Min Hwan JEON	)
Serial No.:	14/647,859	) Art Unit 3695
Filed:	May 28, 2015	)
Conf. No.:	5414	)
For:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)
Customer No.:	22913	)

PETITION FOR EXTENSION OF TIME

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

Sir:

Pursuant to 37 C.F.R. § 1.136(a), it is respectfully requested that the shortened statutory period which was set for responding to the Office Action dated August 25, 2017 (paper no. 20170821), be extended for three (3) Month(s) until February 25, 2018.

Payment in the amount of $1,400.00 using the Credit Card payment option in E-Filer with RAM will be used to cover the payment of the fees with respect to this extension of time.

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; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to Deposit Account No. 23-3178.

DATED this 26th day of February, 2018.

Respectfully submitted,

/W. BRAD BARGER/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
Registration No. 69,566
WORKMAN | NYDEGGER
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Customer No. 22913

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/647,859	Filing Date 05/28/2015	☐ To be Mailed

ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 = *		X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **02/26/2018**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 13	Minus	** 20	= 0	X $100 =	0
Independent (37 CFR 1.16(h))	* 2	Minus	***3	= 0	X $460 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

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

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
DIANA BATES

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	Art Unit
	KITO R ROBINSON	3695

CPC - Searched		
Symbol	Date	Examiner

CPC Combination Sets - Searched		
Symbol	Date	Examiner

US Classification - Searched			
Class	Subclass	Date	Examiner
705	41	03/17/2017	KR

Search Notes		
Search Notes	Date	Examiner
EAST	08/21/2017	KR

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	1	temporar$4 with setting near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:56
S2	4	temporar$4 with setting near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:57
S3	729	temporar$4 near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:58
S4	3	temporar$4 near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S5	7	temporar$4 near6 (payment or debit or credit) near2 card near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S6	16	temporar$4 with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:01
S7	795	temporar$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S8	18	temporar$4 near4 ((payment or debit or credit) near2 card) near4 select$3	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S9	192	(limit$3 or momentary or alternative or substitute or temp) with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S10	80	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S11	19	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S12	6	(momentary or alternative or substitute or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:34

S13	6	(momentary or alternative or substitut$3 or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:37
S14	4	temporar$4 near4 ((payment or debit or credit) near2 card) near4 automatic$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:46
S15	13	temporar$4 near6 ((payment or debit or credit) near2 card) near6 automatic$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:49
S16	0	temporar$4 near6 ((payment or debit or credit) near2 card) near6 overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S17	0	temporar$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S18	282	overrid$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S19	282	overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S20	105	overrid$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S21	22	overrid$4 near4 default$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:52
S22	22	overrid$4 near6 default$4 near6 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:53
S23	22	overrid$4 near8 default$4 near8 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S24	40	overrid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S25	0	over-rid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:59
S26	25	overrid$4 with exist$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:00
S27	0	temporar$4 with overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT;	OR	ON	2017/03/16 10:01

			USOCR			
S28	33912	temporar$4 with overrid$4 with default$4 (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S29	0	temporar$4 with overrid$4 with default$4 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S30	5	temporar$4 with default$4 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:03
S31	3	temporar$4 with desir$3 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S32	32	temporar$4 with desir$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S33	0	temporar$4 with ((virtual) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:06
S34	0	temporar$4 with ((payment or debit or credit) near2 account) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S35	0	temporar$4 with default$4 with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S36	100678	temporar$4 with setting ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S37	2	temporar$4 with setting with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S38	26	temporar$4 with setting with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:08
S39	0	default near4 ((payment or debit or credit) near2 card) near4 limited near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S40	2	default with ((payment or debit or credit) near2 card) with limited with time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S41	95	default$4 with ((payment or debit or credit) near2 card) near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:17
S42	20	default$4 near4 ((payment or debit or	US-	OR	ON	2017/03/16

		credit) near2 card) near4 time	PGPUB; USPAT; USOCR			10:17
S43	1	("20090173781").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/03/16 13:36
S44	42	("20020071076" | "20030132298" | "20040111320" | "20040225567" | "20040230489" | "20050187873" | "20050230472" | "20060165060" | "20060219780" | "20070210155" | "20080242274" | "20090094100" | "20090228966" | "20100063893" | "20100082447" | "20100174649" | "20100205045" | "20100287057" | "20110082765" | "20110254796" | "20110320293" | "20120054841" | "20120099756" | "20120172026" | "20120172089" | "20120197743" | "20120290420" | "20130041752" | "20130080289" | "20130185150" | "20130215116" | "20140058944" | "20140337230" | "20140351071" | "6512919" | "6587835" | "6636833" | "6755342" | "7707113" | "8271344" | "8403215" | "8849706").PN.	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:29
S45	0	S44 and (default$4 near4 ((payment or debit or credit) near2 card) near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S46	0	S44 and (temporar$4 with ((payment or debit or credit) near2 account) with default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S47	0	S44 and (temporar$4 same ((payment or debit or credit) near2 account) same default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S48	1	S44 and (overrid$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:31
S49	5	705/41 and (overrid$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:31
S50	0	705/41 and (moving near4 ((payment or debit or credit) near2 card) near wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:49
S51	2	705/41 and (finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S52	252	(finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S53	1	(finger near4 moving near4 ((payment	US-	OR	ON	2017/03/16

		or debit or credit) near2 card))	PGPUB; USPAT; USOCR			14:50
S54	2	(finger near8 moving near8 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S55	12	(finger with moving with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:51
S56	0	(finger with rearrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S57	0	(finger with re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S58	10049087	(f re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S59	1	(re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S60	2512	(arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S61	17	(arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S62	1	(rearrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:53
S63	0	(re-arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S64	0	(re-arrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S65	1	(rearrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S66	11	(changing near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:23
S67	0	((select$4 or overrid$3) near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:24

S68	2	((using) near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:25
S69	154	(((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:26
S70	27	((resetting near4 (payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:26
S71	44	((resetting near8 (payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:37
S72	12	((resetting near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:46
S73	103	((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:48
S74	34	((reset near4 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S75	9	705/$$ and ((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S76	0	705/$$ and ((reset$4 near8 (prefer$3) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:51
S77	38	705/$$ and ((reset$4 near4 card near4 used))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:55
S78	66	((revert$4 near8 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S79	54	((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S80	29	705/$$ and ((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S81	0	(((payment or debit or credit or default or prefer$4) near2 card) with activat$4 with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:56
S82	12	(((payment or debit or credit or default or prefer$4) near2 card) with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT;	OR	ON	2017/03/17 09:56

			USOCR			
S83	1	(((payment or debit or credit or default or prefer$4) near2 card) near6 few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58
S84	1	(((payment or debit or credit or default or prefer$4) near2 card) with few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58
S85	9	(((payment or debit or credit or default or prefer$4) near2 card) near6 (restrict$4 or frozen or freeze or activat$4)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:59
S86	25	(((payment or debit or credit or default or prefer$4) near2 card) near6 (buy$4 or purchas$4) near4 time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:02
S87	8	(((payment or debit or credit or default or prefer$4) near2 card) near6 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:03
S88	9	(((payment or debit or credit or default or prefer$4) near2 card) near8 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:04
S89	15	(((payment or debit or credit or default or prefer$4) near2 card) with timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:05
S90	57	(((payment or debit or credit or default or prefer$4) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
S91	19	705/$$ and (((payment or debit or credit or default or prefer$4 or smart) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
S92	2	705/$$ and ((electronic near2 wallet) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:08
S93	3	(sliding with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:20
S94	0	(reposition with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S95	139	((position or arrange or move or slide or sliding) with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S96	9	705/41 and ((position or arrange or move or slide or sliding) with card with touchscreen)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:21
S97	48	705/$$ and ((position or arrange or	US-	OR	ON	2017/08/21

		move or slide or sliding) with card with touchscreen)	PGPUB; USPAT; USOCR			12:22
S98	18	705/$$ and ((position or arrange or move or slide or sliding) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:24
S99	4	705/$$ and ((drag) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:27
S100	4	705/$$ and ((drag or dragging) with card with ((electronic near2 wallet) or ewallet or e-wallet))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:27
S101	23	705/$$ and ((drag or dragging) with card with ((electronic near2 wallet) or ewallet or e-wallet or touchscreen or (touch near2 screen)))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:27
S102	3	705/$$ and ((drag near3 drop) with card with ((electronic near2 wallet) or ewallet or e-wallet or touchscreen or (touch near2 screen)))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S103	134	705/$$ and ((drag near3 drop) with card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S104	0	705/$$ and ((drag near3 drop) near4 card same temporar$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:33
S105	35	705/$$ and ((drag near3 drop) near4 card and temporar$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:34
S106	5	705/$$ and ((temporar$4 near4 select$4 near4 card) same ((touch near2 screen) or touchscreen or drag or dragging or drop))	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/21 12:36
S107	2	(("20150002879") or ("20060065715")).PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/08/21 13:36
S108	35	(time near2 remain$4) with distance with card	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:03
S109	6	(time near2 remain$4) with (moving near4 distance) with object	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:05
S110	49	(time near2 remain$4) with (moving near4 distance)	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06
S111	0	(time near2 remain$4) with (moving near4 distance) with proportion	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06

S112	9	(time near2 remain$4) with (distance) with proportion	US-PGPUB; USPAT; USOCR	OR	ON	2017/08/22 10:06

8/22/2017 11:31:28 AM
C:\Users\krobinson1\Documents\EAST\Workspaces\Temporary Payment Card.wsp

Notice of References Cited	Application/Control No. 14/647,859	Applicant(s)/Patent Under Reexamination JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	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-7707113-B1	04-2010	DiMartino; Allison	G06Q20/105	705/41
*	B	US-7967196-B1	06-2011	Bierbaum; Christopher J.	G06Q20/127	235/375
*	C	US-20120123937-A1	05-2012	Spodak; Douglas	G06K19/06187	705/41
*	D	US-20130084797-A1	04-2013	Avadhanam; Phani Bhushan	G06F9/44505	455/41.1
*	E	US-8768249-B2	07-2014	Avadhanam; Phani Bhushan	G06F9/44505	340/501
*	F	US-20090288012-A1	11-2009	Hertel; Philipp Frank Hermann Udo	G06Q20/02	715/738
*	G	US-20090069056-A1	03-2009	Lee; Sang-Hyun	G06F1/3203	455/566
	H					
	I					
	J					
	K					
	L					
	M					

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.

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14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

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EXAMINER	
ROBINSON, KITO R	

ART UNIT	PAPER NUMBER
3695	

NOTIFICATION DATE	DELIVERY MODE
08/25/2017	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

Office Action Summary	Application No. 14/647,859	Applicant(s) JEON, Min Hwan	
	Examiner KITO R ROBINSON	Art Unit 3695	AIA Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☑ Responsive to communication(s) filed on 23 June 2017 .

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____ .

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

3)☐ 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.

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

Disposition of Claims*

5)☑ Claim(s) 1-15 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☑ Claim(s) 1-15 is/are rejected.

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

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

* If any claims have been determined allowable, 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 or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

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

11)☑ The drawing(s) filed on 28 May 2015 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 07/31/2017 .

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____ .

4) ☐ Other: _____ .

DETAILED ACTION

Status of Claims

1. This action is in reply to the amendment filed on 23 June 2017.

2. Claims 1, 2, 5, 6 & 15 have been amended.

3. Claims 1-15 are currently pending and have been examined.

4. The Examiner respectfully rescinds the 35 U.S.C. 101 rejection of claims 1-15 in view of the claimed amendments. Amended claim 1 is directed to the interface for setting a temporary card by a sliding input on a touchscreen display.

Notice of Pre-AIA or AIA Status

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

Response to Arguments

6. Applicant's arguments with respect to claims 1-15 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Claim Rejections - 35 USC § 103

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

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

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 2, 4, 5, 12 & 15 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hertel et al. US 2009/0288012 A1, hereafter Hertel in view of Spodak US 2012/0123937 A1.

Claim 1 & 15

Hertel discloses:

- *displaying a list of mobile payment cards at a first portion of a touch screen interface* **(paragraph 0229: "The payment options may be predefined within the electronic wallet 7 and displayed to the user in a selectable form, e.g., list or menu.")**;
- *receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card* **(paragraph 0176: "The electronic wallet 7 includes a graphical user interface configured to receive input from a user for interaction with the electronic wallet 7. The user interface of the electronic wallet user 7 can be configured for "drag and drop" interaction. The drag and drop interaction can be configured for use on touch sensitive screens of a user computer 100 and non-touch sensitive screens of a user system, for example, having a navigation joystick or mouse control." Paragraph 0207: "In this example, the user selects the digital object 237 corresponding to the credit card displayed in electronic wallet program 282 and moves it by a drag 238 to drop on a target 239.**

The target 239 in this example is the payment receptacle module 283 displayed in electronic wallet 282, separate from web page 202 on computer screen 201.");

- *detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface*; **(paragraph 0176: "The electronic wallet 7 includes a graphical user interface configured to receive input from a user for interaction with the electronic wallet 7. The user interface of the electronic wallet user 7 can be configured for "drag and drop" interaction. The drag and drop interaction can be configured for use on touch sensitive screens of a user computer 100 and non-touch sensitive screens of a user system, for example, having a navigation joystick or mouse control." paragraph 0207: "In this example, the user selects the digital object 237 corresponding to the credit card displayed in electronic wallet program 282 and moves it by a drag 238 to drop on a target 239. The target 239 in this example is the payment receptacle module 283 displayed in electronic wallet 282, separate from web page 202 on computer screen 201.")** ;
- *based upon the user input, sliding the mobile payment card, setting, as a temporary payment card, the mobile payment card* **(paragraph 0176)**; *and*
- *a touch screen configured to display a list of mobile payment cards; a processor configured to;* **(paragraph 0176: "The electronic wallet 7 includes a graphical user interface configured to receive input from a user for interaction with the electronic wallet 7. The user interface of the electronic wallet user 7 can be configured for "drag and drop" interaction. The drag and drop interaction can be configured for use on touch sensitive screens of a user computer 100 and non-touch sensitive screens of a user system, for example, having a navigation joystick or mouse control." paragraph 0207: "In this example, the user selects the digital object 237 corresponding to the credit card displayed in electronic wallet program 282 and moves it by a drag 238 to drop on a target 239. The target 239 in this example is the payment receptacle**

module 283 displayed in electronic wallet 282, separate from web page 202 on computer screen 201.")

Hertel does not disclose the following, however Spodak does:

- *resetting the setting of the temporary payment card when a payable time passes* **(paragraph 0090: "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card.")**

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 2

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel discloses *receiving, through the touch screen interface, a user input selecting the mobile payment, card* **(paragraph 0176: "The electronic wallet 7 includes a graphical user interface configured to receive input from a user for interaction with the electronic wallet 7. The user interface of the electronic wallet user 7 can be configured for "drag and drop" interaction. The drag and drop interaction can be configured for use on touch sensitive screens of a user computer 100 and non-touch sensitive screens of a user system, for example, having**

a navigation joystick or mouse control."); *detecting the user input sliding the mobile payment card from the second portion of the touch screen interface to an original position within the first portion of touch screen interface*; *based upon the mobile payment card being moved to the original position by the user*...(**paragraph 0070: "For example, a common type of access point spawns a payment receptacle control which can receive all digital objects that can act as payment instruments allowing the user to apply them to a transaction but also acts as a dispenser which allows the user to drag payment instruments back out in order to roll back their application.")** Hertel does not disclose the limitation of *resetting the setting of the temporary payment card.* However, Spodak, in paragraph 0052 discloses "Second, the universal card can be programmed in a "temporary card" mode, where the universal card stores only one set of information required for emulation. The user utilizes the mobile device to program the card to emulate a specific card either for a set amount of time or number of transactions. Once programmed in this mode, the universal card would remain programmed to emulate that one card for the set time or the number of transactions. If the user wanted to change the universal card to emulate a different card, the user would need to reconnect the mobile device to reprogram the card. Third, the universal card can be programmed in a "default card" mode, where the universal card always emulates a specific card, unless programmed otherwise. In this mode, the information of the default card is saved in the universal card and the universal card is always configured to emulate the default card, unless the user re-programs the universal card to temporarily act as another card or to change to a new default card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 4

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel does not disclose the limitation of *when a payment is made within the payable time, resetting the setting of the temporary payment card.* However, Spodak, in paragraph 0090 discloses "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 5

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel disclose *displaying the mobile payment card being moved to an original position in* **(paragraph 0070: "For example, a common type of access point spawns a payment receptacle control which can receive all digital objects that can act as payment instruments allowing the user to apply them to a transaction but also acts as a dispenser which allows the user to drag payment instruments back out in order to roll back their application.")** Hertel does not disclose the limitation of *determining that the payable time has passed; based upon the determination that the payable time has passed.* However, Spodak, in

paragraph 0052 discloses “Second, the universal card can be programmed in a "temporary card" mode, where the universal card stores only one set of information required for emulation. The user utilizes the mobile device to program the card to emulate a specific card either for a set amount of time or number of transactions. Once programmed in this mode, the universal card would remain programmed to emulate that one card for the set time or the number of transactions. If the user wanted to change the universal card to emulate a different card, the user would need to reconnect the mobile device to reprogram the card. Third, the universal card can be programmed in a "default card" mode, where the universal card always emulates a specific card, unless programmed otherwise. In this mode, the information of the default card is saved in the universal card and the universal card is always configured to emulate the default card, unless the user re-programs the universal card to temporarily act as another card or to change to a new default card.”

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hetrel with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 12

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel does not disclose the limitation of *when the remaining payable time is shorter than or equal to a threshold, outputting an alarm.* However, Spodak, in paragraph 0090 discloses “In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the

DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

10. Claim 6 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hertel in view of Spodak and in further view of Lee et al. US 2009/0069056 A1, hereafter Lee

Claim 6

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel discloses a mobile payment card in para. 0058. Hertel & Spodak do not disclose the limitation of *determining that a particular portion of the payable time has passes; moving…a first distance towards an original position according to a remaining payable time, wherein the first distance is determined based upon the proportion of the payable time that has passed.* However, Lee, in paragraph 0110 discloses "Accordingly, the display control expiration period is extended in proportion to the dragged distance in the bar gauge 220 up to a point where the touch is released and the reset display control expiration period or remaining time 225 is displayed, for example, `30 sec.` as shown in (7-4)."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel with the technique of Spodak because simply substituting one known element for another known element produces predictable results rendering the claim obvious.

11. Claims 3, 7, 8, 10, 11, 13 & 14 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Hetel in view of Spodak and in further view of Bierbaum et al. US 7,967,196 B1, hereafter Bierbaum.

Claim 3

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hetel discloses a timer in paragrpah 0167. Hertel & Spodak do not disclose the limitation of *displaying a remaining payable time.* However, Bierbaum, in Column 3, lines 20-23 discloses "The time remaining until expiration of the ready-to-pay timer and the closing of the electronic wallet may be displayed on the portable electronic device containing the electronic wallet."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 7

Hetel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hetel discloses *when the mobile payment card set as the temporary payment card is moved again by the user prior to the payable time passing* in **para. 0176.** Hertel does not expressly show: *the temporary payment card is moved again by the user prior to the payable time passing.* Hertel & Spodak do not disclose the limitation of *extending the payable time.* However, Bierbaum, in Column 3, lines 23-27 discloses "A first soft key of the device containing the electronic wallet may be activated to reset the ready-to-pay timer, for example extending the time-out interval by an additional increment of time."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 8

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel discloses *setting the temporary payment card* in **para. 0176.** Hertel & Spodak do not disclose the limitation of *wherein the movement by the user in the setting operation is performed in a same method as the movement by the user in the extending operation.* However, Bierbaum, in Column 3, lines 23-27 discloses "A first soft key of the device containing the electronic wallet may be activated to reset the ready-to-pay timer, for example extending the time-out interval by an additional increment of time."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 10

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel & Spodak do not disclose the limitation of *when the payable time passes, making the mobile payment card moved by the user disappear.* However, Bierbaum, in Abstract discloses "The electronic wallet application enters a ready-to-pay mode, initiates a ready-to-pay timer when entering the ready-to-pay mode, transmits the confidential information when in the ready-to-pay mode based on receiving contactless communication, and leaves the ready-to-pay mode when the ready-to-pay timer expires."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 11

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel & Spodak do not disclose the limitation of *making the mobile payment card moved by the user gradually disappear according to a remaining payable time.* However, Bierbaum, in Abstract discloses "The electronic wallet application enters a ready-to-pay mode, initiates a ready-to-pay timer when entering the ready-to-pay mode, transmits the confidential information when in the ready-to-pay mode based on receiving contactless communication, and leaves the ready-to-pay mode when the ready-to-pay timer expires." Column 9, lines 59-67-column 10, lines 1 discloses " At block 170, if the first electronic wallet 110 is commanded to leave the ready-to-pay mode, for example by the user activating a soft key of a dedicated function key that commands the first electronic wallet 110 to leave the ready-to-pay mode or an authorized payment transaction with the POS terminal 104 has been completed, the method 160 proceeds to block 174 where the first

electronic wallet 110 leaves the ready-to-pay mode. When the first electronic wallet 110 leaves the ready-to-pay mode, the confidential information is unavailable for reading."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 13 & 14

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel & Spodak do not disclose the limitation *displaying a list of additional services issued to the mobile device; and setting an additional service moved by the user from among the additional services listed in the list to be used and when a usable time passes, setting the additional service to be disabled.* However, Bierbaum, in column 5, lines 35-49 discloses "The portable electronic device 102 includes one or more applications 116 that provide services and functionality to a user, such as a mobile phone subscriber or a PDA user. These applications 116 may include, but are not limited to, a mobile telephone service, an electronic wallet, an email service, an address book, a contacts list, a spreadsheet, a scheduler, a virtual private network (VPN) portal, a web browser, and other applications. In an embodiment, these applications 116 may be launched or activated or started by a number of methods. When an application 116 is inactive or not yet launched, accessing the functionality of the application 116 may involve first loading at least portions of the application 116 into a memory area that is more accessible or more rapidly accessible to a processor 140 of the portable electronic device 102."

Column 5, lines 61-67- column 6, lines 1-14 discloses "In an embodiment the portable electronic device 102 includes a plurality of electronic wallets, for example a first electronic wallet

110, a second electronic wallet 112, and a third electronic wallet 114. Each of the several electronic wallets 110, 112, and 114 may be associated with different members of a family, for example a father, a mother, and a child. Alternatively, each of the several electronic wallets 110, 112, and 114 may be associated with different employees of a business firm. Alternatively, each of the electronic wallets 110, 112, 114 may be associated with different roles of an individual, for example a personal wallet, a business wallet, and a social organization wallet. The individual may use the personal wallet for buying a birthday gift for a spouse, use the business wallet to pay for business related expenses, and use the social organization wallet to pay for food for a group campout. In an embodiment, the electronic wallet launching input sequence may select one of the electronic wallets 110, 112, 114. In another embodiment, the electronic wallet launching sequence may trigger the display to show a selector, for example a dialog box or window, to select one of the electronic wallets 110, 112, 114."

Column 6, lines 64-67-column 7, lines 1-18 discloses "The ready-to-pay timer 142 may be used to implement a security feature to help protect the confidential information contained in the electronic wallets 110, 112, and 114 and/or the applications 116 from identity theft. For example, when the first wallet 110 has been opened and a payment card has been selected for payment, the ready-to-pay timer 142 can be used by the first electronic wallet 110 to automatically close after the ready-to-pay timer 142 marks the passage of a limited period of time. Another way of saying this is the first electronic wallet 110 may be configured or programmed to close after the ready-to-pay timer 142 exceeds a time threshold, a time limit, or simply a limit. For example, the first electronic wallet 110 may close automatically after about 1 minute of elapsed time, after 2 minutes of elapsed time, after about 4 minutes of elapsed time, or after some other period of time. This may be referred to as an open wallet time-out or a time-out feature. In an embodiment, all of the electronic wallets 110, 112, and 114 may be protected with the time-out function; in another embodiment, selected ones of the electronic wallets 110, 112, and 114 may be protected with the time-out functions while the other electronic wallets are not protected with the time-out function."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

12. Claims 9 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Herte in view of Spodak and in further view of Bierbaum and in further view of Avadhanam et al. US 2013/0084797 A1, hereafter Avadhanam.

Claim 9

Hertel & Spodak discloses the limitations as shown in the rejection of Claim 1 above. Hertel & Spodak do not disclose the limitation of *when the mobile device is moved by the user in a specific pattern prior to the payable time passing, extending the payable time*. However, Bierbaum discloses *extending the payable time*, in Column 3, lines 23-27.

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

DiMartino, Spodak & Bierbaum do not disclose the limitation of *when the mobile device is moved by the user in a specific pattern prior to the payable time passing.* However, Avadhanam, in paragraph 0038 discloses "*As one of ordinary skill in the art will appreciate in view of this disclosure, when the sensor 110 is realized by the accelerometer 230, the application 102 will detect (via an accelerometer driver that is used to implement the sensor driver 112 and an*

accelerometer service that is used to implement the sensor service 114) the accelerometer 232 output to determine: 1) whether the user has moved the mobile communication device 100 in one direction or another direction (translational movement); 2) whether the user has tilted the mobile communication device 100 (rotational movement); and/or 3) an amount of dynamic acceleration that enables an analysis of the way the mobile communication device 100 is moving. And this information may be used to enable the user to select a particular credit card using a particular action that may include translational and/or rotational movement of the mobile communication device 100."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of Hertel, Spodak & Bierbaum with the technique of Avadhanam because simply substituting one known element (selection of a credit card) for another known element (extending a payable time) produces predictable results rendering the claim obvious.

Conclusion

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

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KITO R ROBINSON whose telephone number is (571)270-3921. The examiner can normally be reached on M-F 8:30am-5:30pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RYAN DONLON can be reached on (571) 270-3602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KITO R ROBINSON/
Primary Examiner, Art Unit 3695

22 August 2017

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/647,859
	Filing Date	05/28/2015
	First Named Inventor	Min Hwan Jeon
	Art Unit	3693
	Confirmation Number	5414
	Examiner Name	Kito R. Robinson
	Attorney Docket Number	20533.40a.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	8116734	14-Feb-2012	Vawter	
	2	8195576	5-Jun-2012	Grigg et al.	
	3	9317846	19-Apr-2016	Baldwin et al.	

U.S. PATENT APPLICATION PUBLICATIONS

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	4	20100049615	25-Feb-2010	Rose et al.	
	5	20100133335	3-Jun-2010	Maguid et al.	
	6	20120234918	20-Sep-2012	Lindsay	
	7	20120317628	13-Dec-2012	Yeager	
	8	20130110676	2-May-2013	Kobres	
	9	20140025520	23-Jan-2014	Mardikar et al.	

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	10	2015069269	JP	13-Apr-2015	Namiki Yuta		
	11	20120051950	KR	23-May-2012	Ryeol		
	12	20140021323	KR	20-Feb-2014	Han SK Card Co., Ltd.		
	13	101514749	KR	17-Apr-2015	Mozido Corfire- Korea ltd.		
	14	2009112793	WO	17-Sep-2009	Sherlock		

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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]
	15	Denning et al. "Location-Based Authentication: Grounding Cyberspace for Better Security", Computer Fraud and Security, Oxford, GB, 1 Feb. 1996, pages 12-16	☐
	16	Kuseler et al. "Privacy Preserving, Real-Time and Location Secured Biometrics for mCommerce Authentication", Mobile Multimedia/Image Processing, Security, and Applications, 2011, SPIE, Vol. 8063, No. 1, 13 May 2011, pages 1-7	☐

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	17	14/369990	29-Jun-2016	Final Office Action
	18	14/362251	20-Oct-2016	Office Action

EXAMINER SIGNATURE			
Examiner Signature	/KITO R ROBINSON/	Date Considered	08/21/2017

*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.

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

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OR

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☐ 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	/John C. Stringham/	Date	July 28, 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.**

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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.R.R/

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14/647,859	JEON, Min Hwan
	Examiner	Art Unit
	KITO R ROBINSON	3695

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant				☐ CPA		☐ T.D.		☐ R.1.47		
CLAIM		DATE								
Final	Original	03/16/2017	08/21/2017							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							

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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]
	15	Denning et al. "Location-Based Authentication: Grounding Cyberspace for Better Security", Computer Fraud and Security, Oxford, GB, 1 Feb. 1996, pages 12-16	☐
	16	Kuseler et al. "Privacy Preserving, Real-Time and Location Secured Biometrics for mCommerce Authentication", Mobile Multimedia/Image Processing, Security, and Applications, 2011, SPIE, Vol. 8063, No. 1, 13 May 2011, pages 1-7	☐

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Examiner Signature		Date Considered	

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

☐ None

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Signature		Date	July 24, 2015
Name/Print	John C. Stringham	Registration Number	40831

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(71) Applicant *(for all designated States except US)*: **BRITISH TELECOMMUNICATIONS PUBLIC LIMITED COMPANY** [GB/GB]; 81 Newgate Street, London, Greater London EC1A 7AJ (GB).

(72) Inventors; and

(75) Inventors/Applicants *(for US only)*: **SHERLOCK, Gerard** [IE/GB]; 162 Lower Luton Road, Wheathampstead, St Albans, Hertfordshire AL4 8HQ (GB). **PILKINGTON, John, David, Richard** [GB/GB]; 43 Snowcroft, Capel St. Mary, Ipswich, Suffolk IP9 2UT (GB). **PUTLAND, Paul, Anthony** [GB/GB]; 94 Terry Gardens, Grange Farm, Kesgrave, Ipswich, Suffolk IP5 2DR (GB).

(74) Agent: **LAU, Chi-Fai**; BT Group Legal Intellectual Property Department, PP C5A, BT Centre, 81 Newgate Street, London, Greater London EC1A 7AJ (GB).

(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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— *with international search report (Art. 21(3))*

(54) Title: MOBILE PAYMENTS

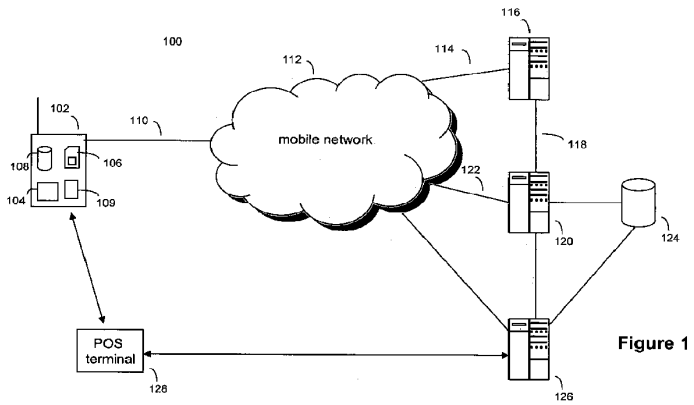

Figure 1

(57) Abstract: A system for generating a payment token for conducting payments using a mobile terminal, said system comprising an application server and a payment server, said mobile terminal comprising an identity module, and wherein the application server is adapted for receiving at an application server a registration message, said first message comprising a telephone number associated with the identity module, for generating a unique identifier and storing the unique identifier with the telephone number, and for sending the unique identifier to the mobile terminal; the mobile terminal is adapted to generate and store a datablock comprising the unique identifier, and the datablock is secured using the subscriber identity associated with the identity module and a terminal identifier associated with the mobile terminal; and the payment server is adapted to validate a request for a payment token from the mobile terminal based on the unique identifier contained in the request, wherein the unique identifier is retrieved from the datablock stored in the mobile terminal.

WO 2009/112793 A1

MOBILE PAYMENTS

Field of the Invention

This invention relates to a method of generating a payment token for payment transactions, in particular a method of generating a payment token for use by a mobile terminal, wherein the payment token is based on a generated unique identifier associated with the mobile terminal.

Background to the Invention

The credit and banking industry today is looking to exploit the near ubiquity of the mobile phone so that it might be used to make payments, typically for items having a small value such as at newsagents or at a vending machine. One method envisaged for making such a payment is through the use of "Near Field Communications" (NFC) payment systems. NFC is a short-range wireless communication technology that enables data to be exchanged between compatible devices over a short distance (about a decimetre). The technology is related to proximity-card and RFID technology.

In an NFC enabled mobile phone, a payment application is linked to a radio transmitter in the device, which enables small purchases to be made simply by passing the mobile phone in close proximity to an NFC payment terminal, such as a vending machine or other payment point.

The technology now being used in the UK for most credit card transactions is based on the smartcard technology commonly referred to as "Chip and PIN". This technology is used in many European countries, though other markets like the US may differ somewhat. In order for NFC to be used effectively for payments, the Chip and PIN would need to be adhered to. An NFC based transaction would be regarded as an off-line Chip and PIN transaction. Off-line transactions are usually limited both in value as well as in the number that can be made in succession. Typically, once a user has completed say five

transactions "off-line", the card is required to make a standard Chip and PIN payment where the PIN is entered in order to reset a counter on the card.
While imposing this transaction limit is useful as a method of fraud protection, it also has a negative impact on the use of a mobile phone for contact-less payment applications using NFC. As the mobile phone cannot be used for a standard Chip & PIN transaction as it does not have a Chip and PIN smartcard, there is no existing way to reset the counters used for fraud management.

Summary of the Invention

It is the aim of embodiments of the present invention to solve some of the above problems and provide an improved payment system for mobile devices.

According to one aspect of the present invention, there is provided a method of generating a payment token for conducting payments using a mobile terminal, wherein said mobile terminal comprises an identity module, said method comprising the steps of:

a) receiving at an application server a registration message, said first message comprising a telephone number associated with the identity module;

b) generating by the application server a unique identifier and storing the unique identifier with the telephone number;

c) sending the unique identifier to the mobile terminal, wherein the mobile terminal generates and stores a datablock comprising the unique identifier, and the datablock is secured using the subscriber identity associated with the identity module and a terminal identifier associated with the mobile terminal; and subsequently

d) validating by a payment server a request for a payment token from the mobile terminal based on the unique identifier contained in the request, wherein the unique identifier is retrieved from the datablock stored in the mobile terminal.

Preferably, the method further comprises: e) using the unique identifier from the request to identify the telephone number associated therewith based on the unique identifier and telephone number stored by the application server.

The method may also comprise generating a payment token and associating and storing the payment token with a user account at the payment server, wherein the user account comprises the telephone number of the mobile terminal.

The generated payment token may be transmitted by the payment server to the mobile terminal, and the mobile terminal may store the payment token securely using the unique identifier.

Furthermore, the payment token may be used by the mobile terminal to conduct a contactless payment transaction with a point of sale terminal, said method further comprising transmitting the payment token to the point of sale terminal and onto the payment server, wherein upon receipt at the payment server, the payment token is validated by cross checking against the payment token stored with the user account at the payment server.

Preferably, the payment token is only valid for a fixed period of time following generation by the payment server. The payment token may also be valid for a predetermined number of contactless payment transactions only. Alternatively, the payment token is only valid for a predetermined total transaction amount.

The mobile terminal can make a request for a new payment token from the payment server, wherein said request comprising the unique identifier for identifying the mobile terminal.

According to a second aspect of the present invention, there is provided a system for generating a payment token for conducting payments using a mobile terminal, said system comprising an application server and a payment server, said mobile terminal comprising an identity module, and wherein

the application server is adapted for receiving at an application server a registration message, said first message comprising a telephone number associated with the identity module, for generating a unique identifier and storing the unique identifier with the telephone number, and for sending the unique identifier to the mobile terminal;

the mobile terminal is adapted to generate and store a datablock comprising the unique identifier, and the datablock is secured using the subscriber identity associated with the identity module and a terminal identifier associated with the mobile terminal; and

the payment server is adapted to validate a request for a payment token from the mobile terminal based on the unique identifier contained in the request, wherein the unique identifier is retrieved from the datablock stored in the mobile terminal.

Brief Description of the Drawings

For a better understanding of the present invention reference will now be made by way of example only to the accompanying drawings, in which:

Figure 1 is a network diagram of an arrangement in an example of the present invention;

Figure 2 is a message flow diagram illustrating a registration and payment token request process in an example of the present invention;

Figure 3 is a message flow diagram illustrating the use of a payment token for conducting a transaction in an example of the present invention.

Description of Preferred Embodiments

The present invention is described herein with reference to particular examples. The invention is not, however, limited to such examples.

Figure 1 illustrates a network 100 comprising a mobile terminal 102, a mobile network 112, an SMS gateway 116, a profile store 124, an application server 120, a payment server 126 and a point of sale (POS) terminal 128. The mobile terminal 102 may a mobile phone, smartphone, PDA or similar. The mobile terminal 102 can communicate with the mobile network 112 over communications link 110, which is a radio link in this example where the mobile network 112 is GSM, UMTS or similar cellular mobile network. For simplicity, individual components of the mobile network 112, such as base stations and

gateways, have been omitted. In this example, the mobile network 112 is the home mobile network associated with the SIM 106 and mobile terminal 102.

The mobile terminal 102 includes a processor 104, which is used to control the operation of the device. The mobile terminal 102 also contains a data store 108, which can be used to store data such as phone numbers, photos and videos, as well as applications that can be run by the processor 104. The subscriber identity module (SIM) 106 in the mobile terminal 102 holds subscriber information, such as the international mobile subscriber identity (IMSI) which uniquely identifies the subscriber/user to the network. The mobile terminal 102 also has an associated international mobile equipment identity (IMEI), which is akin to a serial number for the device. The mobile terminal 102 also includes a near field communication (NFC) module 109, which provides the mobile terminal 102 with near field communication capabilities.

The mobile network 112 can communicate with the SMS gateway 116 over a fixed network connection 114. Similarly, the mobile network 112 can communicate with the application server 120 over a fixed network connection 122. The SMS gateway 116 and the application server 120 can also communicate with each other over a fixed network connection 118.

In this example, the SMS gateway 116 is operated by a third party and is able to receive and send SMS messages to the mobile network 112. The SMS gateway 116 effectively acts as an aggregator for SMS messages to and from the mobile network 112 (illustrated) and other mobile networks (not illustrated). Whilst not illustrated in Figure 1, the mobile network 112 includes an SMS centre (SMSC), which is the interface between the SMS gateway 116 and the mobile network 112. Communications between the mobile terminal 102 and the mobile network 112 and within the mobile network 112 are inherently secure due to the security requirements under the GSM standards.

The application server 120 is also operated by a third party, which may or may not be the same as the operator of the SMS gateway 116, and can provide applications and services to the mobile terminal 102. At least some of these

applications require the user to register the application before subsequent use of it. Services provided can include registration services, the operation of which will be described herein below.

Connected to the application server 120 is a profile store 124. The profile store 124 stores user profile information, such as identification numbers associated with the mobile terminal 102.

The network 100 also includes a payment server 126 connected to the mobile network 112. The payment server 126 is responsible for handling payment transactions conducted by the mobile terminal 102. A point of sale (POS) terminal 128 is also connected to the payment server 126. The POS terminal 128 and payment server 126 are connected over a suitable network connection, such as a private IP network.

The NFC module 109 in the mobile terminal 102 can communicate with the POS terminal 128 over short distances wirelessly, and can be used to conduct payment transactions assisted by a suitable application on the mobile terminal 102. For example, a user can make a purchase, and instead of using cash or a credit card to pay for the purchase, the payment can be made using the mobile terminal 102 in conjunction with the POS terminal 128.

The specific operation of the elements in Figure 1 in relation to supporting payment transactions between the mobile terminal 102 and the POS terminal 128 will now be described in more detail below with reference to the message flow diagrams of Figure 2 and 3. References in Figures 2 and 3 to the elements found in Figure 1 are made using like reference numerals.

Figure 2 illustrates the registration process for a payment application and subsequent obtaining of a payment token.

In step 200, the user equipment 102 already has an application installed in its memory 108. In this example, the application is a payment application that is

capable of operating with the NFC module 109 to provide contactless payment functionality.

The application can be provided in a number of different ways such as by downloading by the user or it can be preloaded on the device. One method of downloading the application is by texting a short code (a form of SMS message) from the mobile terminal 102 to a third party for the chosen service. This is received by the mobile network 112, which routes it to the relevant SMS gateway 120 for processing. The SMS gateway 120 processes the message and sends a WAP push message back to the mobile terminal 102. The WAP push message starts the web browser on the mobile terminal 102 directing the user to an appropriate application server for downloading the application.

Once the application is downloaded and installed on the mobile terminal 102, the user has to set-up an account and payment details with the payment server 126, and also has to register the application with the application server 120.

The account set-up in step 202 links the mobile terminal 102 to a user account that can be used to clear payments accrued by the payment application and associated NFC module 109. One way of setting up an account is for the user to utilise the mobile terminal 102 or a PC to access a (secure) web portal associated with the payment server 16, where the user inputs various personal details such as name and address, as well as payment details such as credit card details, and also the mobile phone number (or MSISDN) of the mobile terminal 102 that the user intends to use for payments. These user details are stored by the payment server 126.

Aside from using a secure connection to the web portal, such as using a HTTPS connection, other security measures could be included. One such measure is to validate that the mobile terminal 102 details (the mobile number or MSISDN) being registered does belong to the user setting up the account. This can be done by sending a PIN to the mobile number provided in the account set up, and requiring that the PIN be input back into the account set-up process in order for the set up to be successful.

Whilst the account set up has been described as a separate process that occurs after the payment application has been installed, in a further example, the payment application can instead be downloaded to the mobile terminal 102 following successful account set up. For example, the payment server can trigger the download of the payment application to the mobile terminal 102 specified during the account set up process.

After the payment application has been downloaded and stored on the mobile terminal 102, it is registered by the user. To register the payment application, the user first confirms various terms and conditions upon starting up the application for the first time. The payment application then generates a formatted SMS message containing details associated with the payment application being registered. The details may for example contain text to indicate that this is a first registration and an identifier for the application, version number etc. The SMS message is sent by the user equipment 102 to a short code number or similar number corresponding to the application server 124 in step 204.

The SMS message is transmitted via the mobile network 112 and SMS gateway 116 (not shown in Figure 2) to the application server 120. The mobile network 112 identifies the originator, the mobile terminal 102, of the SMS registration message and forwards the SMS message onto the SMS gateway 120. The SMS message forwarded, now includes the telephone number associated with the user equipment 102 added by the mobile network. This telephone number is more commonly referred to as the mobile subscriber ISDN (MSISDN) number. The MSISDN is added to the SMS message before it is forwarded to the application server 120 via the SMS gateway 116.

The application server 120 receives the SMS message and generates a unique user identifier, and stores it with the MSISDN received in the SMS in step 206. In a preferred example, the unique user identifier is a Universally Unique Identifier (UUID), through other similarly unique identifiers may be used. The UUID specification is described in more detail in RFC 4122. The UUID and

MSISDN can be stored as a user profile at the profile store 124 as shown in step 207 and storage is confirmed in step 208. In a further example of the invention, the user profile containing the UUID and MSISDN may be sent in step 207a to the payment server 128 where it is stored locally for later use in payment processing. The operation of both arrangements where the user profile is saved at the profile store 124 and at the payment server 128 are described later herein below.

Once the user UUID and MSISDN have been stored, the application server 120 can encode the UUID into a text block. The UUID may be encrypted using a strong encryption method, where a unique key is used. The key is composed of hashing the MSISDN with a pseudo random generated number. The text block is preferably no more than 160 characters in length to match the size of an SMS message, though could be more than 160 characters. The encoded text block is sent as an SMS message back to the mobile terminal 102 by the application server 120 via the mobile network 112 in step 210.

The application server 120 uses the MSISDN obtained from the registration message in step 204 to send the text block back to the mobile terminal 102. This step enables the originating mobile terminal 102 to be verified as being genuine and avoid the situation where the user sends a registration SMS message with a tampered MSISDN, IMSI or similar to deceive the system. By using the present method, the mobile network 112 will ensure that the response is directed to the correct mobile terminal 102 associated with the MSISDN.

The mobile terminal 102 then decodes the received text block using the application to extract the UUID in step 212. The application remains running after the sending of the registration SMS in step 202 and waits for this return SMS from the application server 120. The application has a reverse algorithm for decoding the text block if it has been encoded. The application then stores the extracted UUID in a data block, which can be encrypted, in the memory 108 together the IMSI of the SIM 106 and the IMEI of the mobile terminal 102. The application includes an interface or similar that allows the application to

interrogate the SIM 106 and the mobile terminal 102 for the IMSI and the IMEI respectively.

The registration process is now complete and the payment application can now use the UUID to obtain payment tokens from the payment server 128. The payment tokens are used to conduct payment transactions with the POS terminal 128 using the NFC module 109.

In step 214, the payment application makes a request for a payment token from the payment server 126. The request is made over a secure connection such as a HTTPS connection using SSL. The request for a payment token includes the UUID stored on the mobile terminal 102. The request can be made automatically by the payment application if the payment application does not already have a valid payment token, which includes when the payment application is first initiated. Alternatively, the user can use the payment application to request a new payment token at any stage.

When the payment server 126 receives the request, it uses the UUID provided as a way of determining the authenticity and identity of the mobile terminal 102 making the request. In step 216, the UUID is compared to the UUID stored in the user profiles at the payment server 126 as a result of step 207a. Alternatively, if the payment server 126 does not have locally stored copies of user profiles, then a request is made to the profile store 124 in step 217, and the profile store 124 checks the UUID against the stored profiles and returns the MSISDN associated with the UUID in step 218. If the test on the UUID fails at any stage (UUID not found), then the payment token request is rejected, and a message can be sent back to the mobile terminal 102 to re-register the payment application in order to obtain a new UUID (steps 204 to 212).

Once the payment server 126 has the MSISDN of the mobile terminal 102, further checks can be made before a payment token is issued. For example, a check can be made against the account set up in step 202 to determine if the account is not blocked, has sufficient credit, or whether the credit card details are still valid. If the required tests are passed, then the payment server 126 can

generate and store a payment token in step 220. Like the UUID tests, if any of the payment tests fail, then a message can be sent back to the mobile terminal 102 to perform the account set-up again (step 202).

The precise format of the payment token is not explored in detail here. However, the payment token is used for completing payment transactions by ensuring the authenticity of the user and for guaranteeing payment for the transaction. The payment token may be a unique alphanumeric string, code block or similar, and may also be encrypted to prevent tampering. Preferably, the payment token is stored against the account details, including the MSISDN, associated with the mobile terminal 102.

The payment token is then sent by the payment server 126 to the mobile terminal 102 in step 222 over the same secure connection. The payment token is stored by the payment application together the IMSI of the SIM 106 and the IMEI of the mobile terminal 102. The payment token is preferably encrypted using the IMSI and/or IMEI to ensure that if the SIM is swapped or the mobile terminal 102 is tampered with, then the clear payment token cannot be obtained. This prevents fraudulent use of the payment application, for example should the mobile terminal 102 be lost and the (blocked) SIM swapped for another SIM, the IMSI of the new SIM would not match that used to encrypt the payment token. In a further example, the payment token could be secured more simply by the payment application requiring that the correct IMSI and/or IMEI to be present before the payment token is released for use.

Alternatively, the payment token is secured using the UUID instead of the IMSI/IMEI. Thus, only a correctly validated UUID is required for obtaining the clear payment token. The payment token would thus be either encrypted using the UUID or simply stored/associated with the UUID.

Figure 3 illustrates the use of the payment token for a contactless payment between the mobile terminal 102 and the POS terminal 128.

When the user makes a purchase, the user places the mobile terminal 102 near the POS terminal 128 to initiate a contactless transaction. The NFC module 109 allows the mobile terminal 102 to communicate using radio frequencies with the POS terminal 128 over short ranges. Thus, in step 300 when a payment is to be made, for example following a purchase of some goods, the POS terminal 128 is activated and the user places the mobile terminal 102 near the POS terminal 128 to initiate payment. An RF communication link between the two devices is established, which triggers the payment application in the mobile terminal 102 to proceed with conducting the transaction.

Several tests are preferably performed first to ensure that neither the SIM nor the mobile terminal 102 has changed since the initial registration. This may occur if the SIM 106 has been replaced, either genuinely by the user if a new SIM has been issued, or fraudulently if the mobile terminal 102 has been stolen and the original SIM blocked for example. The tests will also highlight potential tampering with the key components of the UUID and/or payment token.

Thus, in step 302, the UUID is tested by decrypting the data block in which the UUID is stored and checking the stored IMSI and IMEI with the IMSI and IMEI retrieved directly from the current SIM 106 and mobile terminal 102 respectively. The payment application can interrogate the SIM 106 and the mobile terminal 102 to obtain the IMSI and IMEI respectively. If the IMSI and IMEI are verified, then the application can assume that the UUID in the data block is valid and correct for the IMSI/IMEI combination as verified. However, if the test fails, then the application can be set to terminate the payment process and optionally delete the data block and restart the registration process outlined in Figure 2. If at any stage the UUID test fails, then the application can inform the user that there has been a registration failure, and the transaction cannot be completed, and also prompt the user to re-register to get a new UUID.

If the test of the UUID is passed, then the payment token is retrieved in step 304. However, in the situation where the payment token is also encrypted or stored with reference to the IMSI and/or IMEI, then a similar test to the UUID test in step 302 is performed to retrieve the clear payment token. Or in the

alternative arrangement where the payment token is secured using the UUID, a correct UUID obtained from step 302 will be needed to release the payment token. The payment token secured by the UUID (in step 224) can be done by direct encryption using the UUID as a key, or more simply by the application requiring a matching UUID before the payment token is released.

Once the clear payment token is retrieved, it is transmitted to the POS terminal 128 by way of the NFC module 109 in step 306. The POS terminal 128 then uses a secure channel, such as an SSL connection, to the payment server 126. This channel will typically be over some private network rather than the mobile network 112 or the Internet. A payment request is then sent to the payment server 126 from the POS terminal 128 in step 308, where the request includes the payment token, the transaction payment amount, and other transaction identifiers required for transaction identification and logging.

When the payment server 310 receives the payment token, the payment token is checked against the payment tokens stored in step 220 in order to determine the account against which the payment is to be posted. The account associated with the payment token may also include payment parameters such as counters for the number of times the current payment token has been used (a transaction count), and a total transaction amount accrued against the present payment token. In step 312, these parameters are adjusted accordingly. Each of these parameters may have a limit or threshold above which the transaction will be rejected, as a result of which the payment application would have to request a new payment token by repeating steps 214 to 224. Typically, the number of transactions would be set to 5, which matches that for the standard for off-line Chip and PIN transactions. Other parameters could include a validity period, where after a certain period of time, the payment token is no longer valid, requiring a new payment token for payment transactions.

If the user account has sufficient credit and has not been blocked for any reason, and the thresholds for the number of transactions or amount has not been exceeded, then the transaction can be approved. The account details are updated to reflect the transaction amount, and a payment approval message is

sent back to the POS terminal 128 from the payment server 126 over a secure connection.

The POS terminal 128 receives the payment approval message and indicates that the transaction has been approved in step 316. This may be in the form of a displayed message or a visual indicator such as a green light. The POS terminal 318 also sends an approval response message back to the mobile terminal 102 in step 320. The mobile terminal 102 then updates its internal parameters, which mirror those maintained by the payment server 126 in step 312. Thus, any of the transaction count, transaction amount totals, and validity period can be updated. The payment process is now complete.

If at anytime the payment application in the mobile terminal 102 determines that the payment counters for transaction number and/or amount are at the threshold or exceeds the threshold, then a new payment token (with new counters) is requested by the mobile terminal 102. The request for a new payment token follows the same process as steps 214 to 224. This "refresh" of the payment token can also be performed periodically even when the thresholds have not been reached to ensure that the payment application always has a new payment token to allow the user as many transactions as possible before another refresh. This refresh is particularly useful if the payment token as an associated validity period after which the token is invalid (for example, a payment token may only be valid for a period of 3 days following generation). If the application determines that the validity period has or is about to shortly expire, a new payment token request can be made.

Furthermore, the user's account can be blocked at any stage if for example the account is no longer in credit or if the credit card used to pay the account is no longer valid for example. If this happens, then when the payment server 126 checks the payment token, it will find that the token matches an account (note, payment token stored against account in step 220) that is blocked. The payment server thus rejects the payment request.

In another example, a payment token having a specific or higher value can be requested in step 214 for one off transactions of a higher value. In order to complete this process, a re-registration may be requested first in order to confirm the mobile terminal 102 identity (the MSISDN) by requesting a new UUID (steps 204 to 212).

In summary, examples of the present invention utilise the inherently secure framework provided by the mobile network operator to provision a UUID that is associated with a user and his device. In particular, it is the security of the SMS mechanism that ensures the security of this invention. The UUID can then be used as a device identifier in issuing and managing payment tokens for payment transactions.

Whilst the download of an application and subsequent registration are described with reference to the same SMS gateway 116 and application server 120 as those used in subsequent provision of services, the examples are equally applicable to the use of separate gateways and servers for each process.

In general, it is noted herein that while the above describes examples of the invention, there are several variations and modifications which may be made to the described examples without departing from the scope of the present invention as defined in the appended claims. One skilled in the art will recognise modifications to the described examples.

CLAIMS

1. A method of generating a payment token for conducting payments using a mobile terminal, wherein said mobile terminal comprises an identity module, said method comprising the steps of:

a) receiving at an application server a registration message, said first message comprising a telephone number associated with the identity module;

b) generating by the application server a unique identifier and storing the unique identifier with the telephone number;

c) sending the unique identifier to the mobile terminal, wherein the mobile terminal generates and stores a datablock comprising the unique identifier, and the datablock is secured using the subscriber identity associated with the identity module and a terminal identifier associated with the mobile terminal; and subsequently

d) validating by a payment server a request for a payment token from the mobile terminal based on the unique identifier contained in the request, wherein the unique identifier is retrieved from the datablock stored in the mobile terminal.

2. A method according to claim 1, further comprising:

e) using the unique identifier from the request to identify the telephone number associated therewith based on the unique identifier and telephone number stored by the application server.

3. A method according to claim 1 or 2, further comprising generating a payment token and associating and storing the payment token with a user account at the payment server, wherein the user account comprises the telephone number of the mobile terminal.

4. A method according to claim 3, wherein the generated payment token is transmitted by the payment server to the mobile terminal, and the mobile terminal stores the payment token securely using the unique identifier.

5. A method according to claim 4, wherein the payment token is used by the mobile terminal to conduct a contactless payment transaction with a point of sale terminal, said method further comprising transmitting the payment token to the point of sale terminal and onto the payment server, wherein upon receipt at the payment server, the payment token is validated by cross checking against the payment token stored with the user account at the payment server.

6. A method according to claim 5, wherein the payment token is only valid for a fixed period of time following generation by the payment server.

7. A method according to claim 5, wherein the payment token is only valid for a predetermined number of contactless payment transactions.

8. A method according to claim 5, wherein the payment token is only valid for a predetermined total transaction amount.

9. A method according to any preceding claim, wherein the mobile terminal makes a request for a new payment token from the payment server, said request comprising the unique identifier for identifying the mobile terminal.

10. A system for generating a payment token for conducting payments using a mobile terminal, said system comprising an application server and a payment server, said mobile terminal comprising an identity module, and wherein

the application server is adapted for receiving at an application server a registration message, said first message comprising a telephone number associated with the identity module, for generating a unique identifier and storing the unique identifier with the telephone number, and for sending the unique identifier to the mobile terminal;

the mobile terminal is adapted to generate and store a datablock comprising the unique identifier, and the datablock is secured using the subscriber identity associated with the identity module and a terminal identifier associated with the mobile terminal; and

the payment server is adapted to validate a request for a payment token from the mobile terminal based on the unique identifier contained in the request, wherein the unique identifier is retrieved from the datablock stored in the mobile terminal.

5

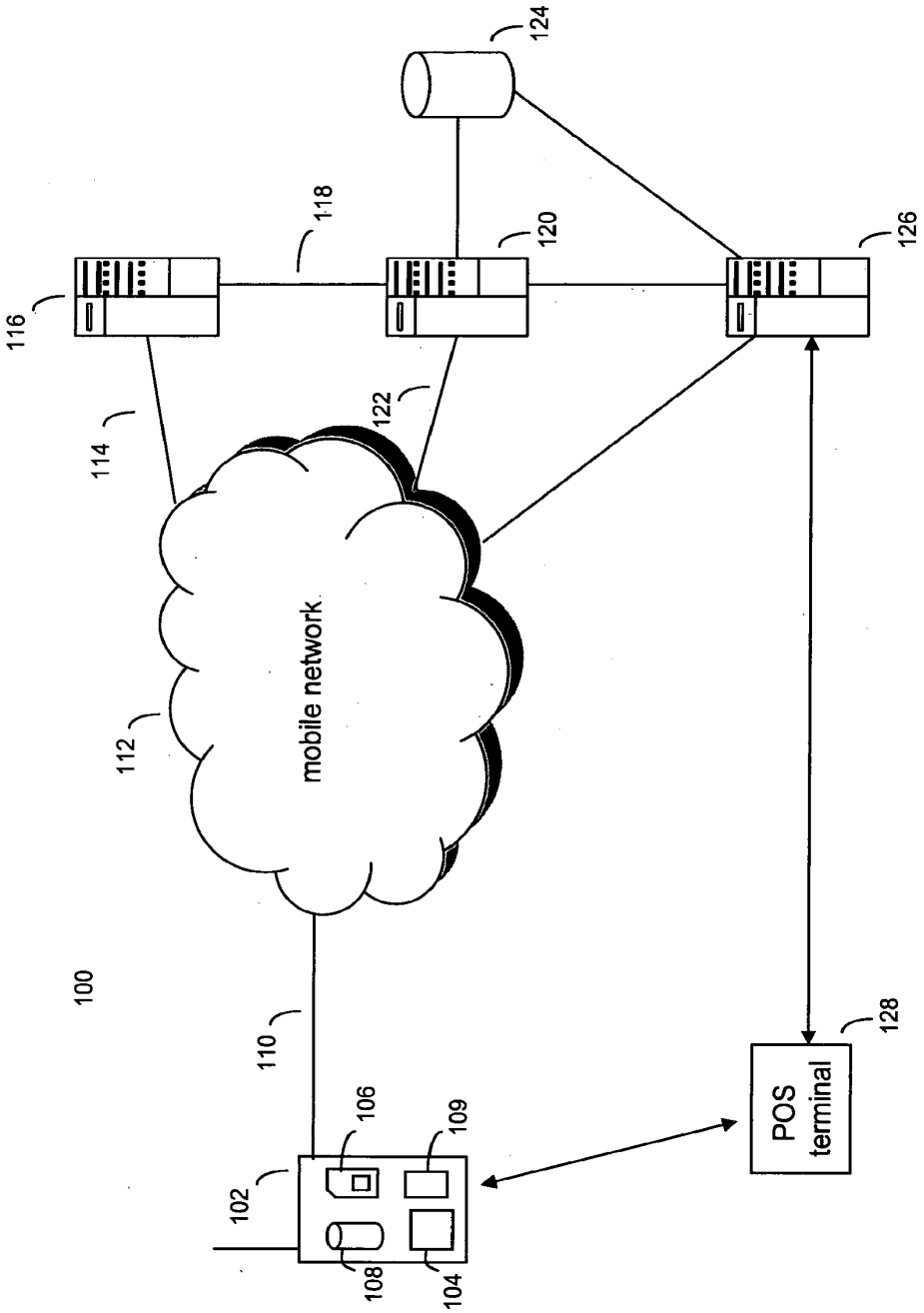
124
118
120
126
116
114
122
mobile network
112
100
110
106
109
102
108
104
POS terminal
128

Figure 1

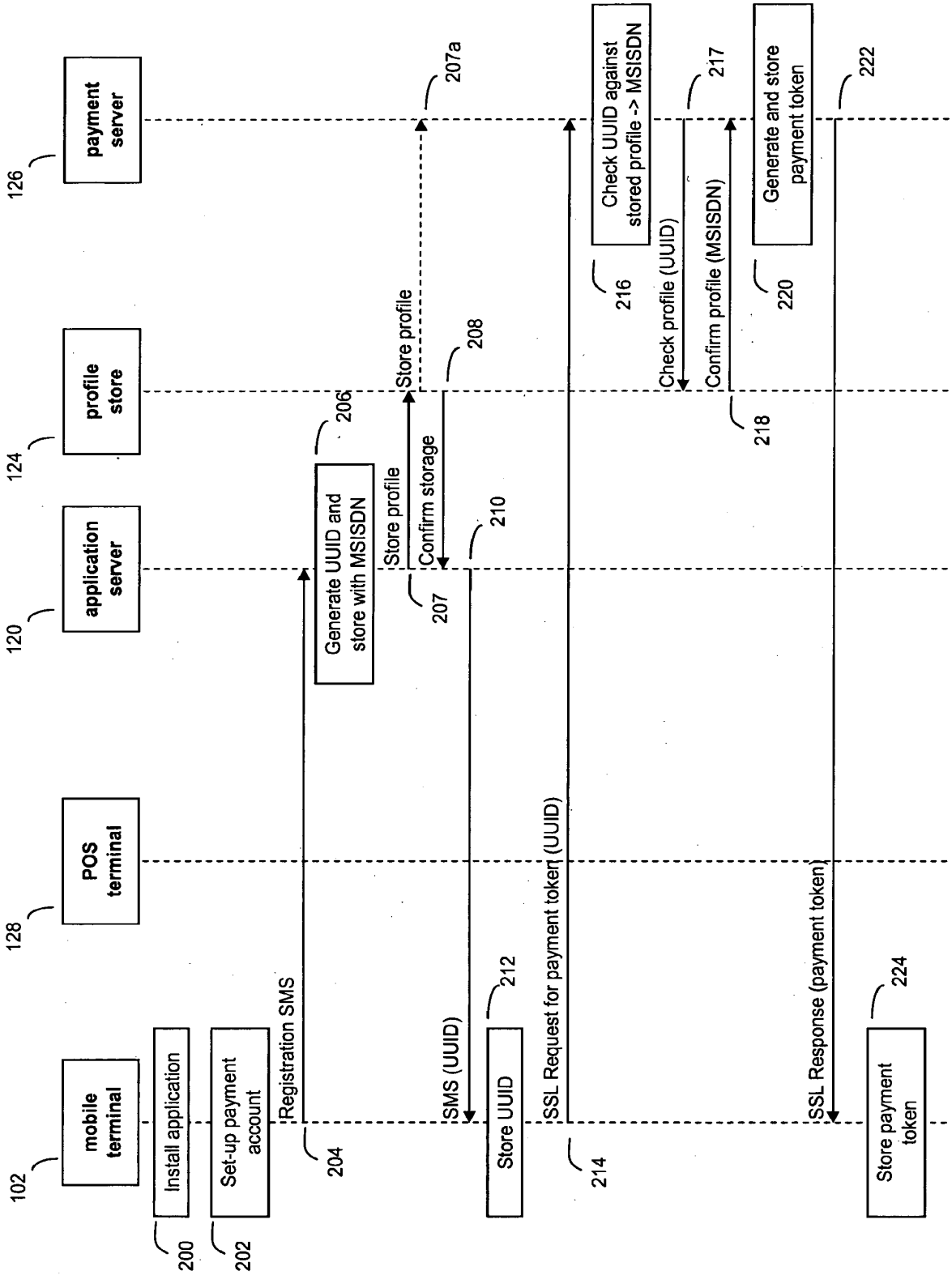
mobile terminal
102
POS terminal
128
application server
120
profile store
124
payment server
126
Install application
200
Set-up payment account
202
Registration SMS
204
Generate UUID and store with MSISDN
206
Store profile
207a
Store profile
208
Confirm storage
207
Store profile
210
SMS (UUID)
Store UUID
212
SSL Request for payment token (UUID)
214
Check UUID against stored profile -> MSISDN
216
Check profile (UUID)
217
Confirm profile (MSISDN)
218
Generate and store payment token
220
222
SSL Response (payment token)
Store payment token
224

Figure 2

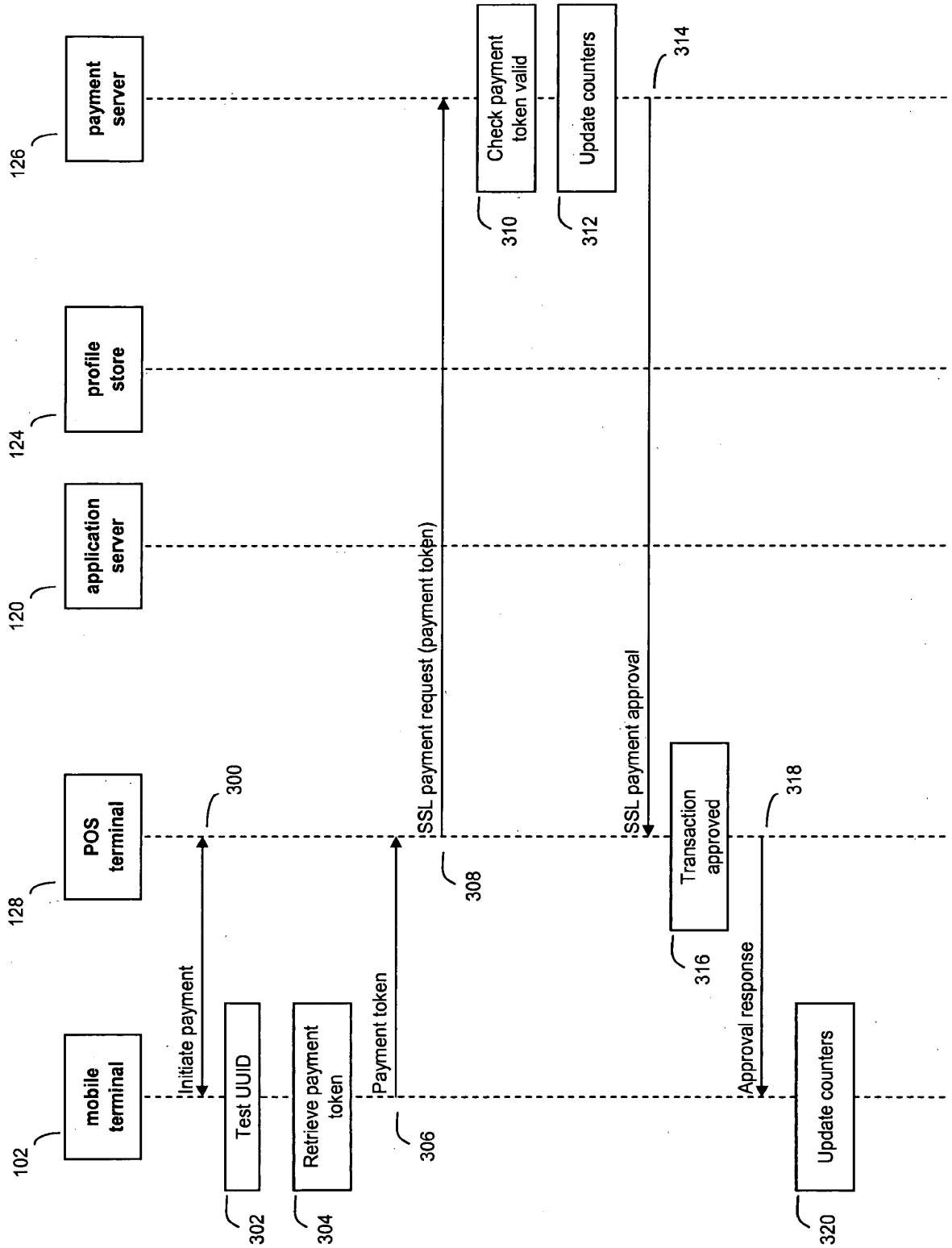
mobile terminal
102
POS terminal
128
application server
120
profile store
124
payment server
126
Initiate payment
300
Test UUID
302
Retrieve payment token
304
Payment token
306
SSL payment request (payment token)
308
Check payment token valid
310
Update counters
312
314
SSL payment approval
Transaction approved
316
318
Approval response
Update counters
320

Figure 3

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2009/000135

A. CLASSIFICATION OF SUBJECT MATTER
INV. G06Q20/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
G06Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	"EMV Mobile Contactless Payment: Technical Issues and Position Paper" INTERNET CITATION, [Online] 1 October 2007 (2007-10-01), pages 1-37, XP007908266 Retrieved from the Internet: URL:http://www.emvco.com/mobile.aspx> [retrieved on 2009-04-20] 1.4 Mobile Device Architecture 2. Provisioning and Personalization 4.2.1 User Authentication/Cardholder Verification	1-10
X	WO 2004/040494 A (ROCOMO CO LTD [KR]; KIM YUN KYUNG [KR]; HEO YOUNG YE [KR]) 13 May 2004 (2004-05-13) page 3, line 1 - page 10, line 11 figures 1-3	1-10

-/--

[X] Further documents are listed in the continuation of Box C.

[X] See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance
"E" earlier document but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
21 April 2009	04/05/2009

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Fax: (+31–70) 340–3016	Aguilar, José María

Form PCT/ISA/210 (second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2009/000135

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SMART CARD ALLIANCE: "Proximity Mobile Payments: Leveraging NFC and the Contactless Financial Payments Infrastructure A Smart Card Alliance Contactless Payments Council White Paper" INTERNET CITATION, [Online] 1 September 2007 (2007-09-01), page complete, XP007906262 Retrieved from the Internet: URL:http://www.smartcardalliance.org> [retrieved on 2008-11-07] 1.1.1 1.1.2 1.2 2.4 2.5	1-10
A	GB 2 438 756 A (INNOVISION RES & TECH PLC [GB]) 5 December 2007 (2007-12-05) abstract; figures page 27, paragraph 2 page 22, paragraph 2	1-10
A	WO 2006/023839 A (MASTERCARD INTERNATIONAL INC [US]; WANKMUELLER JOHN [US]) 2 March 2006 (2006-03-02) page 5, paragraph 3 page 6, paragraph 2	1-10
A	US 2005/156026 A1 (GHOSH ANGANA [US] ET AL) 21 July 2005 (2005-07-21) abstract; figures	1-10
A	WO 2008/002979 A (SOLIDUS NETWORKS INC [US]; BEMMEL VINCENT [US]; MIAN SHAOIB [US]) 3 January 2008 (2008-01-03) paragraph [0005] paragraphs [0028] - [0042]	1-10

Form PCT/ISA/210 (continuation of second sheet) (April 2005)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/GB2009/000135

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Abstract of JP2015069269 (A)

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PROBLEM TO BE SOLVED: To provide an information storage system including a high-speed access KVS while preventing data inconsistency.SOLUTION: An information storage system includes: a data storage unit which stores storage data formed of a plurality of attribute values, and data identification information formed of an arbitrary one of the attribute values constituting the storage data, as a pair of data; and a data structure conversion unit which changes an attribute value which constitutes the data identification information out of a pair of data stored in the data storage unit, to one of other attribute values constituting the storage data stored as the pair of data. The information storage system prohibits reference of the pair of data to be changed by the data structure conversion unit, during a period when the data structure conversion unit changes the attribute value constituting the data identification information.

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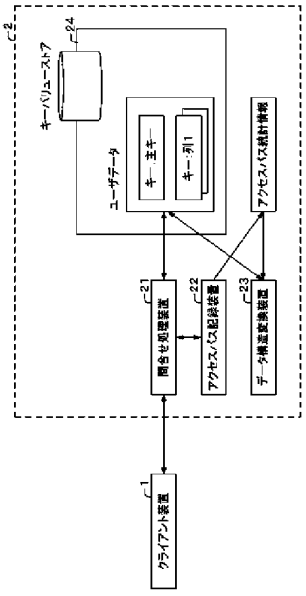
(54)【発明の名称】情報記憶システム、情報記憶方法、プログラム

(57)【要約】
【課題】データの不整合を防ぎつつ、高速にアクセス可能なＫＶＳを備える情報記憶システムを提供すること。
【解決手段】複数の属性の値からなる保存対象データと、保存対象データを構成する複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶部と、データ記憶部が記憶する一対のデータのうちデータ識別情報となる属性の値を、当該一対のデータとして記憶される保存対象データを構成する他の属性の値の一つに変更するデータ構造変換部と、を備え、データ構造変換部がデータ識別情報となる属性の値を変更している間、データ構造変換部による変更の対象となる、一対のデータの参照を禁止する。
【選択図】図２



【特許請求の範囲】
【請求項１】
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶部と、
前記データ記憶部が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値の一つに変更するデータ構造変換部と、を備え、
前記データ構造変換部が前記データ識別情報となる前記属性の値を変更している間、前記データ構造変換部による変更の対象となる、前記一対のデータの参照を禁止する、
情報記憶システム。
【請求項２】
請求項１に記載の情報記憶システムであって、
前記データ構造変換部が前記データ識別情報となる前記属性の値を変更している間、前記データ構造変換部による変更の対象となる、前記一対のデータの更新を禁止する、
情報記憶システム。
【請求項３】
請求項１又は２に記載に情報記憶システムであって、
前記データ記憶部から前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対応付けて、検索属性値情報として記憶する検索属性値情報記憶処理部を備え、
前記データ構造変換部は、前記検索属性値情報記憶処理部が記憶する前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する、
情報記憶システム。
【請求項４】
請求項３に記載の情報記憶システムであって、
前記データ構造変換部は、前記検索属性値情報に基づいて変換指標値を算出し、当該変換指標値が予め定められた閾値を超える場合に、前記データ識別情報となる前記属性の値を変更する、
情報記憶システム。
【請求項５】
請求項４に記載の情報記憶システムであって、
前記検索属性値情報記憶部は、前記検索属性値情報に含めて、前記データ識別情報である前記検索属性値を用いて前記保存対象データを検索した回数と、前記データ識別情報でない前記検索属性値を用いて前記保存対象データを検索した回数と、を前記検索属性値毎に前記保存対象データと対応付けて記憶する、
情報記憶システム。
【請求項６】
請求項５に記載の情報記憶システムであって、
前記データ構造変換部は、前記データ識別情報でない前記検索属性値を用いて前記保存対象データを検索した回数が、前記データ識別情報である前記検索属性値を用いて前記保存対象データを検索した回数に占める割合を前記変換指標値として算出し、当該変換指標値が示す割合が前記閾値を超える場合に、前記データ識別情報となる前記属性の値を、前記保存対象データを検索した前記検索属性値に変更する、
情報記憶システム。
【請求項７】
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する情報処理装置により、

前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更し、
前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する、
情報記憶方法。
【請求項８】
請求項７に記載の情報記憶方法において、
前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対応付けて、検索属性値情報として記憶し、
前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する、
情報記憶方法
【請求項９】
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶手段を備えた情報処理装置に、
前記データ記憶手段が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更するデータ構造変換手段を実現させ、
前記データ構造変換手段が前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する機能を有する、
プログラム。
【請求項１０】
請求項９に記載のプログラムであって、
前記データ記憶手段から前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対応付けて、検索属性値情報として記憶する検索属性値情報記憶処理手段を実現させ、
前記データ構造変換手段は、前記検索属性値情報記憶処理手段が記憶する前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する機能を有する、
プログラム。
【発明の詳細な説明】
【技術分野】
【０００１】
本発明は、情報記憶システム、情報記憶方法、プログラムに係り、特に、ＫＶＳを備える情報記憶システム、情報記憶方法、プログラムに関する。
【背景技術】
【０００２】
極めて大量のデータを保管するために、分散キーバリューストア（以下、ＫＶＳという）が注目されている。
【０００３】
一般に、ＫＶＳはスケーラビリティとスループットを重視する。そのため、ＫＶＳは、データをキーとバリューからなる単純な構造（以下、ＫＶペアという）で表現する必要がある。また、ＫＶＳが対応できる操作は、ＫＶペアのキーを指定してバリューを取得する、ＫＶペアを収納する、キーを指定してＫＶペアを削除する、という３種類の動作のみに限定されている。
【０００４】
このような特徴を持つため、ＫＶＳは、キーとして格納した属性以外の値をアクセスパスとする際には、予め用意した索引を経由する必要があった。そのため、キーとして格納した属性以外の値をアクセスパスとすると、ＫＶＳは、索引を取得した上でその内容を解

析して、改めて実データを取得するという動作を行う必要がある。その結果、ＫＶＳは、キーとして格納した属性以外の値をアクセスパスとすると、実データを取得するまでの時間が遅くなるという問題が生じていた。

【０００５】

また、ＫＶＳはスケーラビリティを重視するため、一般にひとつのＫＶペアに対する原子的操作しかサポートしていない。そのため、複数のクライアントからの要求を同時に処理すると、データの不整合が発生しうるという問題が生じていた。

【０００６】

ここで、ＫＶＳに格納されたデータを高速に検索する方法としては、特許文献１が知られている。特許文献１には、表データを分解表に細分化して記憶、処理することで処理の高速化を狙う方法が記載されている。

【０００７】

また、高速な検索を可能とするために格納方法を再編成する方法としては、特許文献２が知られている。特許文献２には、データ操作要求によるデータベースへのアクセスパスをトレースしておくことで、アクセス傾向に応じた格納方法に再編成する方式が記載されている。

【先行技術文献】

【特許文献】

【０００８】

【特許文献１】特開２０１２－１６４３３３号公報

【特許文献２】特開平０５－００２５１５号公報

【発明の概要】

【発明が解決しようとする課題】

【０００９】

しかしながら、特許文献１に記載されている技術では、値の分散状況によっては細分化しても値の範囲が狭くならず、必ずしも高速なアクセスには結びつかないという問題が生じていた。

【００１０】

また、特許文献２に記載されている技術をＫＶＳに適用すると、複数のクライアントからの要求を同時に処理する際に、データの不整合が生じることがあるという問題が生じていた。

【００１１】

そこで、本発明の目的は、上述した課題である、データの不整合を防ぎつつ、高速にアクセス可能なＫＶＳを備える情報記憶システムを提供することにある。

【課題を解決するための手段】

【００１２】

かかる目的を達成するため本発明の一形態である情報記憶システムは、

複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶部と、

前記データ記憶部が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値の一つに変更するデータ構造変換部と、を備え、

前記データ構造変換部が前記データ識別情報となる前記属性の値を変更している間、前記データ構造変換部による変更の対象となる、前記一対のデータの参照を禁止する、

という構成を採る。

【００１３】

また、本発明の他の形態である情報記憶方法は、

複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する

情報処理装置により、
前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更し、
前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する、
という構成を採る。
【００１４】
また、本発明の他の形態であるプログラムは、
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶手段を備えた情報処理装置に、
前記データ記憶手段が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更するデータ構造変換手段を実現させ、
前記データ構造変換手段が前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する機能を有する、
プログラムである。
【発明の効果】
【００１５】
本発明は、以上のように構成されることにより、データの不整合を防ぎつつ、高速にアクセス可能なＫＶＳを備える情報記憶システムを提供することが出来る。
【図面の簡単な説明】
【００１６】
【図１】第１の実施形態における情報記憶システムの構成の概略を示すブロック図である。
【図２】第１の実施形態における情報記憶システムの構成を示すブロック図である。
【図３】図１で示す情報記憶システムが記憶するＫＶ形式のデータの一例を示す図である。
【図４】図２で示すキーバリューストアに記憶されるユーザデータの詳細な構成を示す図である。
【図５】図１で示す情報記憶システムがデータ取得処理を行う際の取得するデータの流れを示した図である。
【図６】第１の実施形態において、データ構造変換処理の流れの一例を示す図である。
【図７】第１の実施形態において、複数の主キー情報を索引部に備える場合のデータ構造変換処理の流れを示す図である。
【図８】図１で示す情報記憶システムがデータ取得処理を行う際の流れを示すフローチャートである。
【図９】図２で示すデータ構造変換装置がキー情報を変更する際の流れを示すフローチャートである。
【図１０】図２で示すデータ構造変換装置によるデータ構造変換中のクライアント装置からのデータアクセスの処理を示すフローチャートである。
【図１１】第２の実施形態における、データ構造変換処理の流れを示すフローチャートである。
【図１２】第３の実施形態における、情報記憶システムの構成の概略を示すブロック図である。
【図１３】第４の実施形態における、情報記憶システムの構成の概略を示すブロック図である。
【発明を実施するための形態】
【００１７】
＜実施形態１＞

本発明の第１の実施形態を、図１乃至図１０を用いて説明する。図１は、情報記憶システムの構成の概要を示す図である。図２は、情報記憶システムの構成を示す図である。図３は、情報記憶システムが記憶するＫＶ形式のデータの一例を示す図である。図４は、キーバリューストアが記憶するユーザデータの詳細な構成を示す図である。図５は、情報記憶システムがデータ取得処理を行う際の取得するデータの流れの一例を示す図である。図６は、データ構造変換装置がキー情報を変更する際のデータ構造の変化の一例を示す図である。図７は、複数の主キー情報を索引部に備えるＫＶペアのデータ構造の変化の一例を示す図である。図８は、情報記憶システムがデータ取得処理を行う際の流れを示すフローチャートである。図９は、データ構造変換装置がキー情報を変更する際の流れを示すフローチャートである。図１０は、データ構造変換装置によるデータ構造変換中のクライアント装置からのデータアクセスの処理を示すフローチャートである。

【００１８】

本発明の第１の実施形態では、データにアクセスするための識別情報であるキー情報（データ識別情報）と保存の対象になる保存対象データとを一対のデータとして記憶するキーバリューストア（ＫＶＳ，Ｋｅｙ－Ｖａｌｕｅ　Ｓｔｏｒｅ）を備える情報記憶システムについて説明する。

【００１９】

（構成）

図１で示すように、第１の実施形態における情報記憶システムは、クライアント装置１とデータベースシステム２とを備えて構成されている。また、クライアント装置１とデータベースシステム２とは、互いに情報を送受信可能なように接続されている。

【００２０】

クライアント装置１は、データベースシステム２に問合せを発行する装置である。具体的には、クライアント装置１は、データの取得等の問合せをデータシステム２に発行する。また、クライアント装置１は、データベースシステム２からの問合せの返却を受け付ける。クライアント装置１としては、例えばパーソナルコンピュータ等の、演算部と記憶部とを備えた一般的な情報処理装置が考えられる。

【００２１】

データベースシステム２は、データの記憶等を行うシステムである。データベースシステム２は、クライアント装置１からの問合せを受けて、データの取得、格納、削除等を行う。図２で示すように、データベースシステム２は、問合せ処理装置２１と、アクセスパス記録装置２２（検索属性値情報記憶処理部）と、データ構造変換装置２３（データ構造変換部）と、キーバリューストア２４（以下、ＫＶＳ２４とする）（データ記憶部）と、を備えて構成されている。

【００２２】

なお、本実施形態においては、上記各装置それぞれが、図示しない演算部と記憶部とを備えた、独立した装置であるとする。また、各装置の機能は、各装置がそれぞれ備える演算部が、それぞれの装置に組み込まれたプログラムを実行することにより実行する。しかしながら、本発明は、各装置の機能を備える一つ又は複数の情報処理装置により実現しても構わない。また、本発明におけるＫＶＳ２４は、一つのサーバにより構成されていても構わないし、複数のサーバにより構成されても構わない。

【００２３】

ここで、本実施形態においてデータベースシステム２（ＫＶＳ２４）に記憶されるユーザデータについて、図３、図４を参照して説明する。本実施形態におけるデータベースシステム２（ＫＶＳ２４）は、図３で示すように、表形式のデータを、キーバリュー形式（以下、ＫＶ形式とする，Ｋｅｙ　Ｖａｌｕｅ形式）のデータとして記憶する。ＫＶ形式のデータとは、保存の対象となる保存対象データ（バリュー）と、当該保存対象データを検索するための識別情報となるキー情報（データ識別情報）と、を一対のデータ（ＫＶペア，キーバリューペア）として記憶する形式のデータである。データベースシステム２（ＫＶＳ２４）は、キー情報を基に、データベースシステム２（ＫＶＳ２４）に格納されてい

る保存対象データにアクセスすることになる。なお、後述する実データ部にデータを備える保存対象データと対となるキー情報を、特に、主キー情報とする。

【００２４】

また、図４で示すように、本実施形態における保存対象データ（バリュー）は、フラグ部と、実データ部と、索引部と、を備えて構成されている。フラグ部は、後述するデータ構造変換中のクライアント装置１からのデータアクセスの処理の際に用いられる部分である。後述するように、フラグ部を用いることで、データベースシステム２は、データに不整合が発生することを防ぎつつデータ構造の変更を行うことが可能となる。実データ部は、保存の対象となる実データを保存する部分であり、１つ又は複数の属性の値により構成される。索引部は、後述する索引情報を形成する際に用いる部分である。また、主キー情報は、当該主キー情報と対として記憶される保存対象データの実データ部が備える複数の属性の値のうち、任意の一つ（実データ部の属性の値が一つの場合は、その一つ）の値から決定される。

【００２５】

なお、本実施形態では、保存対象データ（バリュー）は、フラグ部と、実データ部と、索引部と、を備えて構成されているとした。しかしながら、本発明の実施には、必ずしもバリューを３部に分ける必要はない。フラグ部と、実データ部と、索引部と、に保存される３種類のデータが何らかの形で区別できればよい。

【００２６】

また、本実施形態におけるデータベースシステム２（ＫＶＳ２４）は、その特性上、キー情報を介してのみ、格納されている保存対象データにアクセスすることが出来る。そのため、保存対象データ（の実データ部又は索引部）を構成する複数の属性の値のうち、主キー情報として用いる属性の値を除いた属性の値で当該保存対象データにアクセスするためには、索引情報を用いる必要がある。

【００２７】

索引情報は、図３、図４で示すように、保存対象データを構成する複数の属性の値のうち、主キー情報として用いる属性を除いた属性の値からなるキー情報と、主キー情報を索引部に記憶する保存対象データと、からなる一対のデータ（ＫＶペア）である。データベースシステム２（ＫＶＳ２４）が索引情報を記憶することで、後述するように、データベースシステム２（の問合せ処理装置２１）は、索引情報を経由して、実データを保存する保存対象データを取得すること等が出来るようになる。

【００２８】

このようなＫＶ形式のデータの一例として、購入履歴を表すユーザデータを図３で示す。図３で示すように、本実施形態において一例として挙げるユーザデータは、ユーザＩＤ、名前、都道府県、商品、購入数を各属性とする表形式のデータ（実データ）を、ＫＶ形式のデータとして表したものである。また、本実施形態におけるＫＶ形式のデータは、ユーザＩＤを主キー情報としている。具体的には、本実施形態におけるデータベースシステム２（ＫＶＳ２４）は、実データを構成するユーザＩＤ、名前、都道府県、商品、購入数の各属性の値がそれぞれ、１、鈴木、東京都、ＡＡＡ、３、であり、ユーザＩＤの値である「１」を主キー情報とするＫＶ形式のデータを記憶している。また、データベースシステム２（ＫＶＳ２４）は、各属性の値がそれぞれ、２、佐藤、埼玉県、ＢＢＢ、１０であり、ユーザＩＤの値である「２」を主キー情報とするＫＶ形式のデータを記憶している。さらに、データベースシステム２は、保存対象情報の属性の値の一つである埼玉県と、埼玉県を値として持つ保存対象データの主キー情報である「２」と、を対応付けた索引情報を記憶している。また、データベースシステム２は、保存対象情報の属性の値の一つである東京都と、東京都を値として持つ保存対象データの主キー情報である「１」と、を対応付けた索引情報を記憶している。

【００２９】

つまり、キー情報と保存対象データとから構成されるＫＶペアを、「ｋｅｙ＝＞ｖａｌｕｅ」の形で表すと、図４で示すように、

「｛１＝＞フ｛｝，実｛（１，鈴木，東京都，ＡＡＡ，３）｝，索｛｝｝，」
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
「｛埼玉県＝＞フ｛｝，実｛｝，索｛２｝｝，」
「｛東京都＝＞フ｛｝，実｛｝，索｛１｝｝」
という形で表される各データを、データベースシステム２（ＫＶＳ２４）は記憶している。なお、ここでは、フラグ部、実データ部、索引部をそれぞれフ、実、索と省略表記する。また、本来、キー情報が一意になるように、キー情報の値として属性の値（「２」）だけではなく、表の名前、及び属性の名前も含めるべきである（例えば、「購入履歴－ユーザＩＤ－２」）。しかしながら、本発明の説明においては冗長なため、以下、単に属性の値だけ記載して説明する。

【００３０】

以上が、本実施形態においてデータベースシステム２（ＫＶＳ２４）に記憶されるとするユーザデータである。以下、上記で例示したユーザデータも用いて、本実施形態の各構成について詳細に説明する。

【００３１】

まず、問合せ処理装置２１について説明する。問合せ処理装置２１は、クライアント装置１からデータの取得等の問合せを受け付けて、ＫＶＳ２４からデータの取得等を行う装置である。また、問合せ処理装置２１は、クライアント装置１からの問合せの結果をクライアント装置１に返却する装置である。

【００３２】

具体的には、問合せ処理装置２１は、クライアント装置１から問合せを受け付けると、これを解析してどのアクセスパスでＫＶＳ２４からデータ（ＫＶペア）を取得するかを決定する。ここで、アクセスパスとは、ＫＶＳ２４に保存されている保存対象データ（ＫＶペア）にアクセスするためのキー情報のことをいう。そして、問合せ処理装置２１は、決定したアクセスパスをＫＶＳ２４へ通知する。その後、問合せ処理装置２１は、ＫＶＳ２４へアクセスパスを通知した結果として、ＫＶＳ２４からＫＶペアを取得する。そして、問合せ処理装置２１は、取得したデータをクライアント装置１に送信する。なお、取得したＫＶペアが索引情報であった場合には、問合せ処理装置２１は、再度ＫＶＳ２４に問合せることになる。

【００３３】

具体的に、データベースに対する問合せ言語として一般的なＳＱＬ（Ｓｔｒｕｃｔｕｒｅｄ　Ｑｕｅｒｙ　Ｌａｎｇｕａｇｅ）を用いてデータの取得を表現すると、問合せ処理装置２１は、例えば、以下のような問合せでＫＶＳ２４からＫＶペアを取得する。
「ＳＥＬＥＣＴ＊ＦＲＯＭ　購入履歴　ＷＨＥＲＥ　ユーザＩＤ＝２」
また、問合せ処理装置２１は、以下のような問合せで、ＫＶＳ２４からＫＶペアを取得する。なお、この問合せの場合は、問合せ処理装置２１は、索引情報を経由して実データを備える保存対象データにアクセスすることになる。
「ＳＥＬＥＣＴ＊ＦＲＯＭ　購入履歴　ＷＨＥＲＥ　都道府県＝'埼玉県'」

【００３４】

なお、問合せ処理装置２１は、キーバリューストア２４からＫＶペアを取得した際に、所定の場合には、当該取得したＫＶペアが表す実データをクライアント装置１に送信しないように構成することが出来る。この動作は、問合せ処理装置２１が、取得したＫＶペアのフラグ部を参照することで実現できる。具体的には、取得したＫＶペアのフラグ部にフラグが設定されている場合には、当該取得した実データをクライアント装置１に送信しないように、問合せ処理装置２１を構成する。問合せ処理装置２１のこの動作の詳細については後述する。

【００３５】

また、問合せ処理装置２１は、クライアント装置１からの問合せを受けてアクセスパスを決定して、ＫＶＳ２４からＫＶペアを取得する際に、アクセスパス記録装置２２に対して、アクセスパスを使用した記録（アクセスパス統計情報、検索属性情報）を残すように

指示する。ただし、例えば、一時的な問合せであり、アクセスパス統計情報に影響を与えたくない場合も想定される。そのため、所定の条件の場合には、アクセスパス記録装置２２に対する指示を行わないように、問合せ処理装置２１を構成しても構わない。これは、例えば以下のように、特定の形式のコメントを含む場合には、アクセスパス記録装置２２に対する指示を行わないように問合せ処理装置２１を構成することで、実現可能である。
「ＳＥＬＥＣＴ＊ＦＲＯＭ　購入履歴　ＷＨＥＲＥ　ユーザＩＤ＝２／＊対象外＊／」
なお、特定の形式のコメントを含む場合にのみ、アクセスパス統計情報を更新する旨の指示を行うように、問合せ処理装置２１を構成しても構わない。

【００３６】

さらに、問合せ処理装置２１は、索引経由でアクセスする際（例えば、索引部にデータが記憶されている保存対象データをＫＶＳ２４から取得した際）に、任意の頻度（例えば１０回の索引経由のアクセスにつき１回など）でアクセスパス記録装置２２から後述するアクセスパス統計情報（検索属性情報）を取得する。つまり、問合せ処理装置２１は、索引経由のアクセスを行う場合に、任意の頻度で、ＫＶＳ２４からＫＶペアを取得するとともに、アクセスパス記録装置２２からアクセスパス統計情報を取得する。具体的には、問合せ処理装置２１は、索引と実データに対応するアクセスパス統計情報を取得する。そして、問合せ処理装置２１は、取得したデータをクライアント装置１へ送信するとともに、取得したアクセスパス統計情報を、データ構造変換装置２３へと送信する。なお、問合せ処理装置２１自身はアクセスパス統計情報を取得しないように構成しても構わない。これは、アクセスパス統計情報をデータ構造変換装置２３へと送信する旨の指示をアクセスパス記録装置２２に対して行うように、問合せ処理装置２１を構成することで実現できる。

【００３７】

このような、問合せ処理装置２１による問合せとデータ（ＫＶペア）の取得の一例を、図５で示す。図５で示すように、問合せ処理装置２１は例えば、以下のような問合せをＫＶＳ２４に対して行う。
「ＳＥＬＥＣＴ＊ＦＲＯＭ　購入履歴　ＷＨＥＲＥ　都道府県＝'埼玉県'」
すると、問合せ処理装置２１は、以下のようなＫＶペアをＫＶＳ２４から取得する。
「｛埼玉県＝＞フ｛｝，実｛｝，索｛２｝｝」
そこで、問合せ処理装置２１は、取得したＫＶペアを解析して、索引部から主キー情報「２」を取得する。そして、問合せ処理装置２１は取得した値である「２」により再度ＫＶＳ２４に問合せて、以下のＫＶペアをＫＶＳ２４から取得する。
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
これにより、問合せ処理装置２１は、主キー情報でない属性である都道府県の値である埼玉県から、実データを取得することが出来る。

【００３８】

また、この際に、問合せ処理装置２１は、任意の頻度で、アクセスパス記録装置２２から、例えば以下のようなアクセスパス統計情報（検索属性情報）を取得する。具体的には、問合せ処理装置２１は、上述したＫＶペアを取得する際に用いたアクセスパスに対応するアクセスパス統計情報を、アクセスパス記録装置２２から取得する。
「｛ａｐ＿ｓｔａｔｓ－埼玉県＝＞１５０｝」
「｛ａｐ＿ｓｔａｔｓ－２＝＞１００｝」
ここで、「ａｐ＿ｓｔａｔｓ」はアクセスパス統計情報識別子を表す。また、「１５０」、「１００」はそれぞれのアクセスパスを利用した回数を表す。つまり、上述したアクセスパス統計情報は、アクセスパスとして埼玉県を利用した回数が１５０回である。また、アクセスパスとして２を利用した回数が１００回である。という情報を表している。

【００３９】

そして、問合せ処理装置２１は、取得した実データをクライアント装置１に送信するとともに、取得したアクセスパス統計情報をデータ構造変換装置２３に送信することになる。以上が、問合せ処理装置２１の構成である。

【００４０】

次に、アクセスパス記録装置２２について説明する。アクセスパス記録装置２２は、アクセスパス統計情報を記憶する装置である。

【００４１】

具体的には、アクセスパス記録装置２２は、問合せ処理装置２１からアクセスパスを使用した記録（アクセスパス統計情報、検索属性値情報）を残すように指示を受けると、当該アクセスパスを使用した記録を、アクセスパス統計情報として記憶する。ここで、アクセスパス統計情報は、上述したように、「｛ａｐ＿ｓｔａｔｓ－埼玉県＝＞１５０｝」などのように表される情報である。この例では、埼玉県をアクセスパスとして１５０回利用した旨が記載されている。そこで、アクセスパス記録装置２２は、問合せ処理装置２１からの指示を受けると、例えば、「｛ａｐ＿ｓｔａｔｓ－埼玉県＝＞１５１｝」のように、そのアクセスパスを使用した回数が一回増えた旨（つまり、埼玉県をアクセスパスとして１５１回利用した旨）を記憶する。これにより、アクセスパス記録装置２２は、アクセスパスを使用した回数を、記録として残すことが出来る。なお、問合せ処理装置２１が新しいアクセスパスを使用していた際には、アクセスパス記録装置２２は、当該アクセスパスに対応する新しいアクセスパス統計情報を生成して、その使用回数を１回として記憶することになる。

【００４２】

また、アクセスパス記録装置２２は、問合せ処理装置２１からの指示を受けて、当該指示に対応するアクセスパス統計情報を問合せ処理装置２１へと送信する。これにより、後述するデータ構造変換が可能になる。

【００４３】

なお、本実施形態では、アクセスパス記録装置２２は、ＫＶ形式でアクセスパス統計情報を記憶するとした。しかしながら、本発明の実施は、必ずしもＫＶ形式でアクセスパス統計情報を記憶する場合に限定されない。アクセスパス記録装置２２は、何らかの方法でアクセスパスを使用した記録を残すことが出来ればよい。また、アクセスパス統計情報をＫＶ形式で記憶する場合は、ＫＶＳ２４として用いるサーバと同一のサーバにアクセスパス統計情報を記憶しても構わないし、ＫＶＳ２４とは別のサーバにアクセスパス統計情報を記憶しても構わない。

【００４４】

また、アクセスパス記憶装置２２に対するアクセスパス統計情報の記憶指示は、上述したように、問合せ処理装置２１がクライアント装置１からの問合せを受けてアクセスパスを決定した段階（又は、問合せからアクセスパスを決定して、ＫＶＳ２４からＫＶペアを取得した段階）で行われる。そのため、問合せ処理装置２１がＫＶＳ２４から取得したＫＶペアが索引情報であった場合に、当該索引情報を基に問合せ処理装置２１がＫＶＳ２４に問合せをする際には、アクセスパス記憶装置２２はアクセスパス統計情報を更新しない。以上が、アクセスパス記録装置２２の構成である。

【００４５】

次に、データ構造変換装置２３について説明する。データ構造変換装置２３は、データ構造変換処理を行う装置である。ここで、データ構造変換処理とは、主キー情報となる属性を他の属性に変更することをいう。また、主キー情報の変更に伴って、索引情報を更新することをいう。従って、データ構造変換装置２３は、主キー情報を他の属性に書き換えて、索引情報を更新する装置である。

【００４６】

具体的には、データ構造変換装置２３は、まず、問合せ処理装置２１からアクセスパス統計情報を受け取る。すると、データ構造変換装置２３は、与えられたアクセスパス統計情報から指標値（変換指標値）を計算する。そして、データ構造変換装置２３は、計算した指標値と予め定められた閾値とを比較することで、データ構造変換を行うか否かを決定する。

【００４７】

ここで、データ構造変換装置２３による指標値の計算は、例えば以下の式を用いて行わ

れる。
「指標値＝索引を経由したアクセスの回数／索引を経由しないアクセスの回数」
図５で示す場合、索引を経由する埼玉県をアクセスパスとするアクセスの回数は１５０回である。また、索引を経由しない「２」をアクセスパスとするアクセスの回数は１００回である。そのため、図５で示す場合では、その指標値は１．５になる。
【００４８】
また、上述した式は、指標値の値が１以上であれば、索引経由のアクセスの方が索引経由しないアクセスより多いことを意味する。そこで、例えば、データ構造変換装置２３が記憶する閾値を１に設定することで、索引経由のアクセスの方が索引経由しないアクセスより多い場合に、よりアクセスの多い属性にアクセスパスを変更するよう、データ変構造換装置２３を構成することが可能になる。
【００４９】
なお、例えば上述した式の場合、閾値を１よりも大きくすることで、索引を経由したアクセスの回数が索引を経由しないアクセスの回数よりも十分に大きい場合にのみデータ構造変換を行うように、データ構造変換装置２３を構成することができる。このように、閾値を調整することで、データ構造変換装置２３によるデータ構造変換処理の判断を調整することが可能である。従って、本発明における閾値は必ずしも１に限定されず、任意の閾値を設定することが可能である。また、指標値の求め方も、上述した式を用いる場合に限定されず、また、必ずしも指標値を求めなくても構わない。アクセスパス統計情報に基づいて、データ構造変換を行うか否かの判断をデータ構想変換装置２３が行うことが出来るように、データ構造変換装置２３が構成されていれば構わない。
【００５０】
ここで、データ構造変換装置２３により行われるデータ構造変換処理の詳細について、図６を用いて説明する。
【００５１】
まず、図６の（０）で示すように、データ構造変換装置２３によるデータ構造変換が行われる前には、ＫＶＳ２４には、以下のようなＫＶペアが記憶されているとする。
「｛埼玉県＝＞フ｛｝，実｛｝，索｛２｝｝，」
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
ここで、主キー情報である「２」より、埼玉県をアクセスパスとする（索引を経由する）検索の方が多いため、データ構造変換を行うとデータ構造変換装置２３が判断したとする。すると、データ構造変換装置２３は、主キー情報を「２」から埼玉県に変更するデータ構造変換処理を行うことになる。
【００５２】
この場合、データ構造変換装置２３は、まず、以下のような実データを格納しているＫＶペアをＫＶＳ２４から取得する。
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
そして、データ構造変換装置２３は、実データ部に格納されている対象データを読み取り一時的に記憶する。また、データ構造変換装置２３は、実データの読み取りと同時に、フラグ部にフラグを設定する。その後、データ構造変換装置２３は、フラグを設定したＫＶペアをＫＶＳ２４に書き戻す。その結果、ＫＶＳ２４には、以下のようなＫＶペアが記憶されることになる（図６の（１））。
「｛２＝＞フ｛○｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
【００５３】
次に、データ構造変換装置２３は、以下のような、索引を格納している（データ構造変換の対象になる）ＫＶペアをＫＶＳ２４から取得する。
「｛埼玉県＝＞フ｛｝，実｛｝，索｛２｝｝，」
そして、データ構造変換装置２３は、上述した実データを格納しているＫＶペアから読み取った実データを、新たに取得したＫＶペアの実データ部に書き込む。また、データ構造変換装置２３は、当該新たに取得したＫＶペアの索引部に記憶されているデータを削除す

る。そして、データ構造変換装置２３は、その結果である以下のようなＫＶペアを、ＫＶＳ２４に書き戻す（図６の（２））。
「｛埼玉県＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
【００５４】
その後、データ構造変換装置２３は、再び、以下に示すような、もともと実データを格納しており、最初にフラグ部にフラグを設定したＫＶペアをＫＶＳ２４から取得する。
「｛２＝＞フ｛○｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
そして、データ構造変換装置２３は、実データ部に格納されている実データを削除する。また、データ構造変換装置２３は、索引部に、上記で新たに実データを書き込んだＫＶペアへの参照を記憶する（新しく主キー情報となる属性の値を、索引部に書き込む）。その後、データ構造変換装置２３は、フラグを解除して、以下のようなＫＶペアをＫＶＳ２４に書き戻す。
「｛２＝＞フ｛｝，実｛｝，索｛埼玉県｝｝，」
【００５５】
このようにデータ構造変換装置２３がデータ構造変換を行うことで、ＫＶＳ２４には以下のようなデータが記憶されることになる。
「｛埼玉県＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
「｛２＝＞フ｛｝，実｛｝，索｛埼玉県｝｝，」
つまり、ＫＶＳ２４に記憶されているＫＶペアの主キー情報は埼玉県に変更されることになる。また、問合せ処理装置２１が値「２」を用いて検索を行う場合は、索引を経由することになる。以上が、データ構造変換装置２３の構成である。
【００５６】
次に、ＫＶＳ２４について説明する。ＫＶＳ２４は、上述したように、キーバリュー形式でデータを記憶するサーバである。ＫＶＳ２４は、一つまたは複数のサーバにより構成される。また、ＫＶＳ２４に記憶するデータの詳細については、上述したため省略する。
【００５７】
なお、ＫＶＳは一般に、スケーラビリティを重視するため、対応できる操作は、ＫＶペアのキーを指定してバリューを取得（ｇｅｔ）、ＫＶペアを格納（ｐｕｔ）、キーを指定してＫＶペアを削除（ｄｅｌｅｔｅ）のみである。
【００５８】
従って、ＫＶＳ２４は、問合せ処理装置２１からの指示に従って、データの格納（記憶）等の上述した処理を行うことが出来る。また、ＫＶＳ２４は、データ構造変換装置２３からの指示に従って、データの格納等の上述した処理を行うことが出来る。しかしながら、上述したように、ＫＶＳ２４は、このようなデータの取得、格納、削除以外の動作を行うことが出来ない。そのため、例えばデータ構造変換装置２３によるデータ構造変換の最中に、データ構造変換中であることを認識しないクライアントがＫＶペアを更新してしまうことが考えられる。
【００５９】
例えば、データ構造変換装置２３によるデータ構造変換処理により実データ部に格納されている対象データを読み取った後、当該ＫＶペアの実データ部から実データを削除して索引部に索引情報を書き込むまでの間に、以下のようなデータを書き込んだとする。
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，９９）｝，索｛｝｝，」
【００６０】
この場合、上記データは正常に更新されるものの、その後行われるデータ構造変換装置２３によるデータ構造変換の処理により、上記更新データは削除されることになる（図６の（３）参照）。また、データ構造変換装置２３が実データ部から実データを読み取った後の更新であるため、データ構造変換処理により新たに主キー情報となる埼玉県と対となる実データには、上記更新データは反映されない。そのため、データの更新が成功したにもかかわらず、キー情報が埼玉県の実データが参照されるため、更新前のデータしか参照できないことになる。

【００６１】
そこで、このような問題を防ぐ為に、本実施形態では、上述したフラグ部を使用する。具体的には、上述したように、取得したＫＶペアにフラグが設定されている場合には、当該ＫＶペアが表す実データをクライアント装置１に送信しないように、問合せ処理装置２１を構成する。
【００６２】
このように構成することで、問合せ処理装置２１は、取得したＫＶペアにフラグが設定されていなかった場合、そのままＫＶペアに含まれる実データをクライアント装置１に送信する。一方、ＫＶペアにフラグが設定されている場合には、問合せ処理装置２１は、クライアント装置１に対する実データの送信を中止する。そして、問合せ処理装置２１は、予め定められた一定時間経過の後、再度ＫＶＳ２４からＫＶペアを取得する。その結果、再度取得したＫＶペアのフラグが解除されていた場合には、問合せ処理装置２１は、当該ＫＶペアに含まれる実データをクライアント装置１に送信する。一方、フラグの解除が未だされていない場合には、問合せ処理装置２１は、クライアント装置１に対する送信を再度中止する。そして、問合せ処理装置２１は、再度予め定められた一定時間の経過を待ち、ＫＶペアの再々取得を行う。問合せ処理装置２１は、原則として、フラグの解除が確認できるまでこの処理を繰りかえすことになる。ただし、再取得の回数が規定値を超えた場合には、問合せ処理装置２１は、エラーとしてＫＶペアの取得処理を終了するよう構成する。このように構成することで、意図しない参照を防ぐことが可能である。
【００６３】
また、問合せ処理装置２１は、ＫＶペアにフラグが設定されている場合には、当該ＫＶペアの実データを更新しないように構成することが出来る。この場合、問合せ処理装置２１は、取得したＫＶペアにフラグが設定されていなかった場合には、そのままＫＶペアに含まれる実データの更新を行う（実データ部の実データを上書きする）。そして、問合せ処理装置２１は、実データ更新後のＫＶペアをＫＶＳ２４に格納する。一方、ＫＶペアにフラグが設定されている場合には、問合せ処理装置２１は、実データの更新を中止する。そして、問合せ処理装置２１は、予め定められた一定時間経過の後、再度ＫＶＳ２４からＫＶペアを取得する。その結果、再度取得したＫＶペアのフラグが解除されていた場合には、問合せ処理装置２１は、当該ＫＶペアに含まれる実データの更新を行う。一方、フラグの解除が未だされていない場合には、問合せ処理装置２１は、再度実データの更新を中止する。そして、問合せ処理部２１は、再度予め定められた一定時間の経過を待ち、ＫＶペアの再々取得を行う。問合せ処理装置２１は、原則として、フラグの解除が確認できるまでこの処理を繰りかえすことになる。ただし、再取得の回数が規定値を超えた場合には、問合せ処理装置２１は、エラーとしてＫＶペアの取得処理を終了するよう構成する。このように構成することで、意図しないデータの更新を防ぐことが可能である。
【００６４】
なお、本実施形態では、フラグが設定されている間は、データの参照も更新も禁止するとする。しかしながら、例えば、データの更新のみを禁止するように、問合せ処理装置２１を構成しても構わない。これは、データの更新を行おうとする場合のみフラグ部を確認するように、問合せ処理装置２１を構成することで実現できる。
【００６５】
また、本実施形態における発明は、一つのＫＶペアの索引部が複数の実データ（主キー情報）を参照している場合にも、有効に作用する。この場合、索引部の一つ一つの参照（主キー情報）毎に、上述したデータ構造変換装置２３によるデータ構造変換処置を行うことになる。
【００６６】
例えば、ある一つの索引部が２つの主キー情報を参照している場合について、図７を用いて説明する。
【００６７】
図７の（１）で示すように、データ構造変換装置２３によるデータ構造変換の前には、

ＫＶＳ２４に以下のようなＫＶペアが記憶されているとする。
「｛埼玉県＝＞フ｛｝，実｛｝，索｛２，３｝｝，」
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
「｛３＝＞フ｛｝，実｛（３，山田，埼玉県，ＣＣＣ，１５）｝，索｛｝｝，」
このように、図７の場合は、キー情報である埼玉県と対となる索引部に、ユーザＩＤ「２」、「３」の２つの情報を備えている。このような場合において、データ構造変換装置２３が、ユーザＩＤ「３」に対して、データ構造の変換を行うとする。なお、詳細なデータ変更の流れについては、上述した場合と同じであるため省略する。

【００６８】

すると、データ構造変換装置２３によるデータ構造変換の結果として、ＫＶＳ２４には、以下のようなＫＶペアが記憶されることになる（図７（２））
「｛埼玉県＝＞フ｛｝，実｛（３，山田，埼玉県，ＣＣＣ，１５）｝，索｛２｝｝，」
「｛２＝＞フ｛｝，実｛（２，佐藤，埼玉県，ＢＢＢ，１０）｝，索｛｝｝，」
「｛３＝＞フ｛｝，実｛｝，索｛埼玉県｝｝，」

【００６９】

このように、データ構造変換装置２３によるデータ構造変換の結果、埼玉県をキー情報とするＫＶペアは、実データと索引情報の両方の情報を備えることになる。つまり、埼玉県をキー情報とするＫＶペアは、ユーザＩＤ３のデータに対しては直接アクセス、ユーザＩＤ２のデータに対しては索引経由のアクセスとして扱われることになる。この後、ユーザＩＤ２のＫＶペアに対してもデータ構造変換を行うとすると、埼玉県を主キー情報とするＫＶペアは、実データ部に２行の実データを持つＫＶペアになる。このように、本実施形態における発明は、一つのＫＶペアの索引部が複数の実データ（主キー情報）を参照している場合にも、有効に作用する。

【００７０】

以上が、本実施形態における情報記憶システムの構成である。このように構成することで、情報記憶システムは、データの不整合を防ぎつつ、利用されやすいアクセスパスを備えたＫＶＳを備えることが出来る。

【００７１】

次に、本実施形態における情報記憶システムの動作を、図８乃至図１０を用いて説明する。最初に、情報記憶システムがデータ取得処理を行う際の流れについて、図８を用いて説明する。

【００７２】

（動作）

まず、クライアント装置１が、データベースシステム２に対して、問合せを発行する。すると、データベースシステム２内の問合せ処理装置２１が、クライアント装置１が発行した問合せを受信する。

【００７３】

次に、クライアント装置１からの問合せを受信した問合せ処理装置２１は、当該問合せを解析して、ＫＶＳ２４に保存されているＫＶペアにアクセスするためのキー情報であるアクセスパスを決定する（Ｓ００１）。

【００７４】

そして、問合せ処理装置２１は、決定したアクセスパスを使用して、ＫＶＳ２４からＫＶペア（データ）を取得する（Ｓ００２）。

【００７５】

また、問合せ処理装置２１は、クライアント装置１からの問合せからアクセスパスを決定して、ＫＶＳ２４からデータを取得した段階（又は、クライアント装置１からの問合せからアクセスパスを決定した段階）で、当該アクセスパスを使用した記録（アクセスパス統計情報）を残すように、アクセスパス記録装置２２に対して指示するか否か決定する（Ｓ００３）。

【００７６】

問合せ処理装置２１がアクセスパス記録装置２２に対して指示をするか否かの決定は、例えば、クライアント装置１からの指示に、特定の形式のコメントが含まれるか否かで行われる。具体的には、例えば、問合せ処理装置２１は、クライアント装置１からの指示に特定の形式のコメントを含む場合には、アクセスパス記録装置２２に対してアクセスパス統計情報を更新するよう指示をしない。一方で、問合せ処理装置２１は、クライアント装置１からの指示に特定の形式のコメントを含まない場合には、アクセスパス記録装置２２に対して指示を行うことになる。

【００７７】

そして、問合せ処理装置２１がアクセスパス記録装置２２に対してアクセスパス統計情報を更新する旨の指示をした場合には、当該指示を、アクセスパス記録装置２２が受信する。そして、アクセスパス記録装置２２は、アクセスパスを使用した旨をアクセスパス統計情報に記録する（Ｓ００４）。アクセスパス記録装置２２によるアクセスパス統計情報の更新は、例えば、アクセスパスを使用した回数を更新することで行われる。そして、アクセスパス記録装置２２は、アクセスパス統計情報を更新した旨を、問合せ処理装置２１に通知する。

【００７８】

一方、問合せ処理装置２１がアクセスパス記録装置２２に指示を行わなかった場合、又は、アクセスパス記録装置２２からアクセスパス統計情報を更新した旨の通知を受け取った後、問合せ処理装置２１は、ＫＶＳ２４から取得したＫＶペアが索引情報を含むか否かの判断を行う（Ｓ００５）。なお、アクセスパス記録装置２２に対して上述した指示を行った後、その指示の完了の通知を待たずに、取得したＫＶペアが索引情報を含むか否かの判断を行うように、問合せ処理装置２１を構成してもよい。

【００７９】

取得したＫＶペアが索引情報を含むか否かの判断は、問合せ処理装置２１が、取得したＫＶペアの索引部を確認することで行われる。具体的には、ＫＶペアの索引部にデータが格納されている場合、問合せ処理装置２１は、当該取得したＫＶペアは索引情報を含むと判断する。すると、問合せ処理装置２１は、当該ＫＶペアの索引部に格納されている主キー情報をアクセスパスとして、再度、ＫＶＳ２４からＫＶペア（データ）を取得する（Ｓ００６）これにより、問合せ処理装置２１は、索引データから実データを取得することが出来る。

【００８０】

そして、問合せ処理装置２１は、索引経由で実データにアクセスした場合に、アクセスパス記録装置２２からアクセスパス統計情報を取得するか否か決定する（Ｓ００７）。問合せ処理装置２１によるアクセスパス統計情報を取得するか否かの決定は、例えば、検索経由のアクセスを行った回数に基づいて決定される。

【００８１】

具体的には、例えば、問合せ処理装置２１は、１０回の検索経由のアクセスにつき１回、アクセスパス記録装置２２からアクセスパス統計情報を取得する旨の決定をする。すると、問合せ処理装置２１は、アクセスパス記録装置２２に問い合わせて、アクセスパス記録装置２２から、索引と実データに対応するアクセスパス統計情報を取得する（Ｓ００８）。そして、当該取得したアクセスパス統計情報を、データ構造変換装置２３に送信する。

【００８２】

そして、アクセスパス統計情報を取得したデータ構造変換装置２３は、当該アクセスパス統計情報に基づいて、データ構造変換処理を行う（Ｓ００９）。なお、データ構造変換装置２３がデータ構造変換処理を行う際の詳細な流れについては、後述する。

【００８３】

一方、問合せ処理装置２１がＫＶＳ２４から取得したＫＶペアが索引情報を含まなかった場合、問合せ処理装置２１は、取得したＫＶペアが表す実データをクライアント装置１に返却する（Ｓ０１０）。問合せ処理装置２１が索引経由で実データを取得してアクセス

パス統計情報を取得しなかった場合、又は、データ構造変換装置２３によるデータ構造変換処理が終了した後も、同様に、問合せ処理装置２１は、取得した実データをクライアント装置１に返却する。なお、この場合も、索引経由で実データを取得した段階で、データ構造変換装置２３によるデータ構造変換処理の終了を待たずに、実データをクライアント装置に送信するように問合せ処理装置２１を構成しても構わない。

【００８４】

このような流れにより、情報記憶システムは、データ取得の処理を行う。次に、図９を用いて、データ構造変換装置２３が主キー情報を変更する際の流れ（データ構造変換処理の流れ）について説明する。

【００８５】

上述したように、データ構造変換装置２３は、問合せ処理部２１から、アクセスパス統計情報を取得する。すると、データ構造変換装置２３は、当該取得したアクセスパス統計情報を用いて、指標値（変換指標値）を計算する（Ｓ０２１）。

【００８６】

次に、データ構造変換装置２３は、当該計算した指標値と、データ構造変換装置２３に予め定められた閾値とを比較することで、当該指標値が基準値以上であるか否かの判断を行う（Ｓ０２２）。

【００８７】

そして、指標値が閾値を下回っていた場合、データ構造変換装置２３はデータ構造変換処理を行わずに、その処理を終了する（Ｓ０２２）。

【００８８】

一方、指標値が閾値を上回っていた場合、データ構造変換装置２３は、データ構造変換処理を行う（Ｓ０２２）。

【００８９】

具体的にはまず、データ構造変換装置２３は、ＫＶＳ２４から実データを含むＫＶペアを取得する。そして、データ構造変換装置２３は、取得したＫＶペアから、実データ部に格納されている実データ（対象データ）を読み取る。また、データ構造変換装置２３は、実データの読み取りと同時に、フラグ部にフラグを設定する。その後、データ構造変換装置２３は、フラグを設定したＫＶペアを、ＫＶＳ２４に書き戻す（Ｓ０２３）。

【００９０】

次に、データ構造変換装置２３は、ＫＶＳ２４から索引情報を含むＫＶペアを取得する。そして、データ構造変換装置２３は、Ｓ０２３で読み取った実データを、当該取得した索引情報を含むＫＶペアの実データ部に書き込む。また、データ構造変換装置２３は、当該取得した索引情報を含むＫＶペアの索引部に格納されているデータを削除する。その後、データ構造変換装置２３は、実データを書き込んで索引部のデータを削除したＫＶペアを、ＫＶＳ２４に書き戻す（Ｓ０２４）。

【００９１】

続いて、データ構造変換装置２３は、Ｓ０２３でＫＶＳ２４に書き戻した、フラグを設定したＫＶペアをＫＶＳ２４から再度取得する。そして、データ構造変換装置２３は、当該取得したＫＶペアの実データ部に格納されている実データを削除する。また、データ構造変換装置２３は、当該取得したＫＶペアの索引部に、Ｓ０２４で実データを書き込んだＫＶペアへの参照を格納する（新しく主キー情報となる属性の値を、索引部に格納する）。その後、データ構造変換装置２３は、フラグを解除して、フラグ解除後のＫＶペアを、ＫＶＳ２４に書き戻す（Ｓ０２５）

【００９２】

そして、データ構造変換装置２３は、このような動作の後、そのデータ構造変換処理を終了する。データ構造変換装置２３がこのようにデータ構造変換処理を行うことで、データ構造変換装置２３は、ＫＶＳ２４に格納されているＫＶペアの主キー情報を変更することが出来る。

【００９３】

次に、図１０を用いて、問合せ処理装置２１がデータの不整合の発生を防ぐ為に行う処理の流れについて説明する。上述したように、この動作は、データ構造変換中のデータの更新などによるデータの不整合発生などの問題を防ぐために必要となる。

【００９４】

まず、上述したように、問合せ処理装置２１は、クライアント装置１からの問合せに基づいてアクセスパスを決定し、ＫＶＳ２４からＫＶペアを取得する（Ｓ０３１）。

【００９５】

続いて、問合せ処理装置２１は、取得したＫＶペアのフラグ部を確認して、当該ＫＶペアにフラグが設定されているか否か判断する（Ｓ０３２）。

【００９６】

そして、問合せ処理装置２１は、ＫＶペアにフラグが設定していなかった場合には、当該ＫＶペアに含まれる実データを、クライアント装置１に返却する（Ｓ０３３）。

【００９７】

一方、問合せ処理装置２１は、ＫＶペアにフラグが設定されていた場合、当該ＫＶペアに含まれる実データのクライアント装置１に対する返却を中止する。そして、問合せ処理装置２１は、予め定められた一定時間待ったのち、再度、ＫＶＳ２４からＫＶペアを取得する（Ｓ０３４）。その後、問合せ処理装置２１は、再度取得したＫＶペアのフラグ部を確認してフラグが設定されているかの判断を行う。

【００９８】

つまり、問合せ処理装置２１は、一定の間隔でＫＶＳ２４からＫＶペアを取得し、フラグが解消されたＫＶペアを取得した段階で、当該フラグが解消したＫＶペアに含まれる実データをクライアント装置１に返却することになる。そのため、問合せ処理装置２１は、原則としては、ＫＶＳ２４からフラグが解消されたＫＶペアを取得することが出来るまで、ＫＶペアの再取得を繰りかえす。ただし、問合せ処理装置２１は、ＫＶＳ２４からＫＶペアを取得する累積回数が予め定められた規定値を超えた場合は、エラーとして処理を行う。そして、問合せ処理装置２１は、ＫＶＳ２４からのＫＶペアの取得処理を終了する（Ｓ０３５）。

【００９９】

また、図１０で示すデータの不整合を防ぐ為に行う処理は、データを更新する際にも、その更新処理の前段階として行われる。具体的には、データの更新は、ＫＶＳ２４から問合せ処理装置２１がＫＶペアを取得して、当該取得したＫＶペアの実データ部を、問合せ処理装置２１が書き換えることで行われる。そこで、問合せ処理装置２１はＫＶＳ２４からＫＶペアを取得した段階で、上述した処理を行う。そして、問合せ処理装置２１は、ＫＶペアにフラグが設定されていなかった場合に、実データ部の書き換えを行うことになる。

【０１００】

以上が、問合せ処理装置２１がデータの不整合を防ぐ為に行う処理の流れである。このような動作により、データ構造変換装置２３がデータ構造変換処理を行う際に、データの不整合が発生することを防ぐことが出来る。

【０１０１】

このように、本実施形態の情報記憶システムは、アクセスパス記録装置と、データ構造変換装置と、を備える。このように構成することで、情報記憶システムは、アクセスパス記録装置が記憶するアクセスパス統計情報に基づいて、データ構造変換処理を行うことが出来るようになる。その結果、情報記憶システムは、よりアクセスの頻度の高いアクセスパスを、索引経由のアクセスから直接アクセスできるよう変更することが可能になり、アクセス性能の向上を実現することが出来る。１つのＫＶペアを取得するための時間はミリ秒単位と非常に小さいものであるが、データ件数が１００万、１０億となると、その効果は非常に大きいものになる。

【０１０２】

また、本実施形態のＫＶＳに記憶されているＫＶペアは、フラグ部を備えている。この

ようにＫＶペアを構成することで、情報記憶システムは、データ構造変換処理の間ＫＶペアにフラグを設定することが可能になる。その結果、情報記憶システムは、データ構造変換処理の間当該データ構造変換処理の対象になるＫＶペアの参照などを防ぐ事が可能になり、データの不整合の発生を防ぐことが可能になる。

【０１０３】

＜実施形態２＞

次に、本発明の第２の実施形態を、図１１を用いて説明する。図１１は、本実施形態におけるデータ構造変換処理の流れを示すフローチャートである。

【０１０４】

（構成）

本実施形態における情報記憶システムは、第１の実施形態における情報記憶システムとほぼ同様の構成を備えている。つまり、クライアント装置１と、データベースシステム２と、を備えている。また、データベースシステム２は、問合せ処理装置２１と、アクセスパス記録装置２２と、データ構造変換装置２３と、ＫＶＳ２４と、を備えている。これら各装置の構成は、第１の実施形態とほぼ同様である。そのため、第１の実施形態と同様の構成については、その説明を省略する。

【０１０５】

以下、本実施形態における特徴的な部分について説明する。本実施形態では、アクセスパス記録装置２２に記憶されるアクセスパス統計情報に特徴がある。そのため、その部分を重点的に説明する。

【０１０６】

本実施形態におけるアクセスパス統計情報は、第１の実施形態と同様に、アクセスパスを使用した記録（アクセスパス統計情報、検索属性情報）を記憶する。そして、本実施形態におけるアクセスパス統計情報は、アクセスパスを使用した記録に追加して、当該アクセスパスを使用した日時を構造変換日時情報として記録することが出来るように構成されている。

【０１０７】

このため、本実施形態におけるアクセスパス記録装置２２及びデータ構造変換装置２３は、データ構造変換装置２３がデータ構造変換処理を行った際に、当該データ構造変換処理を行った日時を、アクセスパス記録装置２２が記憶するアクセスパス統計情報に記憶することが出来るように構成される。

【０１０８】

具体的には、データ構造変換装置２３は、データ構造変換処理の後、アクセスパス記録装置２２に対して、当該データ構造変換処理に対応するアクセスパス統計情報に構造変換日時情報を記憶するように指示する。そして、アクセスパス記録装置２２は、この指示を受けて、アクセスパス統計情報に、データ構造変換処理を行った日時についての情報である構造変換日時情報を記憶することになる。

【０１０９】

また、本実施形態におけるデータ構造変換装置２３は、データ構造変換処理を行う前に、構造変換日時情報と、データ構造変換処理を行おうとする現在の日時を表す日時情報と、を確認するように構成される。そして、データ構造変換装置２３は、データ構造変換処理を行おうとする現在の日時が、構造変換日時情報が示す日時から予め定められた期間分経過していないと判断した場合、データ構造変換処理を行わないように判断する。一方、データ構造変換装置２３は、データ構造変換処理を行おうとする現在の日時が、構造変換日時情報が示す日時から予め定められた期間分経過していると判断した場合、アクセスパス統計情報から指標値の計算を始める。このようにデータ構造変換装置２３を構成することで、データ構造の頻繁な変換を防ぐ事が出来る。

【０１１０】

なお、構造変換日時情報として記憶する日時の確認は、データ構造変換装置２３が行うように構成しても構わないし、アクセスパス記録装置２２が行うように構成しても構わな

い。

【０１１１】

また、データ構造変換装置２３からアクセスパス記録装置２２に対する、構造変換日時情報を記憶する旨の指示は、問合せ処理装置２１を介して行うように構成しても構わない。この場合、データ構造変換装置２３が問合せ処理装置２１に対して、構造変換日時情報についての情報を送信した後、問合せ処理装置２１がアクセスパス記録装置２２に対して、構造変換日時情報を記憶する旨の指示を行うことになる。

【０１１２】

以上が、本実施形態における情報記憶システムの構成である。次に、図１１を用いて、本実施形態における、データ構造変換装置２３が主キー情報を変更する際の流れ（データ構造変換処理の流れ）について説明する。

【０１１３】

まず、データ構造変換装置２３は、問合せ処理装置２１から、アクセスパス統計情報を取得する。すると、データ構造変換装置２３は、当該アクセスパス統計情報に記憶されている構造変換日時情報と、データ構造変換処理を行おうとする現在の日時についての日時情報と、を確認し、以前のデータ構造変換処理から所定の期間経過しているかどうか判断する（Ｓ０４１）。

【０１１４】

そして、データ構造変換装置２３は、構造変換日時情報と、日時情報と、から以前のデータ構造変換処理から所定の期間経過していないと判断した場合、データ構造変換処理を行わずに、その処理を終了する。

【０１１５】

一方、データ構造変換装置２３は、構造変換日時情報と、日時情報と、から以前のデータ構造変換処理から所定の期間経過していると判断した場合、アクセスパス統計情報を用いて指標値を計算する（Ｓ０４２）。

【０１１６】

続いて、データ構造変換装置２３は、指標値と閾値とを比較した後、データ構造変換処理を行う（Ｓ０４３～Ｓ０４７）。このデータ構造変換処理の詳しい流れは、第一の実施形態で示した場合と同じである。そのため、データ構造変換処理の詳しい流れについては、省略する。

【０１１７】

そして、データ構造変換装置２３は、データ構造変換処理を行った場合には、当該データ構造変換処理を行った日時を構造変換日時情報として記憶するように、アクセスパス記録装置２２に対して指示する（Ｓ０４８）

【０１１８】

データ構造変換装置２３がこのようにデータ構造変換処理を行うことで、データ構造の頻繁な変更を防ぐことが出来る。なお、本実施形態では、データ構造変換処理の最初の段階で、データ構造変換装置２３が構造変換日時情報を確認するとした。しかしながら、データ構造変換装置２３による構造変換日時情報の確認は、例えば、アクセスパス統計情報から指標値を計算した後に行う、指標値と閾値を比較した後で行う、などであっても構わない。

【０１１９】

このように、本実施形態の情報記憶システムは、アクセスパス統計情報に構造変換日時情報を備える。このように構成することで、情報記憶システムは、以前にデータ構造変換処理を行った日時と、現在データ構造変換処理を行おうとする日時とを確認した上でデータ構造変換処理をすることが出来るようになる。その結果、前回のデータ構造変換処理から一定の期間経過していない場合は、データ構造変換処理を行わないように情報記憶システムを構成することが出来るようになり、データ構造の頻繁な変換を防ぐことが出来るようになる。

【０１２０】

＜実施形態３＞

次に、本発明の第３の実施形態を、図１２を用いて説明する。図１２は、本実施形態における情報記憶システムの構成の概略を示すブロック図である。

【０１２１】

（構成）

第３の実施形態では、ＫＶ形式でデータを記憶する情報記憶システムについて説明する。なお、本実施形態では、情報記憶システムの概略を説明する。

【０１２２】

図１２で示すように、本実施形態における情報記憶システム３は、データ記憶部３１と、データ構造変換部３２と、を備えている。

【０１２３】

データ記憶部３１は、複数の属性からなる保存対象データと、保存対象データを構成する複数の属性のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する部分である。本実施形態における情報記憶システム３は、データ記憶部３１に、保存しようとする保存対象データを記憶させておくことになる。また、データ記憶部３１に記憶されている保存対象データは、データ識別情報を用いて検索することになる。

【０１２４】

データ構造変換部３２は、データ記憶部３１が記憶する一対のデータのうちデータ識別情報となる属性を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性に変更する部分である。データ構造変換部３２を備えることで、情報記憶システム３は、データ識別情報を変更することが可能になる。

【０１２５】

また、本実施形態における情報記憶システム３は、データ構造変換部３２がデータ識別情報となる属性を変更している間、データ構造変換部３２による変更の対象となる、一対のデータの参照を禁止することが出来るように構成する。

【０１２６】

また、本実施形態における情報記憶システム３は、データ構造変換部３２がデータ識別情報となる属性を変更している間、データ構造変換部３２による変更の対象となる、一対のデータの更新を禁止することが出来るように構成する。

【０１２７】

このように、本実施形態における情報記憶システム３は、データ記憶部３１と、データ構造変換部３２と、を備える。また、本実施形態における情報記憶システム３は、データ構造変換部３２がデータ識別情報となる属性を変更している間、データ構造変換部３２による変更の対象となる、一対のデータの参照、更新を禁止することが出来るように構成される。このように構成することで、本実施形態における情報記憶システム３は、データ識別情報を変更することが出来るようになる。また、データ識別情報を変更している間、変更の対象となるデータの参照、更新を禁止することが出来るようになる。その結果、本実施形態における情報記憶システム３は、データ識別情報の変更によるデータの不整合をふせぎつつ、データ識別情報の変更を行うことが出来るようになる。

【０１２８】

なお、上述した情報記憶システムにより実行される情報記憶方法は、複数の属性からなる保存対象データと、保存対象データを構成する複数の属性のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する情報処理装置において、一対のデータのうちデータ識別情報となる属性を、当該一対のデータとして記憶される保存対象データを構成する他の属性に変更し、データ識別情報となる属性を変更している間、一対のデータへの参照を禁止する、という情報記憶方法である。このような情報記憶方法であっても、上述した情報記憶システムと同様の効果を奏するため、本発明の目的を達成することが出来る。

【０１２９】

また、複数の属性の値からなる保存対象データと、保存対象データを構成する複数の属

性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶手段を備えた情報処理装置に、データ記憶手段が記憶する一対のデータのうちデータ識別情報となる属性の値を、当該一対のデータとして記憶される保存対象データを構成する他の属性の値に変更するデータ構造変換手段を実現させ、データ構造変換手段がデータ識別情報となる属性の値を変更している間、一対のデータへの参照を禁止する機能を有するプログラムを組み込むことによっても、上述した情報記憶システムと同様の効果を奏するため、本発明の目的を達成することが出来る。

【０１３０】

上述した構成を有する情報記憶方法、プログラム、であっても、上記情報記憶システムと同様の作用を有するために、上述した本発明の目的を達成することが可能である。

【０１３１】

＜実施形態４＞

次に、本発明の第４の実施形態を、図１３を用いて説明する。図１３は、本実施形態における情報記憶システムの構成の概略を示すブロック図である。

【０１３２】

（構成）

第４の実施形態では、ＫＶ形式でデータを記憶する情報記憶システムについて説明する。なお、本実施形態では、情報記憶システムの概略を説明する。

【０１３３】

図１３で示すように、本実施形態における情報記憶システム４は、データ記憶部４１と、データ構造変換部４２と、検索属性情報記憶部４３と、を備えている。また、図示しないデータ検索部を備えている。なお、データ記憶部４１の構成は、第３の実施形態で説明したデータ記憶部３１の構成と同一である。そのため、データ記憶部４１についての詳しい説明は省略する。また、データ構造変換部４２は、第３の実施形態で説明したデータ構造変換部３２の構成と同一の構成を備えている。そのため、データ構造変換部３２と同一の部分については、データ構造変換部４２についての説明を省略する。

【０１３４】

検索属性情報記憶部４３は、データ検索部が、データ記憶部から保存対象データを検索する際に用いた、当該保存対象データを構成する属性の一つである検索属性を、当該検索属性により検索された保存対象データと対応付けて、検索属性情報として記憶する部分である。

【０１３５】

また、本実施形態におけるデータ構造変換部４２は、検索属性情報記憶部が記憶する検索属性情報に基づいて、データ識別情報となる属性を変更するように構成する。

【０１３６】

このように、本実施形態における情報記憶システム４は、データ記憶部４１と、データ構造変換部４２と、検索属性情報記憶部４３と、を備える。このように構成することで、本実施形態における情報記憶システム４は、検索属性情報に基づいて、データ識別情報を変更することが出来るようになる。その結果、本実施形態における情報記憶システム４は、より利用されやすいデータ識別情報に適した構造に、データ構造を変更することが可能になる。

【０１３７】

＜付記＞

上記実施形態の一部又は全部は、以下の付記のようにも記載されうる。以下、本発明における情報記憶システムなどの概略を説明する。但し、本発明は、以下の構成に限定されない。

【０１３８】

（付記１）

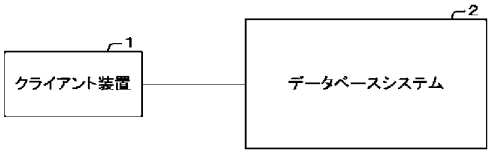
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する

データ記憶部と、
前記データ記憶部が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値の一つに変更するデータ構造変換部と、を備え、
前記データ構造変換部が前記データ識別情報となる前記属性の値を変更している間、前記データ構造変換部による変更の対象となる、前記一対のデータの参照を禁止する、
情報記憶システム。
【０１３９】
この構成によると、情報記憶システムは、データ記憶部と、データ構造変換部と、を備える。また、情報記憶システムは、データ構造変換部がデータ識別情報となる属性を変更している間、データ構造変換部による変更の対象となる、一対のデータの参照を禁止するよう構成される。このような構成により、情報記憶システムは、データ識別情報を変更することが出来るようになる。また、情報記憶システムは、データ識別情報を変更している間、変更の対象となるデータの参照を禁止することが出来るようになる。その結果、情報記憶システムは、データ識別情報の変更によるデータの不整合を防ぎつつ、データ識別情報の変更を行うことが出来るようになる。
【０１４０】
（付記２）
付記１に記載の情報記憶システムであって、
前記データ構造変換部が前記データ識別情報となる前記属性の値を変更している間、前記データ構造変換部による変更の対象となる、前記一対のデータの更新を禁止する、
情報記憶システム。
【０１４１】
この構成によると、情報記憶システムは、データ構造変換部がデータ識別情報となる属性を変更している間、データ構造変換部による変更の対象となる、一対のデータの更新を禁止するよう構成される。このような構成により、情報記憶システムは、データ識別情報を変更している間、変更の対象となるデータの更新を禁止することが出来るようになる。その結果、情報記憶システムは、データ識別情報の変更によるデータの不整合をより確実に防ぎつつ、データ識別情報の変更を行うことが出来るようになる。
【０１４２】
（付記３）
付記１又は２に記載に情報記憶システムであって、
前記データ記憶部から前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対応付けて、検索属性値情報として記憶する検索属性値情報記憶処理部を備え、
前記データ構造変換部は、前記検索属性値情報記憶処理部が記憶する前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する、
情報記憶システム。
【０１４３】
この構成によると、情報記憶システムは、データ記憶部と、データ構造変換部と、に追加して、検索属性情報記憶部を備える。このような構成により、データ構造変換部は、検索属性情報に基づいて、データ識別情報を変更することが出来るようになる。その結果、データ構造変換部は、より利用されやすいデータ識別情報に適した構造に、データ構造を変更することが可能になる。
【０１４４】
（付記４）
付記３に記載の情報記憶システムであって、
前記データ構造変換部は、前記検索属性値情報に基づいて変換指標値を算出し、当該変換指標値が予め定められた閾値を超える場合に、前記データ識別情報となる前記属性の値

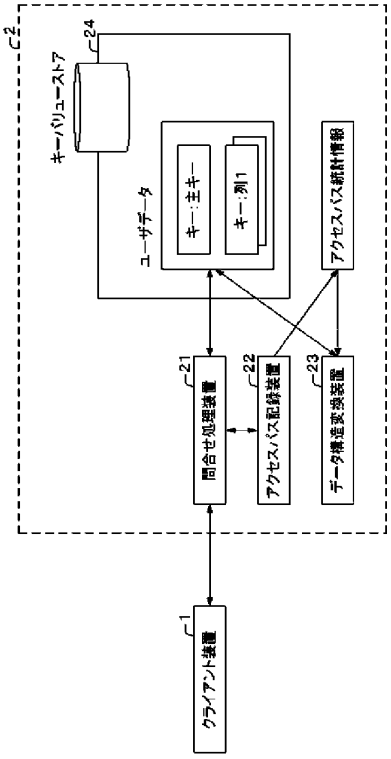
を変更する、
情報記憶システム。
【０１４５】
この構成によると、データ構造変換部は、検索属性情報に基づいて変換指標値を算出し、当該変換指標値が予め定められた閾値を超える場合に、データ識別情報となる属性を変更するよう構成する。このような構成により、データ構造変換部は、変換指標値が閾値を超える場合に、データ識別情報を変更することが出来るようになる。その結果、データ構造変換部は、より利用されやすいデータ識別情報に適した構造に、データ構造を変更することが可能になる。
【０１４６】
（付記５）
付記４に記載の情報記憶システムであって、
前記検索属性値情報記憶部は、前記検索属性値情報に含めて、前記データ識別情報である前記検索属性値を用いて前記保存対象データを検索した回数と、前記データ識別情報でない前記検索属性値を用いて前記保存対象データを検索した回数と、を前記検索属性値毎に前記保存対象データと対応付けて記憶する、
情報記憶システム。
【０１４７】
この構成によると、検索属性情報記憶部は、検索属性情報として、データ識別情報である検索属性を用いて保存対象データを検索した回数と、データ識別情報でない検索属性を用いて保存対象データを検索した回数と、を検索属性毎に保存対象データと対応付けて記憶する。このような構成により、データ構造変換部は、データ識別情報である検索属性を用いて保存対象データを検索した回数と、データ識別情報でない検索属性を用いて保存対象データを検索した回数と、に基づいて、データ識別情報を変更することが出来るようになる。その結果、データ構造変換部は、より利用されやすいデータ識別情報に適した構造に、データ構造を変更することが可能になる。
【０１４８】
（付記６）
付記５に記載の情報記憶システムであって、
前記データ構造変換部は、前記データ識別情報でない前記検索属性値を用いて前記保存対象データを検索した回数が、前記データ識別情報である前記検索属性値を用いて前記保存対象データを検索した回数に占める割合を前記変換指標値として算出し、当該変換指標値が示す割合が前記閾値を超える場合に、前記データ識別情報となる前記属性の値を、前記保存対象データを検索した前記検索属性値に変更する、
情報記憶システム。
【０１４９】
（付記７）
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶する情報処理装置により、
前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更し、
前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する、
情報記憶方法。
【０１５０】
（付記８）
付記７に記載の情報記憶方法において、
前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対

応付けて、検索属性値情報として記憶し、
前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する、
情報記憶方法
【０１５１】
（付記９）
複数の属性の値からなる保存対象データと、前記保存対象データを構成する前記複数の属性の値のうち、任意の一つからなるデータ識別情報と、を一対のデータとして記憶するデータ記憶手段を備えた情報処理装置に、
前記データ記憶手段が記憶する前記一対のデータのうち前記データ識別情報となる前記属性の値を、当該一対のデータとして記憶される前記保存対象データを構成する他の属性の値に変更するデータ構造変換手段を実現させ、
前記データ構造変換手段が前記データ識別情報となる前記属性の値を変更している間、前記一対のデータへの参照を禁止する機能を有する、
プログラム。
【０１５２】
（付記１０）
付記９に記載のプログラムであって、
前記データ記憶手段から前記保存対象データを検索する際に用いた、当該保存対象データを構成する前記属性の値の一つである検索属性値を、当該検索属性値により検索された前記保存対象データと対応付けて、検索属性値情報として記憶する検索属性値情報記憶処理手段を実現させ、
前記データ構造変換手段は、前記検索属性値情報記憶処理手段が記憶する前記検索属性値情報に基づいて、前記データ識別情報となる前記属性の値を変更する機能を有する、
プログラム。
【符号の説明】
【０１５３】
１　クライアント装置
２　データベースシステム
２１　問合せ処理装置
２２　アクセスパス記録装置
２３　データ構造変換装置
２４　キーバリューストア（ＫＶＳ）
３　情報記憶システム
３１　データ記憶部
３２　データ構造変換部
４　情報記憶システム
４１　データ記憶部
４２　データ構造変換部
４３　検索属性情報記憶部

【図１】



【図２】



【図３】

表形式のデータ

購入履歴

ユーザID	名前	都道府県	商品	購入数
1	鈴木	東京都	AAA	3
2	佐藤	埼玉県	BBB	10

↑
主キー

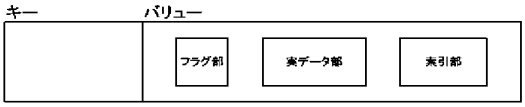
KV形式のデータ

主キー	バリュー
購入履歴―1	(1, 鈴木, 東京都, AAA, 3)
購入履歴―2	(2, 佐藤, 埼玉県, BBB, 10)

キー	バリュー
埼玉県	{2}
東京都	{1}

索引情報

【図４】



{1＝＞フ{}, 実{(1, 鈴木, 東京都, AAA, 3)}, 索{}},

{2＝＞フ{}, 実{(2, 佐藤, 埼玉県, BBB, 10)}, 索{}},

{埼玉県＝＞フ{}, 実{}, 索{2}},

{東京都＝＞フ{}, 実{}, 索{1}},

【図５】

問合せ

SELECT＊FROM 購入履歴 WHERE 都道府県＝'埼玉県'

取得するキーバリューペア

{埼玉県＝＞フ{}, 実{}, 索{2}},

↓

{2＝＞フ{}, 実{(2, 佐藤, 埼玉県, BBB, 10)}, 索{}},

ap_stats-埼玉県＝＞150

ap_stats-2＝＞100

【図６】

(0)初期状態

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県			[2]
2		[2, 佐藤, 埼玉県, BBB, 10]	

(1)

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県			[2]
2	○	[2, 佐藤, 埼玉県, BBB, 10]	

(2)

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県		[2, 佐藤, 埼玉県, BBB, 10]	
2	○	[2, 佐藤, 埼玉県, BBB, 10]	

(3)

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県		[2, 佐藤, 埼玉県, BBB, 10]	
2			[埼玉県]

【図７】

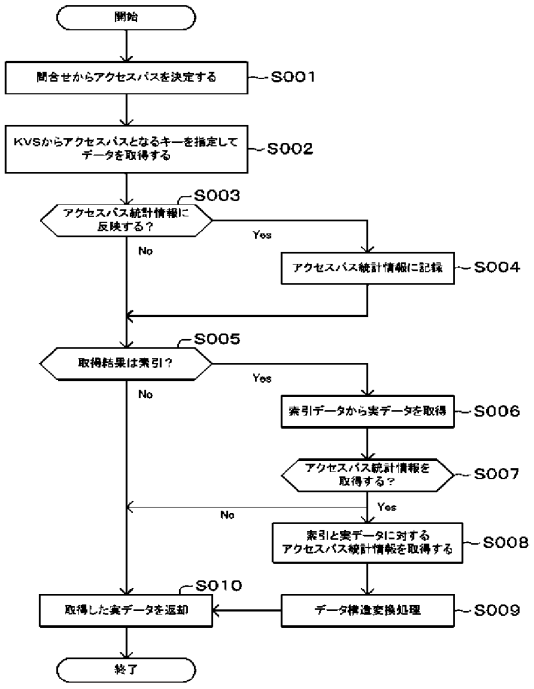
(1)

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県			[2, 3]
2		[2, 佐藤, 埼玉県, BBB, 10]	
3		[3, 山田, 埼玉県, CCC, 15]	

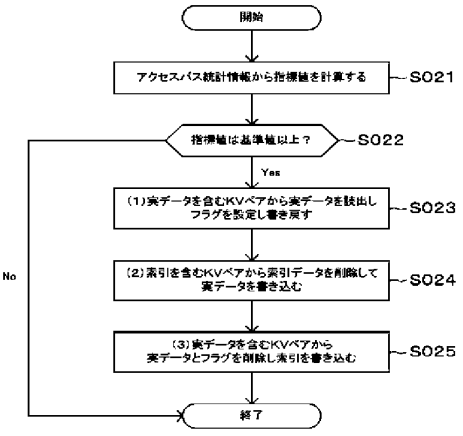
(2)

キー	バリュー		
	フラグ部	実データ部	索引部
埼玉県		[3, 山田, 埼玉県, CCC, 15]	[2]
2		[2, 佐藤, 埼玉県, BBB, 10]	
3			[埼玉県]

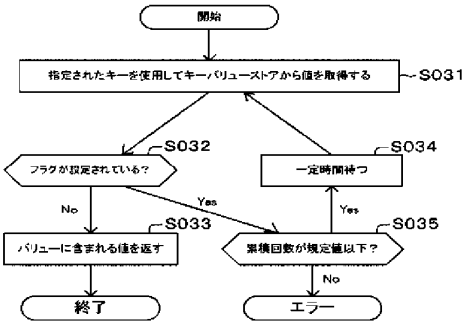
【図８】



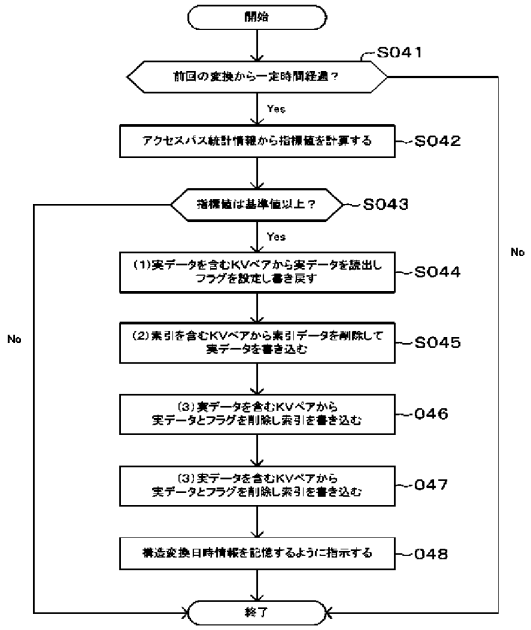
【図９】



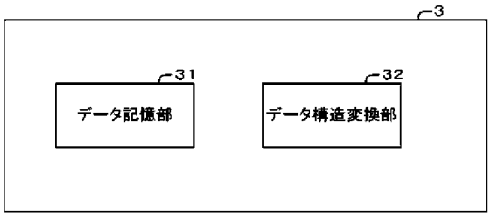
【図１０】



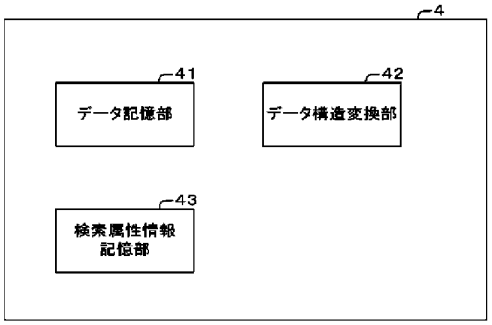
【図１１】



【図１２】



【図１３】



Abstract of KR20120051950 (A)

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PURPOSE: A mobile coupons processing method using a user terminal is provided to protect the privacy of the user terminal by automatically invalidating used mobile coupons by authenticating the mobile coupons through the user terminal. CONSTITUTION: A user terminal receives mobile coupons. The user terminal identifies a member store where a user wants to use the mobile coupons(420). The validity of the mobile coupon is inspected based on the identified member store information(440). When the mobile coupons are effective, the user terminal transmits the breakdown of the mobile coupons to a server. The mobile coupon is automatically inactivated(480).

(19) 대한민국특허청(KR)
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특허법인충현

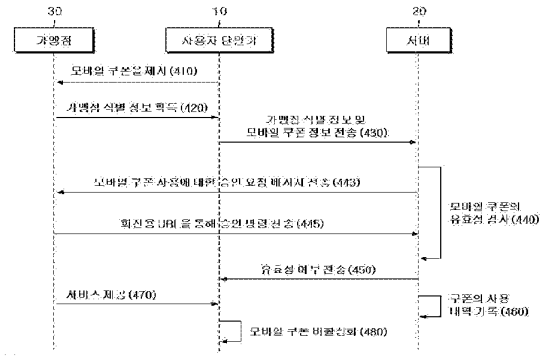
전체 청구항 수 : 총 10 항

(54) 발명의 명칭 **사용자 단말기를 통한 모바일 쿠폰의 처리 방법**

(57) 요 약

본 발명은 사용자 단말기를 통한 모바일 쿠폰의 처리 방법에 관한 것으로, 본 발명에 따른 모바일 쿠폰의 처리 방법은 모바일 쿠폰을 수신한 사용자 단말기가 모바일 쿠폰을 사용하고자 하는 가맹점을 식별하고, 식별된 가맹점 정보에 기초하여 모바일 쿠폰의 유효성을 검사하며, 검사 결과 모바일 쿠폰이 유효한 경우 사용자 단말기가 쿠폰의 사용 내역을 서버로 전송하고 해당 모바일 쿠폰을 자동으로 비활성화시킨다.

대 표 도 - 도4



특허청구의 범위

청구항 1

사용자 단말기를 통한 모바일 쿠폰(mobile coupon)의 처리 방법에 있어서,

상기 사용자 단말기가 상기 모바일 쿠폰을 수신하는 단계;

상기 사용자 단말기가 상기 모바일 쿠폰을 사용하고자 하는 가맹점을 식별하는 단계;

상기 식별된 가맹점 정보에 기초하여 상기 모바일 쿠폰의 유효성을 검사하는 단계; 및

상기 검사 결과 상기 모바일 쿠폰이 유효하다면 상기 사용자 단말기는 쿠폰의 사용 내역을 서버로 전송하고 상기 모바일 쿠폰을 자동으로 비활성화시키는 단계를 포함하는 방법.

청구항 2

제 1 항에 있어서,

상기 가맹점을 식별하는 단계는 상기 사용자 단말기가 상기 가맹점을 식별하는 가맹점 식별자를 입력받음으로써 수행되고,

상기 가맹점 식별자는 사용자로부터 직접 상기 사용자 단말기의 입력 수단을 통해 입력되거나, 상기 가맹점 내에 구비된 RFID(radio frequency identification) 태그를 통해 입력되는 것 중 적어도 하나에 의해 획득되는 것을 특징으로 하는 방법.

청구항 3

제 1 항에 있어서,

상기 가맹점을 식별하는 단계는,

상기 사용자 단말기에 구비된 GPS(Global Positioning System) 수신기를 통해 상기 가맹점의 위치 정보를 수신하여 서버에 질의하는 단계; 및

상기 서버로부터 상기 위치 정보에 대응하는 가맹점 식별 정보를 수신하는 단계를 포함하는 방법.

청구항 4

제 1 항에 있어서,

사용자로부터 상기 모바일 쿠폰의 사용 조건을 입력받는 단계; 및

상기 입력된 사용 조건에 따라 상기 모바일 쿠폰의 서비스 제공 내용을 동적으로 변경시키는 단계를 더 포함하는 방법.

청구항 5

사용자 단말기를 통한 모바일 쿠폰의 처리 방법에 있어서,

서버가 상기 사용자 단말기로부터 상기 모바일 쿠폰을 사용하고자 하는 가맹점 식별 정보 및 상기 모바일 쿠폰에 대한 정보를 수신하는 단계;

상기 수신된 정보들에 기초하여 상기 모바일 쿠폰의 유효성을 검사하는 단계; 및

상기 검사 결과 상기 모바일 쿠폰이 유효하다면 상기 서버는 쿠폰의 사용 내역을 기록하고 유효성 여부를 상기 사용자 단말기에 전송함으로써 상기 모바일 쿠폰을 자동으로 비활성화시키는 단계를 포함하는 방법.

청구항 6

제 5 항에 있어서,

상기 가맹점 식별 정보는 사용자로부터 상기 사용자 단말기를 통해 직접 입력받은 가맹점 식별자이고,

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상기 가맹점 식별자는 사용자로부터 직접 상기 사용자 단말기의 입력 수단을 통해 입력되거나, 상기 가맹점 내에 구비된 RFID 태그를 통해 입력되는 것 중 적어도 하나에 의해 획득되는 것을 특징으로 하는 방법.

청구항 7

제 5 항에 있어서,

상기 가맹점 식별 정보는 상기 서버가 상기 사용자 단말기로부터 수신한 가맹점의 위치 정보에 대응하는 정보이고,

상기 가맹점의 위치 정보는 상기 사용자 단말기에 구비된 GPS 수신기를 통해 획득되는 것을 특징으로 하는 방법.

청구항 8

제 5 항에 있어서,

상기 서버가 상기 사용자 단말기로부터 상기 모바일 쿠폰의 사용 조건을 수신하는 단계;

상기 수신된 사용 조건에 따라 상기 모바일 쿠폰의 서비스 제공 내용을 동적으로 변경시키는 단계; 및

상기 변경된 서비스 제공 내역을 상기 사용자 단말기에 전송하는 단계를 더 포함하는 방법.

청구항 9

제 5 항에 있어서,

상기 서버가 상기 사용자 단말기로부터 상기 모바일 쿠폰 사용에 대한 요청을 수신하는 단계;

상기 사용 요청에 따라 미리 설정된 승인자 전화번호로 회신용 URL(call back URL)을 포함하는 승인 요청 메시지를 송신하는 단계; 및

상기 회신용 URL을 통해 상기 승인자로부터 승인 명령을 수신하는 단계를 더 포함하고,

상기 모바일 쿠폰의 유효성을 검사하는 단계는 상기 승인 명령의 수신 여부를 추가적으로 검사하는 것을 특징으로 하는 방법.

청구항 10

제 1 항 내지 제 9 항 중에 어느 한 항의 방법을 컴퓨터에서 실행시키기 위한 프로그램을 기록한 컴퓨터로 읽을 수 있는 기록매체.

명 세 서

기 술 분 야

[0001] 본 발명은 사용자 단말기를 통한 모바일 쿠폰의 처리 방법에 관한 것으로, 특히 모바일 쿠폰을 사용하고자 하는 가맹점을 방문한 사용자가 자신의 단말기를 통해 모바일 쿠폰을 사용하면 서버를 통해 이를 처리하는 쿠폰 처리 시스템 환경에서의 모바일 쿠폰 처리 방법 및 이를 기록한 기록매체에 관한 것이다.

배 경 기 술

[0002] 쿠폰(coupon)이란 상품의 판매를 촉진하거나 상품 또는 서비스를 광고하는 등의 목적으로 제공되는 상품 또는 서비스의 할인권 및 상품 또는 서비스의 교환권을 말한다. 전통적으로 이러한 쿠폰은 종이나 비닐에 표시된 인쇄물로 제작되는 것이 일반적이었으며, 시장 경쟁이 치열해짐에 따라 마케팅 수단으로 쿠폰의 이용이 적극적으로 확산되고 있는 추세이다.

[0003] 컴퓨터 기술의 등장에 따라 쿠폰은 전자적 형태로 가공되어 유통되기 시작했으며, 최근 이동통신 서비스 이용이 대중화되던서 이동통신 단말기에 다운로드(download)되는 모바일 쿠폰(mobile coupon)이 등장하였다. 이러한 모바일 쿠폰은 특유의 이동성으로 많은 인기를 끌고 있으며, 이동통신망을 통해 쿠폰 제공 서버로부터 무선으로 사용자의 통신 단말기에 전송된다. 즉, 모바일 쿠폰의 경우 사용자는 인쇄물을 소지하는 것이 아니라, 자신이 휴대하고 있는 통신 단말기의 메모리에 전자적 형태의 쿠폰이 저장되게 된다.

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[0004] 한편, 사용자가 모바일 쿠폰을 사용하기 위해서는 자신의 통신 단말기를 소지하고 가맹점을 방문하여 단말기의 디스플레이 화면에 표시된 모바일 쿠폰을 제시하여야만 한다. 그러면, 가맹점에서는 모바일 쿠폰을 확인하고 이에 해당하는 상품 또는 서비스를 제공한다. 이 때, 가맹점에서 모바일 쿠폰을 처리하기 위해서는 모바일 쿠폰에 표시된 바코드를 가맹점이 보유하고 바코드 리더기로 인식시키거나, 모바일 쿠폰의 내용을 직접 육안으로 확인하게 된다. 만약 바코드 리더기로 인식시킨 경우, 가맹점이 보유하고 있는 포스(point of sales, POS) 시스템을 통해 상품 또는 서비스 제공 내역을 기록할 수 있으며, 육안으로만 확인한 경우라면 가맹점 담당자가 별도의 수단을 통해 제공 내역을 기록해야 할 것이다. 마지막으로 사용이 완료된 모바일 쿠폰을 삭제해야 하는데, 이를 위해서는 불가피하게 사용자의 단말기를 넘겨받아 직접 모바일 쿠폰을 단말기로부터 삭제할 수 밖에 없다.

[0005] 따라서, 가맹점의 입장에서는 모바일 쿠폰을 처리할 수 있는 별도의 시스템 내지 수단이 반드시 필요하게 되고, 사용자의 입장에서는 자신의 단말기를 가맹점의 담당자에게 건네주어 해당 쿠폰을 삭제시켜야 하는 불편함이 따른다.

발명의 내용

해결하려는 과제

[0006] 본 발명이 해결하고자 하는 기술적 과제는 특정 상품 및 서비스를 제공하기 위해 가맹점마다 모바일 쿠폰을 처리할 수 있는 별도의 처리 시스템을 마련해야 하는 부담을 해소하고, 사용자의 단말기에 대한 가맹점의 직접적인 조작이 있어야만 모바일 쿠폰을 사용 처리할 수 있는 한계를 극복하며, 그 결과 사용자의 단말기에 대한 프라이버시가 침해되는 문제점을 해결하는 사용자 단말기를 통한 모바일 쿠폰의 처리 방법 및 이를 기록한 기록매체를 제공하는데 있다.

과제의 해결 수단

[0007] 상기 기술적 과제를 해결하기 위하여, 본 발명에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법은 상기 사용자 단말기가 상기 모바일 쿠폰을 수신하는 단계; 상기 사용자 단말기가 상기 모바일 쿠폰을 사용하고자 하는 가맹점을 식별하는 단계; 상기 식별된 가맹점 정보에 기초하여 상기 모바일 쿠폰의 유효성을 검사하는 단계; 및 상기 검사 결과 상기 모바일 쿠폰이 유효하다면 상기 사용자 단말기는 쿠폰의 사용 내역을 서버로 전송하고 상기 모바일 쿠폰을 자동으로 비활성화시키는 단계를 포함한다.

[0008] 상기 기술적 과제를 해결하기 위하여, 본 발명에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법은 서버가 상기 사용자 단말기로부터 상기 모바일 쿠폰을 사용하고자 하는 가맹점 식별 정보 및 상기 모바일 쿠폰에 대한 정보를 수신하는 단계; 상기 수신된 정보들에 기초하여 상기 모바일 쿠폰의 유효성을 검사하는 단계; 및 상기 검사 결과 상기 모바일 쿠폰이 유효하다면 상기 서버는 쿠폰의 사용 내역을 기록하고 유효성 여부를 상기 사용자 단말기에 전송함으로써 상기 모바일 쿠폰을 자동으로 비활성화시키는 단계를 포함한다.

[0009] 한편, 상기된 사용자 단말기를 통한 모바일 쿠폰의 처리 방법들에서 상기 가맹점을 식별하는 과정은 상기 사용자 단말기가 상기 가맹점을 식별하는 가맹점 식별자를 입력받음으로써 수행되고, 상기 가맹점 식별자는 사용자로부터 직접 상기 사용자 단말기의 입력 수단을 통해 입력되거나, 상기 가맹점 내에 구비된 RFID 태그를 통해 입력되는 것 중 적어도 하나에 의해 획득될 수 있다.

[0010] 또한, 상기된 사용자 단말기를 통한 모바일 쿠폰의 처리 방법들에서 상기 가맹점을 식별하는 과정은 상기 사용자 단말기에 구비된 GPS 수신기를 통해 상기 가맹점의 위치 정보를 수신하여 서버에 질의하는 단계; 및 상기 서버로부터 상기 위치 정보에 대응하는 가맹점 식별 정보를 수신하는 단계를 포함할 수 있다.

[0011] 상기 다른 기술적 과제를 해결하기 위하여, 본 발명에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법은 상기 서버가 상기 사용자 단말기로부터 상기 모바일 쿠폰 사용에 대한 요청을 수신하는 단계; 상기 사용 요청에 따라 미리 설정된 승인자 전화번호로 회신용 URL(call back URL)을 포함하는 승인 요청 메시지를 송신하는 단계; 및 상기 회신용 URL을 통해 상기 승인자로부터 승인 명령을 수신하는 단계를 더 포함하고, 상기 모바일 쿠폰의 유효성을 검사하는 단계는 상기 승인 명령의 수신 여부를 추가적으로 검사한다.

[0012] 나아가, 이하에서는 상기 기재된 사용자 단말기를 통한 모바일 쿠폰의 처리 방법들을 컴퓨터에서 실행시키기 위한 프로그램을 기록한 컴퓨터로 읽을 수 있는 기록매체를 제공한다.

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발명의 효과

[0013] 본 발명은 사용자 단말기가 모바일 쿠폰을 사용하고자 하는 가맹점을 식별함으로써 해당 상품 및 서비스를 제공하기 위해 가맹점마다 별도의 처리 시스템을 마련할 필요없이 오직 사용자의 단말기만으로 모바일 쿠폰을 처리할 수 있으며, 모바일 쿠폰의 사용 후 가맹점 담당자의 직접적인 조작 없이 모바일 쿠폰을 자동으로 비활성화시킴으로써 사용자의 단말기에 대한 프라이버시가 지켜짐과 동시에 쿠폰이 사용 완료되어 더 이상 재사용이 불가능함을 보장할 수 있다. 나아가 본 발명은 사용자의 단말기를 통해 모바일 쿠폰을 인증받을 수 있음으로 인해 가맹점 이외의 장소에서도 모바일 쿠폰을 사용할 수 있다.

도면의 간단한 설명

[0014] 도 1은 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 시스템을 전체적으로 도시한 블록도이다.

도 2는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 사용자 단말기에서 수행되는 동작을 중심으로 도시한 흐름도이다.

도 3은 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 서버에서 수행되는 동작을 중심으로 도시한 흐름도이다.

도 4는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 가맹점, 사용자 단말기 및 서버 간의 송수신 데이터 및 처리 주체를 중심으로 설명하기 위한 도면이다.

도 5a 내지 도 5b는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 예시한 도면이다.

발명을 실시하기 위한 구체적인 내용

[0015] 이하에서 도면을 참조하여 본 발명의 실시예들을 구체적으로 설명한다.

[0016] 도 1은 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 시스템을 전체적으로 도시한 블록도로서, 사용자 단말기(10), 서버(20) 및 가맹점(30)을 포함한다. 물론 사용자 단말기에 모바일 쿠폰을 제공하는 쿠폰 제공자(40)가 존재함은 당연하다.

[0017] 우선, 사용자 단말기(10)는 쿠폰 제공자(40)로부터 제공받은 모바일 쿠폰을 저장한다. 이러한 모바일 쿠폰은 물리적으로 사용자 단말기(10)의 메모리와 같은 기록 매체에 저장될 수도 있으나, 네트워크 상의 특정 서버 내에 마련된 고유의 계정(account) 공간 내에 저장될 수도 있을 것이다. 즉, 모바일 쿠폰은 사용자 단말기(10)를 통해 언제든 접근할 수 있도록 제공된다. 이제 사용자는 자신의 단말기(10)를 소지한 채, 쿠폰을 사용하고자 하는 가맹점을 방문한다. 이 때, 사용자가 단말기(10)를 통해 모바일 쿠폰을 제시하면 가맹점(30)의 담당자는 쿠폰 인증을 요구하게 된다.

[0018] 종래에 가맹점에서 활용되고 있는 포스 시스템의 경우 포스를 통해 결제를 처리하였으므로 결제 수단에 대한 인증 역시 가맹점의 포스 시스템에 의존할 수 밖에 없다. 그러나, 모바일 쿠폰의 경우 그 유형이 매우 다양함으로 인해 인증 수단도 바코드나 쿠폰 고유 번호 등으로 다양화되고 있다. 이에 따라 가맹점에서 모바일 쿠폰을 인증하려 한다면, 바코드 리더를 통해 쿠폰 정보를 읽어들이거나, 직접 포스 시스템에 쿠폰 고유 번호를 입력할 수 밖에 없다. 따라서, 모바일 쿠폰을 제공하고자 하는 업체의 모든 가맹점들은 고가의 포스 시스템 내지 인증 처리 시스템을 도입하여야만 하는 불편함이 따른다.

[0019] 이에 반해, 본 발명의 실시예들은 가맹점(30)에 별도의 인증 수단이나 모바일 쿠폰 처리 수단이 구비되어 있지 않다고 가정한다. 이에 따라 모바일 쿠폰의 사용 및 사용 후 처리(사용된 쿠폰의 폐기 내지 삭제를 의미한다.)는 전적으로 사용자의 단말기(10)를 통해 수행되어야만 한다. 이를 구현하기 위해 본 발명의 실시예들은 사용자 단말기(10)를 통해 직접 가맹점을 식별하고 서버(20)를 통해 모바일 쿠폰을 인증하는 것을 기본 아이디어로 하고 있다. 보다 구체적으로 모바일 쿠폰에 대한 상품 또는 서비스를 제공하고자 하는 업체는 미리 특정 서버(20)에 각각의 가맹점들을 식별할 수 있는 식별자들 부여하는 데이터베이스(25)를 구축한다. 즉, 사용자(보다 정확하게는 사용자 단말기를 의미한다.)는 현재 방문한 가맹점(30)의 고유 식별자를 통해 가맹점(30)을 구분할 수 있으므로, 이를 모바일 쿠폰을 관리하는 서버에 기록하기만 하면 가맹점 스스로가 별도의 포스 시스템 내지 개별적인 인증 시스템을 구비하지 않더라도 모바일 쿠폰의 사용 내역을 관리할 수 있다.

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[0020] 사용자가 방문한 가맹점(30)에는 미리 특정한 가맹점 식별자가 부여되어 있으며 사용자는 모바일 쿠폰을 사용하고자 하는 시점에 이러한 가맹점 식별자를 획득한다. 가맹점 식별자를 획득하는 보다 구체적인 수단에 관하여는 이후에 도 2를 통해 다시 설명한다. 그런 다음, 사용자는 사용자 단말기(10)에 구비된 무선 통신을 활용하여 사용하고자 하는 쿠폰 정보와 가맹점 식별자를 서버(20)에 송신하여 쿠폰 인증을 시도한다. 그 결과 쿠폰이 유효하다면 서버(20)에 사용 내역을 기록하고, 쿠폰 사용이 완료되었다는 메시지를 수신한다. 이러한 사용 완료 메시지를 수신한 사용자 단말기(10)는 자동으로 사용한 쿠폰을 비활성화시킴으로써 불법적인 쿠폰 재사용을 원천적으로 차단할 수 있으며, 가맹점(30)의 담당자가 개인 단말기(10)를 조작하여 이미 사용된 쿠폰을 삭제하는 불편을 겪지 않아도 된다. 이제 사용자는 자신의 단말기(10)를 통해 쿠폰의 사용 내역을 조회할 수 있으며, 쿠폰을 제공한 업체에서는 서버(20)를 통해 자신이 제공한 모바일 쿠폰들의 사용 내역을 조회, 관리할 수 있다.

[0021] 상기된 실시예에 따르면 가맹점(30)은 이러한 모바일 쿠폰의 인증, 사용 및 사용된 쿠폰의 폐기의 전 과정에 아무런 관여를 하고 있지 않으므로 사용자의 프라이버시를 보호할 수 있을 뿐만 아니라, 가맹점(30) 스스로가 고가의 인증 장비 및 포스 시스템을 구비할 필요가 전혀 없다. 그 결과 쿠폰의 제공자(40)의 입장에서는 이러한 설비 투자가 어려운 영세 사업자들에게도 가맹 계약을 확대할 수 있는 장점이 있으며, 사용자의 입장에서는 가맹 점포가 확대되어 보다 많은 곳에서 모바일 쿠폰을 사용할 수 있는 편리함이 있다.

[0022] 나아가 본 실시예는 사용자가 직접 가맹점(30)을 방문하지 않는 경우에도 활용이 가능하다. 예를 들어, 한강 공원에서 사용자가 음식을 주문한 경우 가맹점에서는 주문 음식을 배달하게 되는데, 한강 공원에는 아무런 인증 수단이나 포스 시스템이 존재하지 않는다. 이 때, 사용자가 모바일 쿠폰을 제시하더라도 종래의 경우에는 그 혜택을 받을 수 없었다. 그러나, 상기된 실시예에 의하면 사용자 단말기(10)를 통해 직접 서버(20)로부터 모바일 쿠폰의 인증을 획득할 수 있으므로, 장소에 구애받지 않고 모바일 쿠폰의 활용이 가능하다. 물론 이 경우에 가맹점 식별자는 배달 온 가맹점의 담당자를 통해 획득하여야 할 것이다.

[0023] 도 2는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 사용자 단말기에서 수행되는 동작을 중심으로 도시한 흐름도이다.

[0024] 210 단계에서 사용자 단말기가 모바일 쿠폰을 수신한다. 앞서 설명한 바와 같이 모바일 쿠폰은 사용자 단말기의 물리적인 메모리에 직접 저장될 수도 있고, 별도의 서버에 대한 링크(link)만을 제공받을 수도 있다.

[0025] 220 단계에서는 사용자 단말기가 210 단계를 통해 수신된 모바일 쿠폰을 사용하고자 하는 가맹점을 식별한다. 가맹점을 식별하는 방법은 다양하게 제안 가능하나, 이하에서는 구현이 용이한 두 가지 방법을 예시하도록 하겠다.

[0026] 첫째, 가맹점을 식별하는 단계는 사용자 단말기가 가맹점을 식별하는 가맹점 식별자를 입력받음으로써 수행될 수 있다. 보다 구체적으로 이러한 가맹점 식별자는 사용자로부터 직접 사용자 단말기의 입력 수단을 통해 입력되거나, 가맹점 내에 구비된 RFID(radio frequency identification) 태그를 통해 입력될 수 있다.

[0027] 전자의 경우에는 사용자 단말기에 구비된 키 패드(key pad)나 터치 패드(touch pad)를 통해 직접 가맹점 식별자를 입력(물론 가맹점 식별자는 방문한 가맹점의 담당자로부터 획득할 수 있다.)하거나, 가맹점 내에 표시된 가맹점 식별자를 사용자 단말기에 구비된 카메라 모듈을 통해 인식시킬 수 있다. 따라서, 가맹점 내에 표시된 가맹점 식별자는 바코드 형태로 표시되는 것이 바람직할 것이나 통상적인 숫자나 영문의 형태로 표시되어 있어도 카메라 모듈을 통해 촬영된 영상을 문자 인식함으로써 쉽게 가맹점 식별자를 획득할 수 있다. 후자의 경우에는 가맹점 내에 RFID 태그를 부착해 놓고, 사용자 단말기를 통해 RFID를 읽어들일 수 있을 것이다. 이 경우 사용자 단말기는 RFID 리더기를 구비하고 있어야 할 것이다.

[0028] 둘째, 가맹점을 식별하는 단계는 사용자 단말기에 구비된 GPS(Global Positioning System) 수신기를 통해 가맹점의 위치 정보를 수신하여 서버에 질의하고, 서버로부터 위치 정보에 대응하는 가맹점 식별 정보를 수신할 수 있다. 최근 GPS 모듈의 크기가 소형화되면서 GPS 모듈을 구비하고 있는 휴대 단말기가 등장하고 있다. 따라서, 사용자 단말기가 직접 현재 위치를 수신한 다음, 수신된 좌표 정보를 이용하여 가맹점을 식별할 수 있다. 이 경우 사용자 단말기가 수신된 좌표 정보를 별도의 서버에 질의하여 그 응답으로 가맹점 식별자를 수신할 수도 있으나, 만약 단말기 내에 가맹점 좌표와 식별자를 사상(mapping)시킨 가맹점 맵(map)이 존재한다면 단말기 스스로 수신된 좌표 정보로부터 현재 위치에 대응하는 가맹점 식별자를 획득할 수 있을 것이다.

[0029] 이상과 같은 2 가지 방법 외에도 본 발명이 속하는 기술 분야에서 통상의 지식을 가진 자는 사용자 단말기가 모바일 쿠폰을 사용하고자 하는 가맹점을 식별할 수 있는 다양한 기술적 수단을 채용할 수 있음을 알 수

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있다.

[0030] 다음으로 230 단계에서는 상기 220 단계를 통해 식별된 가맹점 정보에 기초하여 모바일 쿠폰의 유효성을 검사한다. 이를 위해 사용자 단말기는 모바일 쿠폰 정보와 식별된 가맹점 정보를 서버로 전송한다. 모바일 쿠폰 정보에는 쿠폰의 종류와 상품 내지 서비스의 제공 내역이 포함되며, 유효성 검증을 위해 사용 시간도 검사하게 될 것이다.

[0031] 예를 들어, 쿠폰이 A 커피 전문점의 B 음료의 무료 제공을 서비스 내용으로 하고 있다면, 모바일 쿠폰 정보에는 B 음료의 무료 제공을 식별할 수 있는 쿠폰 번호가 부여되어 있을 것이며, 사용자 단말기는 이 쿠폰 번호와 식별된 가맹점 번호를 서버로 전송한다. 그러면, 서버에서는 쿠폰 번호와 가맹점 번호를 조회하여 현재 모바일 쿠폰을 사용하려는 시간 정보에 기초하여 식별된 가맹점에서 해당 쿠폰을 사용할 수 있는지 여부를 검사한다. 만약 해당 쿠폰이 식별된 가맹점에서는 사용 불가능하거나 사용 기간이 도과되었다면 서버는 모바일 쿠폰이 유효하지 않다는 오류 메시지를 모바일 단말기에 응답할 것이다.

[0032] 이제 240 단계에서 모바일 쿠폰이 유효하다고 판단되었다면, 250 단계를 통해 모바일 단말기는 쿠폰의 사용 내역을 서버에 전송하여 기록하고, 모바일 단말기에 저장된 모바일 쿠폰을 자동으로 비활성화시킨다. 여기서 비활성화시킨다는 의미는 모바일 쿠폰 자체를 삭제, 폐기시키는 형태로 구현될 수도 있으나, 단지 재사용을 못하도록 쿠폰 사용 기능을 제거한 후, 사용 내역을 기록하는 것이 더 바람직하다. 따라서, 사용자는 자신이 보유하고 있는 모바일 쿠폰이 언제, 어디서, 어떠한 상품 내지 서비스를 제공받았는지를 확인할 수 있다.

[0033] 한편, 본 발명의 다른 실시예에서는 상기된 사용자 단말기를 통한 모바일 쿠폰의 사용 방법에 있어서, 모바일 쿠폰의 사용 조건을 협상하는 기능을 추가하는 것이 가능하다. 보다 구체적으로 도 2를 통해 설명한 실시예는 사용자로부터 모바일 쿠폰의 사용 조건을 입력받고, 입력된 사용 조건에 따라 모바일 쿠폰의 서비스 제공 내용을 동적으로 변경시키는 단계를 더 포함할 수 있다.

[0034] 모바일 쿠폰의 사용 조건을 협상하는 기능은 다음과 같이 구현될 수 있다. 쿠폰 제공자는 최초에 모바일 쿠폰을 제작함에 있어 미리 쿠폰 내에 셀렉트 버튼(select button)이나 라디오 버튼(radio button)을 추가하여 쿠폰 제공 상품 내지 서비스를 복수 개로 구성할 수 있다. 이를 위해 모바일 쿠폰 내에 간단한 프로그램 스크립트(script)를 추가함으로써 사용자의 선택에 따라 동적으로 쿠폰의 제공 내용을 변경한다. 예를 들어, 가맹점의 방문자가 1인인 경우에 할인률이 10%인 서비스를 제공하였다고 가정하면, 가맹점의 방문자가 3인 이상인 경우에는 할인률을 20%로 변경시키는 형태로 모바일 쿠폰을 구현하는 것이 가능하다. 이러한 가변적인 형태의 모바일 쿠폰을 통해 가맹점의 점주는 고객을 더 많이 유치하는 효과를 달성할 수 있다.

[0035] 모바일 쿠폰의 사용 조건을 협상하는 기능은 서버와의 통신을 통해서도 구현될 수 있다. 쿠폰 제공자는 서버의 특정 URL을 통해 모바일 쿠폰의 사용 조건을 협상할 수 있는 모바일 웹 페이지를 구현함으로써 상기된 쿠폰의 내용 변경을 서버 사이드(server-side)에서 처리할 수도 있다.

[0036] 이상과 같은 모바일 쿠폰의 사용 조건의 협상은 도 2의 230 단계 이전에 수행되어야 할 것이다. 즉, 가변적인 조건을 갖는 모바일 쿠폰의 제공 내용이 결정된 후에야 비로소 모바일 쿠폰의 유효성을 검사할 수 있을 것이다.

[0037] 도 3은 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 서버에서 수행되는 동작을 중심으로 도시한 흐름도이다.

[0038] 310 단계에서 서버는 사용자 단말기로부터 모바일 쿠폰을 사용하고자 하는 가맹점 식별 정보 및 모바일 쿠폰에 대한 정보를 수신한다. 가맹점 식별 정보 및 모바일 쿠폰 정보는 이미 도 2의 220 단계를 통해 설명한 바 있다. 즉, 본 발명의 일 실시예에서 가맹점 식별 정보는 사용자로부터 사용자 단말기를 통해 직접 입력받은 가맹점 식별자이고, 가맹점 식별자는 사용자로부터 직접 사용자 단말기의 입력 수단을 통해 입력되거나, 가맹점 내에 구비된 RFID 태그를 통해 입력되는 것 중 적어도 하나에 의해 획득될 수 있다. 또 다른 실시예에서 가맹점 식별 정보는 서버가 사용자 단말기로부터 수신한 가맹점의 위치 정보에 대응하는 정보이고, 가맹점의 위치 정보는 사용자 단말기에 구비된 GPS 수신기를 통해 획득될 수 있다.

[0039] 320 단계에서는 310 단계를 통해 수신된 정보들에 기초하여 모바일 쿠폰의 유효성을 검사한다. 이미 설명한 바와 같이 모바일 쿠폰의 유효성 검사는 최소한 2 가지 정보에 기초하여 수행된다. 첫째는 모바일 쿠폰 번호(식별번호를 의미한다.)가 될 것이고, 둘째는 가맹점 식별자가 될 것이다. 여기에 쿠폰의 유효 기간을 확인하기 위한 현재 시간 정보나 필요에 따라서는 사용 인원 등의 부차적인 정보들이 검사 조건으로 추가 입력될 수 있다. 그러면, 서버는 이러한 입력 조건을 통해 모바일 쿠폰의 유효성을 검사한다. 물론 이러한 검사를 위해

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쿠폰의 유효 조건이 저장된 데이터베이스가 필요함은 당연하다. 이러한 데이터베이스에는 하나의 레코드(record) 내에 쿠폰 번호 또는 가맹점 번호를 키(key)로 하여 각각의 사용 조건들이 연결되어 저장되어 있으며, 서버는 이러한 데이터베이스에 질의함으로써 모바일 쿠폰의 유효성을 검사할 수 있다.

[0040] 이제 330 단계를 통해 해당 모바일 쿠폰이 유효하다고 판단되었으면, 340 단계로 진행한다. 340 단계에서 서버는 쿠폰의 사용 내역을 기록하고 유효성 여부를 사용자 단말기에 전송함으로써 모바일 쿠폰을 자동으로 비활성화시킨다. 이러한 과정은 구현의 측면에서 다양하게 제안 가능할 것이나, 여기서는 그 일례만을 소개한다.

[0041] 우선, 서버는 모바일 쿠폰이 유효하다는 응답 메시지를 사용자 단말기로 전송한다. 그러면, 사용자 단말기는 해당 쿠폰이 사용되었다는 메시지를 서버에 요청하고, 서버에서는 이러한 요청에 따라 모바일 쿠폰의 사용 내역을 특정 데이터베이스에 기록한다. 이와 동시에 모바일 단말기는 자신의 메모리에 저장되어 있는 모바일 쿠폰을 비활성화시키고 사용 내역을 모바일 쿠폰과 연계하여 저장한다.

[0042] 구현의 관점에서 이러한 절차를 좀 더 간단하게 설계한다면, 서버가 쿠폰이 유효하다는 응답 메시지를 사용자에게 전송하는 시점에 서버 내의 데이터베이스에 그 사용 내역을 기록할 수도 있을 것이다. 물론 쿠폰이 유효하다는 응답 메시지를 수신한 모바일 단말기는 별도로 사용 처리를 메시지를 서버에 요청할 필요가 없으며, 자신의 메모리에 저장되어 있는 모바일 쿠폰만을 비활성화시키면 된다.

[0043] 이렇게 저장된 모바일 쿠폰의 사용 내역은 쿠폰 제공자의 CRM(customer relationship management)의 기초 자료로서 활용될 수 있다. 특히 본 발명의 실시예에 따른 모바일 쿠폰 처리 시스템을 통해 축적된 모바일 쿠폰의 사용 내역은 종래의 가맹점 포스 시스템에 기반한 고객 자료에 비해 그 데이터의 양과 질이 차별화된다. 특히 사용자 단말기에 저장된 쿠폰과 직접적으로 서버를 통해 데이터가 관리되기 때문에 해당 모바일 쿠폰의 사용 내역과 고객의 사용 패턴을 보다 정확하게 추출하는 것이 가능하다. 즉, 모바일 쿠폰 제공자는 자사의 고객 데이터베이스와 모바일 쿠폰의 사용 내역을 직접적으로 매칭시킴으로써 유용한 관계 정보들을 활용할 수 있다.

[0044] 한편, 본 발명의 다른 실시예에서는 상기된 사용자 단말기를 통한 모바일 쿠폰의 사용 방법에 있어서, 마찬가지로 모바일 쿠폰의 사용 조건을 협상하는 기능을 추가하는 것이 가능하다. 여기서는 서버의 관점에서 모바일 쿠폰의 사용 조건을 서버를 통해 변경하는 실시예의 제시가 가능하다. 즉, 앞서 설명한 바와 같이 서버는 사용자 단말기로부터 모바일 쿠폰의 사용 조건을 수신하고, 수신된 사용 조건에 따라 모바일 쿠폰의 서비스 제공 내용을 동적으로 변경시킨 후, 변경된 서비스 제공 내역을 사용자 단말기에 전송할 수 있다.

[0045] 도 4는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 가맹점(30), 사용자 단말기(10) 및 서버(20) 간의 송수신 데이터 및 처리 주체를 중심으로 설명하기 위한 도면이다.

[0046] 410 단계에서 사용자는 사용자 단말기(10)를 소지한 채, 가맹점(30)을 방문하여 모바일 쿠폰을 제시한다. 그런 다음, 420 단계를 통해 사용자 단말기(10)는 가맹점 식별 정보를 획득한다. 이러한 가맹점 식별 정보는 이미 설명한 다양한 수단을 통해 획득될 수 있으며, 가맹점 자체의 포스 시스템 내지 인증 시스템을 전혀 사용하지 않고, 사용자의 단말기(10)만을 통해 획득될 수 있는 정보이다.

[0047] 이제 사용자 단말기(10)는 430 단계를 통해 가맹점 식별 정보 및 모바일 쿠폰 정보를 서버(20)에 전송한다. 그러면, 서버(20)는 440 단계를 통해 모바일 쿠폰의 유효성을 검사한다. 모바일 쿠폰의 유효성을 검사하는 일련의 과정은 이미 도 2 및 도 3을 통해 설명한 바와 같으나, 본 실시예에서는 가맹점(30) 담당자에 의한 추가적인 승인 과정을 제시하고자 한다.

[0048] 앞서 도 2 및 도 3을 통해 설명한 실시예들에서 설명한 바와 같이 모바일 쿠폰의 유효성은 가맹점(30)의 개입 없이 사용자 단말기(10) 및 서버(20)의 상호 통신만으로도 처리가 가능하다. 그러나, 본 실시예에서는 가맹점(30)에 의한 추가적인 승인 과정을 더 제시하고 있다.

[0049] 일단, 430 단계를 통해 서버(20)는 사용자 단말기(10)로부터 모바일 쿠폰 사용에 대한 요청(모바일 쿠폰의 유효성 검사 요청을 의미한다.)을 수신한다. 그러면, 443 단계에서 서버(20)는 미리 설정된 승인자 전화번호로 회신용 URL(call back URL)을 포함하는 승인 요청 메시지를 가맹점(30)에 송신한다. 이 때, 승인자 전화번호는 가맹점(30)의 점주 내지 상주 담당자가 확인할 수 있는 단말기의 전화번호가 될 것이다. 이러한 가맹점의 단말기는 고도의 기능을 가진 단말기일 필요는 없으며 단순히 WIPI(Wireless Internet Platform for Interoperability) 정도의 무선 인터넷 플랫폼을 활용할 수 있으면 충분하다.

[0050] 또한, 승인 요청 메시지는 현재 사용자가 사용을 희망하는 쿠폰에 대한 승인을 요청하는 메시지를

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의미하는데, 이러한 승인 메시지에는 승인의 편의를 위해 회신용 URL이 포함되어 있어, 승인자는 단지 승인 버튼만을 누르면 서버에 승인 명령을 전송할 수 있도록 구현되는 것이 바람직하다. 이를 위해 call back URL이 활용될 수 있을 것이다.

[0051] 445 단계에서 서버(20)는 회신용 URL을 통해 승인자로부터 승인 명령을 수신한다. 이 경우 440 단계의 모바일 쿠폰의 유효성을 검사하는 단계는 승인 명령의 수신 여부를 추가적으로 검사하는 것이 바람직하다. 즉, 모바일 쿠폰의 유효성 여부를 결정하는 조건에 가맹점의 승인 여부가 추가된다.

[0052] 이상과 같은 가맹점(30)의 승인 과정은 쿠폰 제공자가 쿠폰 사용 과정을 설정함에 있어서 선택적으로 추가될 수 있으며, 보다 안전한 거래를 위해 제공될 수 있을 것이다. 이러한 과정이 추가되더라도 여전히 본 발명의 실시예들에서는 가맹점들이 포스 시스템이나 별도의 인증 시스템을 마련할 필요가 없다는 장점을 유지할 수 있다.

[0053] 유효성 검사가 완료되면 서버(20)는 450 단계를 통해 유효성 여부를 사용자 단말기(10)에 전송한다. 그 결과 모바일 쿠폰이 유효하다면 서버(20)는 쿠폰 사용 요청에 따라 460 단계에서 쿠폰의 사용 내역을 데이터베이스에 기록한다. 또한, 사용자는 사용자 단말기(10)에 표시된 모바일 쿠폰이 유효하다는 응답 메시지를 가맹점(30)에 제시함으로써 470 단계에서 상품 내지 서비스를 제공받을 수 있다. 마지막으로 사용자 단말기(10)는 480 단계를 통해 모바일 쿠폰을 비활성화시킨다.

[0054] 도 5a 내지 도 5b는 본 발명의 일 실시예에 따른 사용자 단말기를 통한 모바일 쿠폰의 처리 방법을 예시한 도면이다.

[0055] 우선 도 5a는 사용자의 단말기에 저장된 음료 무료 쿠폰을 예시하고 있다. 도 5a에서 모바일 쿠폰은 쿠폰 번호(510) 내지 바코드(520)를 포함할 수 있다. 이러한 쿠폰 번호(510) 및 바코드(520)는 종래의 모바일 쿠폰에서 활용되던 것으로 이를 직접 가맹점에 구비된 바코드 리더기로 읽어 들이거나, 가맹점의 인증 시스템에 쿠폰 번호(510)를 입력해야 하는 불편함이 있었다. 그러나, 본 발명의 실시예들이 제안하고 있는 가맹점 식별 수단을 활용하면 가맹점의 개입 없이 사용자 단말기만을 통해 모바일 쿠폰의 유효성을 인증받고 해당 쿠폰을 사용할 수 있다.

[0056] 이를 구현하기 위한 가장 간단한 방법이 도 5a에 도시되어 있다. 도 5a의 모바일 쿠폰에는 가맹점 식별자를 입력받을 수 있는 입력창(530)이 마련되어 있으므로, 사용자는 가맹점의 상주 담당자로부터 가맹점 식별자를 획득하여 입력창(530)에 입력할 수 있다. 이러한 방법을 통해 사용자 단말기는 가맹점 식별자를 획득하고, 서버에 질의함으로써 해당 모바일 쿠폰의 유효성을 인증받을 수 있다. 가맹점 식별자를 획득하는 다양한 방법에 대해서는 앞서 도 2 내지 도 3의 다양한 실시예를 통해 이미 설명한 바 있다.

[0057] 도 5b는 사용자 단말기를 통해 모바일 쿠폰이 정상적으로 사용되었음을 표시하는 메시지 화면을 예시한 도면이다. 도 5b는 음료 무료 쿠폰이 정상적으로 사용된 후 비활성화되었으며, 그 사용 내역(540)이 기록되어 있음을 보여주고 있다. 사용 내역(540)은 사용 일시, 사용 장소, 가맹점 번호, 제공 내역, 사용자명 및 사용자 ID 등이 될 수 있으며, 쿠폰 제공자의 필요에 따라 유연하게 구현될 수 있다.

[0058] 상기된 본 발명의 실시예들에 따르면 사용자 단말기가 직접 모바일 쿠폰을 사용하고자 하는 가맹점을 식별함으로써 해당 상품 및 서비스를 제공하기 위해 가맹점마다 별도의 처리 시스템을 마련할 필요없이 오직 사용자의 단말기만으로 모바일 쿠폰을 처리할 수 있으며, 모바일 쿠폰의 사용 후 가맹점 담당자의 직접적인 조작 없이 모바일 쿠폰을 자동으로 비활성화시킴으로써 사용자의 단말기에 대한 프라이버시가 지켜짐과 동시에 쿠폰이 사용 완료되어 더 이상 재사용이 불가능함을 보장할 수 있다.

[0059] 한편, 본 발명은 컴퓨터로 읽을 수 있는 기록 매체에 컴퓨터가 읽을 수 있는 코드로 구현하는 것이 가능하다. 컴퓨터가 읽을 수 있는 기록 매체는 컴퓨터 시스템에 의하여 읽혀질 수 있는 데이터가 저장되는 모든 종류의 기록 장치를 포함한다.

[0060] 컴퓨터가 읽을 수 있는 기록 매체의 예로는 ROM, RAM, CD-ROM, 자기 테이프, 플로피디스크, 광 데이터 저장장치 등이 있으며, 또한 캐리어 웨이브(예를 들어 인터넷을 통한 전송)의 형태로 구현하는 것을 포함한다. 또한, 컴퓨터가 읽을 수 있는 기록 매체는 네트워크로 연결된 컴퓨터 시스템에 분산되어, 분산 방식으로 컴퓨터가 읽을 수 있는 코드가 저장되고 실행될 수 있다. 그리고 본 발명을 구현하기 위한 기능적인(functional) 프로그램, 코드 및 코드 세그먼트들은 본 발명이 속하는 기술 분야의 프로그래머들에 의하여 용이하게 추론될 수 있다.

[0061] 이상에서 본 발명에 대하여 그 다양한 실시예들을 중심으로 살펴보았다. 본 발명에 속하는 기술 분야에서 통

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상의 지식을 가진 자는 본 발명이 본 발명의 본질적인 특성에서 벗어나지 않는 범위에서 변형된 형태로 구현될 수 있음을 이해할 수 있을 것이다. 그러므로 개시된 실시예들은 한정적인 관점이 아니라 설명적인 관점에서 고려되어야 한다. 본 발명의 범위는 전술한 설명이 아니라 특허청구범위에 나타나 있으며, 그와 동등한 범위 내에 있는 모든 차이점은 본 발명에 포함된 것으로 해석되어야 할 것이다.

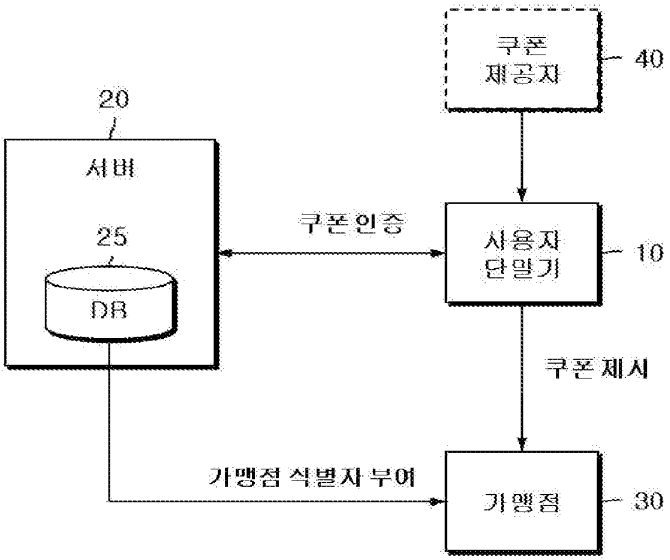
부호의 설명

[0062] 10 : 사용자 단말기 20 : 서버

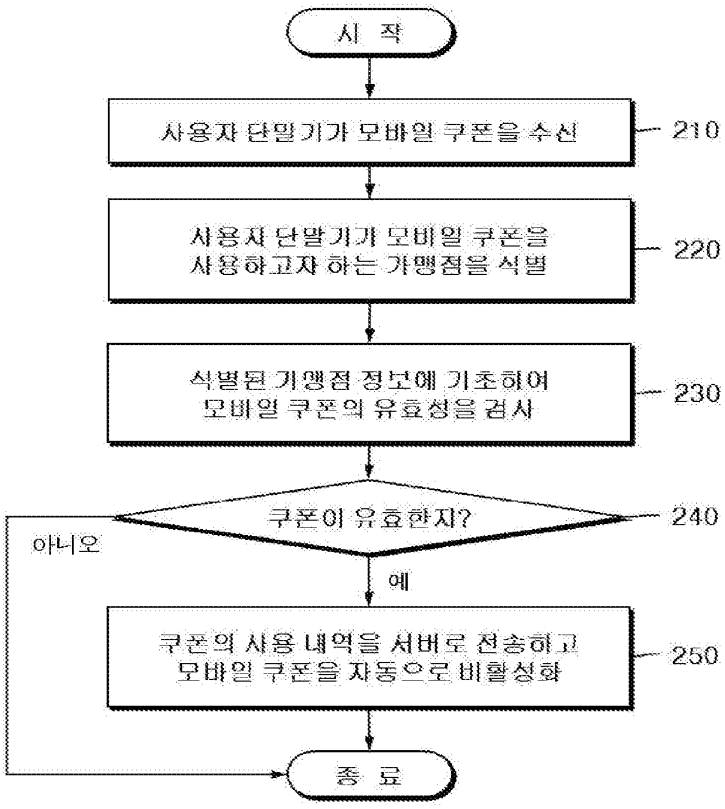
30 : 가맹점 40 : 쿠폰 제공자

도면

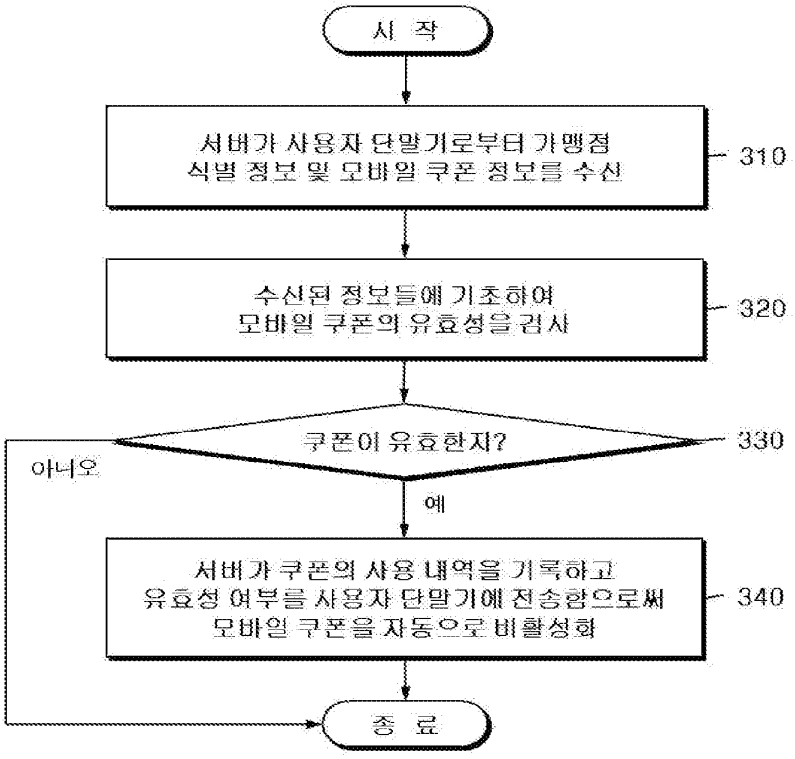
도면1



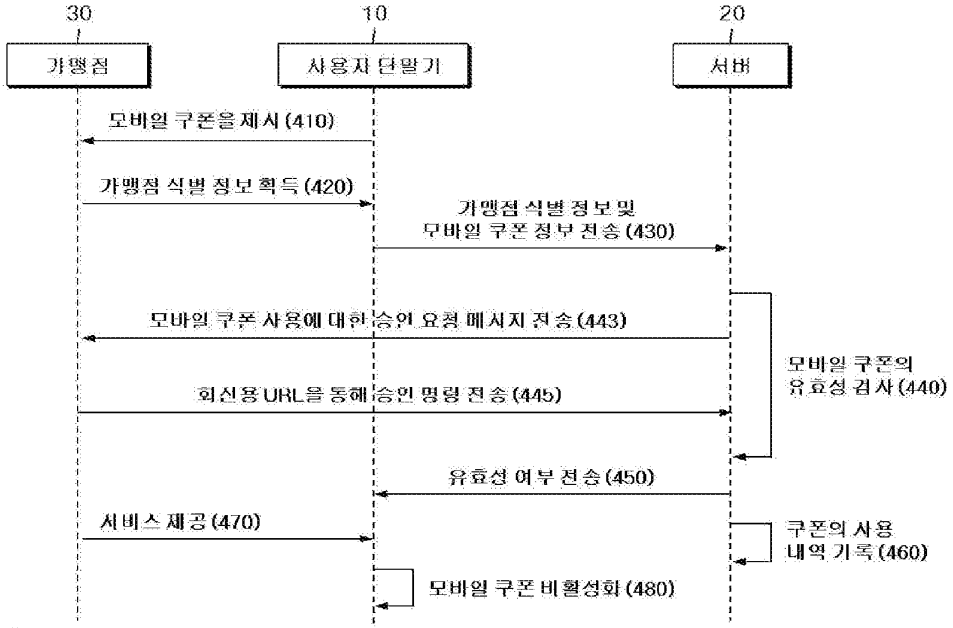
도면2


시 작
사용자 단말기가 모바일 쿠폰을 수신
210
사용자 단말기가 모바일 쿠폰을
사용하고자 하는 가맹점을 식별
220
식별된 가맹점 정보에 기초하여
모바일 쿠폰의 유효성을 검사
230
쿠폰이 유효한지?
240
아니오
예
쿠폰의 사용 내역을 서버로 전송하고
모바일 쿠폰을 자동으로 비활성화
250
종 료

도면3


시 작
서버가 사용자 단말기로부터 가맹점 식별 정보 및 모바일 쿠폰 정보를 수신
310
수신된 정보들에 기초하여 모바일 쿠폰의 유효성을 검사
320
쿠폰이 유효한자?
330
아니오
예
서버가 쿠폰의 사용 내역을 기록하고 유효성 여부를 사용자 단말기에 전송함으로써 모바일 쿠폰을 자동으로 비활성화
340
종 료

도면4


30
10
20
가맹점
사용자 단말기
서버
모바일 쿠폰을 제시 (410)
가맹점 식별 정보 획득 (420)
가맹점 식별 정보 및 모바일 쿠폰 정보 전송 (430)
모바일 쿠폰 사용에 대한 승인 요청 메시지 전송 (443)
모바일 쿠폰의 유효성 검사 (440)
회신용 URL을 통해 승인 명령 전송 (445)
유효성 여부 전송 (450)
서비스 제공 (470)
쿠폰의 사용 내역 기록 (460)
모바일 쿠폰 비활성화 (480)

도면5a

오후 5:20
www.couponfree.co.kr...
Google
최정열 로그아웃
음료무료쿠폰
사용마감시간: 86-09 18:19
48694259
510
520
Delete
530
* 대학로점에서만 가능
* 쿠폰지참 / 1인 1매 사용
* 타쿠폰 및 중복 할인 불가
취소

도면5b

오후 1:44
www.couponfree.co.kr...
Google
최정열 로그아웃
음료무료쿠폰
사용 완료
-사용 일시 : 2010년 11월 9일
(14시 23분 37초)
-사용 장소 : 스타벅스 대학로점
540
-가맹점 번호 : 10027
-제공 내역 : 음료 무료 제공
-사용자명(ID) : 최정열(ccrok)

Abstract of KR20140021323 (A)

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The present invention relates to a coupon providing system using an electronic tag and includes: a portable terminal for reading tag information of an electronic tag which is attached to a predetermined location and transmitting a providing request for a coupon having the tag information and its own identification information; and a card service provider server for generating a coupon corresponding to the tag information and identification information of the portable terminal according to the providing request for a coupon and controlling to perform a discount as described in discount information of the coupon in the process of card payment when receiving a notification that the authentication of the coupon is completed. [Reference numerals] (AA) Start; (BB) End; (S310) Acquiring by reading the tag information of an electronic tag in a portable terminal?; (S320) Portable terminal transmits a coupon providing request having the tag information and its own identification information; (S330) Card service provider server generates a coupon corresponding to the tag information and the identification information of the portable terminal according to the coupon providing request and transmits the coupon to the portable terminal; (S340) Displaying the coupon as inactivated in the portable terminal; (S350) Authentication of the coupon in the portable terminal completed?; (S360) Displaying the coupon as activated in the portable terminal; (S370) Card payment?; (S380) Card service provider server controls to perform a discount as described in discount information of the coupon

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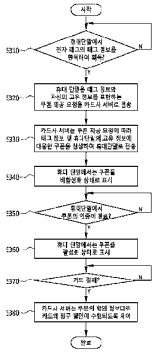
전체 청구항 수 : 총 15 항

(54) 발명의 명칭 **전자 태그를 이용한 쿠폰 제공 시스템 및 방법**

(57) 요 약

본 발명은 전자 태그를 이용한 쿠폰 제공 시스템에 관한 것으로, 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 판독하고, 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송하는 휴대 단말 및 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말로 전송하고, 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 카드 결제 시 쿠폰의 할인 정보대로 청구 할인이 수행되도록 제어하는 카드사 서버를 포함한다.

대 표 도 - 도3



특허청구의 범위

청구항 1

휴대 단말이 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 판독하고, 상기 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송하면, 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하고, 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 이루어지도록 제어하는 카드사 서버

를 포함하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 2

제 1 항에서,

상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰에 대한 정보를 비활성화 상태로 화면에 출력시키는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 3

제 1 항 또는 제 2 항에서,

상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰의 발행을 알리는 확인 메시지를 상기 화면에 출력시키는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 4

제 1 항에서,

상기 휴대 단말은 상기 전자 태그의 판독 시 상기 태그 정보 및 자신의 고유 정보를 자동으로 인식하는 쿠폰 애플리케이션이 실행되도록 제어하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 5

제 1 항에서,

상기 카드사 서버는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 6

제 1 항에서,

상기 휴대 단말은 상기 쿠폰의 인증이 완료되면, 상기 쿠폰에 대한 정보를 활성화 상태로 상기 화면에 출력시키는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 7

제 1 항에서,

상기 카드사 서버는 상기 전자 태그를 판독한 시간이나 날짜 정보, 상기 휴대 단말의 사용자 정보 또는 상기 사용자의 CRM(Customer Relationship Management) 정보에 따라 상기 쿠폰의 할인 정보, 상기 쿠폰의 제공 기간이나 제공 여부가 결정되도록 제어하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 8

제 1 항에서,

상기 카드사 서버는 상기 쿠폰의 발행 예정을 알리는 공지 메시지를 상기 휴대 단말로 전송하고,

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상기 휴대 단말은 상기 공지 메시지를 전송받아 상기 화면에 출력시키는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 9

미리 정해진 위치에 부착된 전자 태그의 태그 정보를 획득한 휴대 단말로부터 상기 태그 정보와 함께 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송받고, 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송함으로써 카드 결제 시 상기 쿠폰의 할인 정보대로 할인이 수행되도록 제어하는 카드사 서버

를 포함하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 10

제 9 항에서,

상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰의 할인 정보를 화면에 출력시키는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 11

제 9 항에서,

상기 카드사 서버는 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하면서 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록하는 전자 태그를 이용한 쿠폰 제공 시스템.

청구항 12

휴대 단말이 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 판독하고, 상기 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송하는 단계;

카드사 서버는 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하는 단계;

상기 카드사 서버는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 수행되도록 제어하는 단계를 포함하는 전자 태그를 이용한 쿠폰 제공 방법.

청구항 13

제 12 항에서,

상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰에 대한 정보를 비활성화 상태로 화면에 출력시키고, 상기 쿠폰의 발행을 알리는 확인 메시지를 상기 화면에 출력시키는 단계를 더 포함하는 전자 태그를 이용한 쿠폰 제공 방법.

청구항 14

제 12 항에서,

상기 청구 할인 단계는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록하는 전자 태그를 이용한 쿠폰 제공 방법.

청구항 15

제 12 항에서,

상기 카드사 서버는 상기 쿠폰의 발행 예정을 알리는 공지 메시지를 상기 휴대 단말로 전송하는 단계;

상기 휴대 단말은 상기 공지 메시지를 전송받아 상기 화면에 출력시키는 단계를 더 포함하는 전자 태그를 이용한 쿠폰 제공 방법.

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명 세 서

기 술 분 야

[0001] 본 발명은 쿠폰 제공 시스템 및 방법에 관한 것으로, 보다 자세하게는 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 나양한 위치에 전자 태그를 설치하고, 이를 이용하여 휴대 단말에 쿠폰을 제공할 수 있는 전자 태그를 이용한 쿠폰 제공 시스템 및 방법에 관한 것이다.

배 경 기 술

[0002] 상품이나 서비스의 취급에 있어서 쿠폰이 자주 사용되고 있으며, 이러한 쿠폰은 할인권, 우대권, 경품교환권으로서 역할을 한다.

[0003] 통상적으로 쿠폰(Coupon)이란 소매상이 백화점 등의 대규모 판매점에 대항하기 위하여 협동 자위 수단으로 발전시킨 신용 판매 방식 또는 이에 사용되는 표로서, 신문, 잡지, 또는 인터넷 상에 광고로서 게재되기도 하고, 쿠폰 북(Coupon book)처럼 책자 등으로 제공되기도 한다. 예를 들어, 쿠폰 사용자들은 해당 쿠폰을 매장에 가지고 가서 제시함으로써 쿠폰 대상 상품 등에 대해 할인 서비스를 받을 수 있다.

[0004] 상술한 종래 쿠폰은 쿠폰 사용자가 신문이나 잡지를 구독하거나, 인터넷을 검색하여 출력하거나 또는 신용 카드 등을 일정 금액 이상 사용하고 쿠폰 북을 우편으로 제공받을 때에만 사용이 가능하고, 이와 같은 쿠폰은 사용시 절취하여야 하는 불편함과 더불어 휴대도 용이하지 않으며, 복사기를 통하여 도용 가능한 문제점이 있었다.

[0005] 그러나 기술이 발전함에 따라 인터넷망을 이용하여 쿠폰 사용자가 인터넷망에 연결된 특정 사이트에 접근한 후, 특정 사이트에 게시된 쿠폰을 다운로드한 후 출력하여 활용하는 방식이 이용되고 있으나, 이러한 방식 또한 쿠폰 사용자가 직접 인터넷망에 연결된 특정 사이트에 접근한 후 쿠폰을 다운로드 하는 등의 과정이 요구되므로 인터넷 환경에 익숙하지 않아 접근성이 떨어지는 소비자의 경우에는 종래의 종이 형태로 공급되는 방식에 비해 소비자 편의성 담보가 충분히 이루어지지 못하는 문제점이 있었다.

선행기술문헌

특허문헌

[0006] (특허문헌 0001) 한국공개특허 제1994-0700711호(공개일: 1994. 02. 23)

발명의 내용

해결하려는 과제

[0007] 본 발명이 해결하고자 하는 과제는 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 다양한 위치에 부착된 전자 태그를 이용하여 휴대 단말에 쿠폰을 제공하고, 제공된 쿠폰의 인증을 통해 카드 결제 시 쿠폰을 제시하지 않더라도 쿠폰의 할인 정보대로 자동 청구 할인할 수 있는 전자 태그를 이용한 쿠폰 제공 시스템 및 방법을 제공함에 있다.

과제의 해결 수단

[0008] 이러한 과제를 해결하기 위한 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 시스템은 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 판독하고, 상기 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송하는 휴대 단말; 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하고, 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보받으면, 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 이루어지도록 제어하는 카드사 서버를 포함한다.

[0009] 상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰에 대한 정보를 비활성화 상태로 화면에 출력시킬 수 있다.

[0010] 상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰의 발행을 알리는 확인 메시지를 상기 화면에 출력시킬 수 있다.

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[0011] 상기 휴대 단말은 상기 전자 태그의 판독 시 상기 태그 정보 및 자신의 고유 정보를 자동으로 인식하는 쿠폰 애플리케이션이 실행되도록 제어할 수 있다.

[0012] 상기 카드사 서버는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록할 수 있다.

[0013] 상기 휴대 단말은 상기 쿠폰의 인증이 완료되면, 상기 쿠폰에 대한 정보를 활성화 상태로 상기 화면에 출력시킬 수 있다.

[0014] 상기 카드사 서버는 상기 전자 태그를 판독한 시간이나 날짜 정보, 상기 휴대 단말의 사용자 정보 또는 상기 사용자의 CRM(Customer Relationship Management) 정보에 따라 상기 쿠폰의 할인 정보, 상기 쿠폰의 제공 기간이나 제공 여부가 결정되도록 제어할 수 있다.

[0015] 상기 카드사 서버는 상기 쿠폰의 발행 예정을 알리는 공지 메시지를 상기 휴대 단말로 전송하고, 상기 휴대 단말은 상기 공지 메시지를 전송받아 상기 화면에 출력시킬 수 있다.

[0016] 한편, 본 발명의 다른 실시예에 따른 전자 태그를 이용한 쿠폰 제공 시스템은 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 획득한 휴대 단말로부터 상기 태그 정보와 함께 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송받고, 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송함으로써 카드 결제 시 상기 쿠폰의 할인 정보대로 할인이 수행되도록 제어하는 카드사 서버를 포함할 수 있다.

[0017] 상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰의 할인 정보를 화면에 출력시킬 수 있다.

[0018] 상기 카드사 서버는 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하면서 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록할 수 있다.

[0019] 또 한편, 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 방법은 휴대 단말이 미리 정해진 위치에 부착된 전자 태그의 태그 정보를 판독하고, 상기 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 전송하는 단계; 카드사 서버는 상기 쿠폰 제공 요청에 따라 상기 태그 정보 및 상기 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 상기 휴대 단말로 전송하는 단계; 상기 카드사 서버는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 카드 결제 시 상기 쿠폰의 할인 정보대로 청구 할인이 수행되도록 제어하는 단계를 포함할 수 있다.

[0020] 상기 휴대 단말은 상기 카드사 서버로부터 생성된 쿠폰을 수신하면, 상기 쿠폰에 대한 정보를 비활성화 상태로 화면에 출력시키고, 상기 쿠폰의 발행을 알리는 확인 메시지를 상기 화면에 출력시키는 단계를 더 포함할 수 있다.

[0021] 상기 청구 할인 단계는 상기 휴대 단말로부터 상기 쿠폰의 인증 완료를 통보 받으면, 상기 쿠폰에 대응한 상기 휴대 단말의 사용자 정보를 확인하여 상기 카드 결제 시 상기 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 상기 휴대 단말의 사용자 정보에 상기 쿠폰의 할인 정보를 등록할 수 있다.

[0022] 상기 카드사 서버는 상기 쿠폰의 발행 예정을 알리는 공지 메시지를 상기 휴대 단말로 전송하는 단계 및 상기 휴대 단말은 상기 공지 메시지를 전송받아 상기 화면에 출력시키는 단계를 더 포함할 수 있다.

발명의 효과

[0023] 이와 같이 본 발명의 실시예에 따른 전자 태그를 이용한 쿠폰 제공 시스템 및 방법에 따르면, 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 다양한 위치에 부착된 전자 태그를 이용하여 휴대 단말에 쿠폰을 제공하고, 제공된 쿠폰의 인증을 통해 카드 결제 시 쿠폰을 제시하지 않더라도 쿠폰의 할인 정보대로 자동 청구 할인할 수 있는 장점이 있다.

[0024] 즉, 전자 태그 기반의 비접촉 방식을 이용하여 쿠폰을 제공받아 카드 결제 시 활용할 수 있으므로 기존에 사용자가 직접 할인 쿠폰을 수령한 후 관리하고 제시하는 등의 불편함을 해소할 수 있는 장점이 있다.

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[0025] 또한, 전자 태그의 위치에 기초하여 매장의 식별 정보에 상응하는 쿠폰을 휴대 단말로 제공받을 수 있으므로 이를 이용하여 보다 효과적으로 쿠폰 서비스를 제공받을 수 있다.

[0026] 또, 매장을 운영하는 운영자의 입장에서는 사용자 정보 및 사용자의 CRM 정보를 활용하여 시간대별로 할인율을 정할 수 있고, 비수기의 경우에만 할인혜택을 줄 수 있도록 할인기간을 정할 수 있기 때문에 자사에 충성도 높은 고객을 유치할 수 있는 장점이 있다.

[0027] 게다가, 일정 지역에 위치한 매장 등에 설치된 전자 태그를 사용하여 원하는 쿠폰을 현장에서 용이하게 확보할 수 있다. 이에 따라, 원하는 쿠폰을 확보하기 위해 신문 또는 잡지를 구독하거나 집 등에서 인터넷을 검색하거나, 또는 신용카드 등을 일정 금액 이상 사용하고 쿠폰 북을 제공받는 등의 별도의 노력을 기울일 필요가 없다.

[0028] 아울러, 매장이 위치한 일정 지역을 방문하는 쿠폰을 사용하는 사용자로 매우 특정적이고, 또한 매장이 위치한 특정 지역에서 집중적인 광고가 가능하므로 매출 증대 가능성이 현저하게 높아지는 장점이 있다.

[0029] 또한, 미사용 쿠폰의 발생 가능성이 전혀 없거나 상당히 감소되므로 불필요한 사회적 비용 및 시간이 현저하게 감소되는 장점이 있다.

도면의 간단한 설명

[0030] 도 1은 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 시스템의 개략적인 구성도이다.

도 2는 도 1에 도시한 휴대 단말의 상세 구성도이다.

도 3은 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 과정을 보여주는 동작 흐름도이다.

도 4는 본 발명의 다른 실시예에 따른 전자 태그를 이용한 쿠폰 제공 과정을 보여주는 동작 흐름도이다.

발명을 실시하기 위한 구체적인 내용

[0031] 본 명세서 및 청구범위에 사용된 용어나 단어는 통상적이거나 사전적인 의미로 한정해서 해석되어서는 아니 되며, 발명자는 그 자신의 발명을 가장 최선의 방법으로 설명하기 위해 용어의 개념을 적절하게 정의할 수 있다는 원칙에 입각하여 본 발명의 기술적 사상에 부합하는 의미와 개념으로 해석되어야만 한다.

[0032] 따라서 본 명세서에 기재된 실시예와 도면에 도시된 구성은 본 발명의 가장 바람직한 일 실시예에 불과할 뿐이고 본 발명의 기술적 사상을 모두 대변하는 것은 아니므로, 본 출원시점에 있어서 이들을 대체할 수 있는 다양한 균등물과 변형 예들이 있을 수 있음을 이해하여야 한다.

[0033] 이하, 첨부된 도면을 참조하여 본 발명의 실시예를 상세히 설명한다.

[0034] 도 1은 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 시스템의 개략적인 구성도 및 도 2는 도 1에 도시한 휴대 단말의 상세 구성도를 나타낸다.

[0035] 도 1 및 도 2에 도시한 바와 같이, 전자 태그를 이용한 쿠폰 제공 시스템(1)은 휴대 단말(100) 및 카드사 서버(200)를 포함하여 구성된다.

[0036] 휴대 단말(100)은 미리 정해진 위치에 부착된 전자 태그(30)의 태그 정보를 판독하고, 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버(200)에 전송할 수 있다.

[0037] 보다 구체적으로 설명하면, 휴대 단말(100)은 리더부(120), 제어부(140) 및 화면(160)을 포함하는 사용자 단말기로, 이 중에서 리더부(120)는 미리 정해진 위치에 부착된 전자 태그(30)의 태그 정보를 판독하는 수단으로서, 전자 태그의 태그 정보를 판독할 수 있는 전자 태그 리더기가 휴대 단말(100)의 외부 또는 내부에 설치될 수 있다.

[0038] 이때, 전자 태그(30)는 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 가맹점과 같은 매장의 입구나 화장실 또는 계산대 등과 같이 사람들이 자주 이동하면서 접근할 수 있는 위치에 부착될 수 있으며, 휴대 단말(100)이 근접하면 메모리 수단에 저장된 태그 정보를 무선 통신 방식으로 제공할 수 있고, 13.56MHz 주파수 대역을 사용하는 비접촉식 근거리 무선 통신 모듈로 10cm의 가까운 거리에서 단말기 간 데이터를 전송하는 NFC(Near Field Communication) 태그 등으로 구현할 수 있으며, 기타 다양한 형태의 전자 태그를 이용할 수 있다.

[0039] 또한, 태그 정보는 해당 전자 태그(30)가 설치된 매장의 정보를 포함할 수 있으며, 이때, 매장의 정보로는 해당

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매장의 식별 정보(매장 이름, 매장 코드 등), 매장을 운영하는 운영자 정보, 매장의 위치 정보, 매장에서 판매하는 상품이나 가격 정보 등이 포함될 수 있다.

[0040] 또, 휴대 단말(100)의 고유 정보는 휴대 단말(100)의 기기 번호나 휴대 단말(100)을 이용하는 사용자 정보를 포함할 수 있으며, 이때, 사용자 정보로는 사용자 식별 정보(예컨대, 나이, 성별, 직업, 주민번호, 비밀번호, 사용자 아이디 등)를 포함할 수 있다. 휴대 단말(100)의 고유 정보는 휴대 단말(100)에 장착되는 USIM 칩, SD 카드 또는 기타 메모리 모듈에 저장될 수 있다. 물론 실시예에 따라 휴대 단말(100)의 고유 정보는 휴대 단말(100)의 기기 번호만을 포함할 수도 있다.

[0041] 제어부(140)는 휴대 단말(100)을 전반적으로 제어하는 기능을 수행하며, 쿠폰 애플리케이션(142)을 포함할 수 있으며, 쿠폰 애플리케이션(142)을 통해 리더부(120)에서 판독한 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버(200)에 전송할 수 있다. 즉, 제어부(140)는 전자 태그(30)의 판독 시 자동으로 태그 정보 및 자신의 고유 정보를 인식하는 쿠폰 애플리케이션(142)이 실행되도록 제어할 수 있다.

[0042] 사용자가 해당 매장에 부착된 전자 태그(30)에 휴대 단말(100)을 근접시키면, 휴대 단말(100)의 쿠폰 애플리케이션(142)이 자동으로 실행되면서 리더부(120)를 통해 전자 태그(30)의 태그 정보를 판독하고, 판독한 태그 정보 및 휴대 단말의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버(200)에 전송할 수 있다.

[0043] 이러한 휴대 단말(100)은 스마트폰, 태블릿 PC(Personal Computer), 개인 휴대 정보 단말기(Personal Digital Assistant, PDA), 웹 패드 등과 같이 메모리 수단을 구비하고 마이크로프로세서(microprocessor)를 탑재하여 연산 능력을 갖춘 이동 통신 기능을 구비한 단말기로 이루어질 수 있으며, 다양한 애플리케이션이 설치되어 사용자에게 다양한 서비스를 제공할 수 있다.

[0044] 카드사 서버(200)는 카드에 대한 결제를 수행하는 수단으로, 통신망(10)을 통해 휴대 단말(100)과 연결되어 각종 정보나 데이터를 교환할 수 있도록 구성된다.

[0045] 여기서, 통신망(10)은 구내 정보 통신망(local area network, LAN), 도시권 통신망(metropolitan area network, MAN), 광역 통신망(wide area network, WAN), 인터넷, 2G, 3G, 4G 이동 통신망, 와이파이(Wi-Fi), 와이브로(Wibro) 등을 포함할 수 있으며, 통신 방식도 유선, 무선을 가리지 않으며 어떠한 통신 방식이라도 상관없다.

[0046] 카드사 서버(200)는 휴대 단말(100)에서 전송된 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말(100)의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말(100)로 전송할 수 있다. 이때, 카드사 서버(200)는 태그 정보에 포함된 해당 매장의 정보와 휴대 단말(100)의 고유 정보를 조합하여 쿠폰 번호를 생성하고, 생성된 쿠폰 번호가 휴대 단말(100)에 전송되도록 제어할 수 있다.

[0047] 또한, 카드사 서버(200)는 태그 정보에 포함된 해당 매장의 정보와 휴대 단말(100)의 고유 정보를 조합하여 복수 개의 쿠폰을 생성하고, 생성된 복수 개의 쿠폰 번호가 휴대 단말(100)에 전송되도록 제어할 수 있다. 예를 들어, 카드사 서버(200)는 "5만원 이상 결제 시 5천원 청구 할인 쿠폰(제1 쿠폰)"과 "10만원 이상 결제 시 1만원 청구 할인 쿠폰(제2 쿠폰)"을 생성할 수 있고, 생성된 2개의 쿠폰을 휴대 단말(100)에 전송하여 사용자가 원하는 쿠폰을 선택하여 사용할 수 있게 한다.

[0048] 이에 따라, 휴대 단말(100)에서는 쿠폰의 발행을 알리는 확인 메시지를 화면(160)에 출력시킬 수 있으며, 쿠폰에 대한 정보가 비활성화 상태로 화면에 출력되도록 제어할 수 있다. 보다 자세하게 설명하면, 휴대 단말(100)에서는 쿠폰이 수신되면, 쿠폰 애플리케이션(142)을 통해 "쿠폰이 발행되었습니다."와 같은 쿠폰의 발행을 알리는 확인 메시지가 화면(160)에 출력될 수 있으며, 이와 함께 쿠폰함에 비활성화 상태의 쿠폰이 표시되어 사용자에게 쿠폰의 발행을 안내할 수 있게 한다.

[0049] 그리고, 휴대 단말(100)에서는 비활성화 상태의 쿠폰 중에서 사용자가 원하는 쿠폰이 선택되면, 쿠폰의 인증이 수행될 수 있도록 하고, 쿠폰의 인증이 완료되면, 쿠폰에 대한 정보가 활성화 상태로 화면(160)에 출력될 수 있게 한다. 쿠폰 인증을 수행할 때 휴대 단말(100)은 사용자 정보를 카드사 서버(200)로 전달할 수 있다.

[0050] 이때, 쿠폰의 인증은 공인 인증서, 아이디(ID)/비번(Password), 카드 인증 또는 카드 비밀번호 등을 이용한 다양한 인증 방법을 통해 수행될 수 있으며, 쿠폰의 인증이 완료되면, 쿠폰에 대한 정보가 활성화되어 사용 가능한 상태로 표시될 수 있다.

[0051] 또한, 카드사 서버(200)는 휴대 단말(100)에서 쿠폰의 인증이 완료되어 휴대단말(100)로부터 쿠폰의 인증 완료

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를 통보 받으면, 카드 결제 시 쿠폰에 따른 할인 정보대로 청구 할인이 수행되도록 제어할 수 있다.

[0052] 보다 상세하게 설명하면, 카드사 서버(200)는 휴대 단말(100)로부터 쿠폰의 인증 완료를 통보 받으면, 쿠폰에 대응한 휴대 단말(100)의 사용자 정보를 확인하여 카드 결제 시 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 휴대 단말의 사용자 정보에 쿠폰의 할인 정보를 등록할 수 있다.

[0053] 일례로, "이마트 5만원 이상 결제 시 5천원 청구 할인" 쿠폰이 전송된 휴대 단말(100)의 사용자 정보가 (홍길동, 790514-XXXXXXX, 서울시 관악구 대학동)일 경우, 홍길동이 이마트에서 카드로 결제하였을 때 카드의 청구 할인이 수행되도록 카드사 서버(200)는 카드사 서버(200)에 저장된 홍길동에 대한 정보에 이마트 5만원 이상 결제 시 5천원 청구 할인에 대한 정보가 등록되도록 제어할 수 있다.

[0054] 한편, 휴대 단말(100)에서는 카드사 서버(200)로부터 생성된 쿠폰이 전송되면, 쿠폰의 할인 정보를 화면(160)에 출력시키고, 쿠폰의 인증 작업이 없이도 카드사 서버(200)로 하여금 카드 결제 시 쿠폰의 할인 정보대로 할인이 이루어지도록 제어할 수 있다.

[0055] 보다 상세하게 설명하면, 카드사 서버(200)에서 휴대 단말(100)의 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말(100)의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말(100)로 전송하고, 이와 함께 쿠폰에 대응한 휴대 단말(100)의 사용자 정보를 확인하여 사용자가 카드를 결제할 때 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 휴대 단말(100)의 사용자 정보에 쿠폰의 할인 정보를 등록 및 적용할 수 있게 한다.

[0056] 또는, 휴대 단말(100)에서는 카드사 서버(200)로부터 생성된 쿠폰이 전송되면, 쿠폰의 할인 정보를 화면(160)에 출력시키고, 카드사 서버(200)로 하여금 카드 결제 시 쿠폰의 할인 정보대로 카드의 할인이 바로 적용되도록 제어할 수 있음은 물론이다. 일례로, 휴대 단말(100)로 전송된 쿠폰이 "이마트 3만원 이상 결제 시 3천원 즉시 할인"에 대한 쿠폰일 경우, 사용자가 카드로 결제하면, 계산된 전체 금액에서 3천원이 제외한 금액으로 결제가 이루어질 수 있다.

[0057] 또한, 카드사 서버(200)는 전자 태그(30)를 판독한 시간이나 날짜 정보, 휴대 단말(100)의 사용자 정보 또는 사용자의 CRM(Customer Relationship Management) 정보에 따라 쿠폰의 할인 정보, 쿠폰의 제공 기간이나 제공 여부가 결정되도록 제어할 수 있다.

[0058] 보다 구체적으로 설명하면, 카드사 서버(200)는 사용자의 CRM 정보(사용자의 카드 사용 실적 또는 해당 매장의 방문 횟수)에 따라 쿠폰의 할인율을 다르게 적용하거나 특정한 시간 대에만 쿠폰이 발급되도록 제어할 수 있다. 예컨대, 매장에 사람이 드문 시간대인 오전 10시~12시에만 쿠폰이 발행되거나 쿠폰의 할인율이 높게 적용되도록 제어할 수 있다. 또한, 카드사 서버(200)는 휴대 단말(100)의 사용자 정보가 20대 여자인 경우에만 해당 매장에 대한 쿠폰의 할인율이 높게 적용되도록 제어할 수 있다.

[0059] 지금까지 설명한 내용을 예를 들어 설명하면, 이마트에 온 고객은 이마트의 입구에 부착된 전자 태그를 확인한 후, 전자 태그에 휴대 단말을 근접시켜 휴대 단말에서 전자 태그의 태그 정보를 판독하게 한다. 그러면, 휴대 단말의 쿠폰 애플리케이션이 자동으로 실행되면서 쿠폰에 대한 확인 메시지와 함께 쿠폰함에 비활성화 상태의 쿠폰이 표시된다. 이에 따라, 고객이 비활성화 상태의 쿠폰을 선택하고, 아이디와 비번을 입력하여 쿠폰의 본인 인증을 완료하면, "이마트 5만원 이상 결제 시 5천원 청구 할인"과 같이 쿠폰은 활성화 상태로 화면에 출력되어 사용 가능한 상태로 표기될 수 있다. 이때, 고객이 자신의 카드로 결제를 수행하면, 쿠폰을 계산원에게 제시하지 않더라도 쿠폰에 있는 할인율대로 청구 할인이 자동으로 수행되게 할 수 있다.

[0060] 한편, 카드사 서버(200)는 쿠폰의 발행 예정을 알리는 공지 메시지를 휴대 단말(100)에 전송하고, 휴대 단말(100)에서는 카드사 서버(200)로부터 공지 메시지를 전송받아 화면(160)에 출력할 수 있다. 예컨대, 휴대 단말(100)에서는 "오늘 오후 2시 ~ 3시 사이에 쿠폰이 발행될 예정입니다."와 같은 쿠폰의 발행 예정을 알리는 공지 메시지를 화면(160)에 출력하여 휴대 단말의 사용자에게 미리 안내할 수 있게 할 수 있다.

[0061] 또한, 카드사 서버(200)는 공지 메시지에 쿠폰의 할인 내용이나 쿠폰이 제공되는 날짜 및 시간에 대한 정보가 보다 구체적으로 포함되도록 제어함으로써 휴대 단말의 사용자로 하여금 원하는 쿠폰을 선택하여 제공받을 수 있게 한다. 예를 들어, 카드사 서버(200)는 휴대 단말(100)로 "2012년 7월 7일 오후 2시 ~ 3시 이마트 5만원 이상 결제 시 10% 청구 할인 쿠폰을 선착순 100명에게 증정할 예정입니다."와 같은 공지 메시지를 전송하여 휴대 단말의 사용자에게 쿠폰에 대한 보다 정확한 정보를 미리 안내한다.

[0062] 이하에서는 본 발명의 다양한 실시예에 따른 전자 태그를 이용한 쿠폰 제공 과정에 대하여 설명하도록 한다.

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[0063] 도 3은 본 발명의 일 실시예에 따른 전자 태그를 이용한 쿠폰 제공 과정을 보여주는 동작 흐름도를 나타낸다.

[0064] 도 3을 참조하면, 휴대 단말(100)은 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 다양한 위치에 부착된 전자 태그(30)의 태그 정보를 판독하여 태그 정보가 획득되었는지 판단하고(S310), 상기 판단한 결과에서 태그 정보가 획득되었으면(S310-Y), 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버(200)로 전송한다(S320).

[0065] 그리고, 카드사 서버(200)에서는 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말(100)의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말(100)로 전송한다(S330).

[0066] 이때, 카드사 서버(200)에서는 복수 개의 쿠폰을 생성하여 휴대 단말(100)로 전송할 수 있는데, 예를 들어, 카드사 서버(200)는 태그 정보에 포함된 해당 매장의 정보와 휴대 단말(100)의 고유 정보를 조합하여 "5만원 이상 결제 시 5천원 청구 할인 쿠폰(제1 쿠폰)" 과 "10만원 이상 결제 시 1만원 청구 할인 쿠폰(제2 쿠폰)" 인 2개의 쿠폰을 생성할 수 있고, 생성된 2개의 쿠폰을 휴대 단말(100)에 전송하여 사용자가 원하는 쿠폰을 선택하여 사용할 수 있도록 한다.

[0067] 그러면, 휴대 단말(100)에서는 쿠폰을 비활성화 상태로 화면에 표시하여(S340) 사용자가 쿠폰을 선택하고, 쿠폰에 대한 인증이 수행될 수 있게 한다.

[0068] 다음으로, 휴대 단말(100)에서 쿠폰의 인증이 완료되었는지 판단하여(S350) 휴대 단말(100)에서 쿠폰의 인증이 완료되었으면(S350-Y), 휴대 단말(100)에서는 쿠폰을 활성화 상태로 화면에 표시하여(S360) 사용 가능하게 표기한다.

[0069] 이때, 카드사 서버(200)는 휴대 단말(100)로부터 쿠폰의 인증 완료를 통보 받으면, 쿠폰에 대응한 휴대 단말(100)의 사용자 정보를 확인하여 카드 결제 시 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 휴대 단말의 사용자 정보에 쿠폰의 할인 정보를 등록할 수 있다.

[0070] 일례로, "이마트 5만원 이상 결제 시 5천원 청구 할인" 쿠폰이 전송된 휴대 단말(100)의 사용자 정보가 (홍길동, 790514-XXXXXXX, 서울시 관악구 대학동)일 경우, 홍길동이 이마트에서 카드로 결제하였을 때 카드의 청구 할인이 수행되도록 카드사 서버(200)는 카드사 서버(200)에 저장된 홍길동에 대한 정보에 이마트 5만원 이상 결제 시 5천원 청구 할인에 대한 정보가 등록되도록 제어할 수 있다.

[0071] 그 다음, 휴대 단말(100)에 대응한 사용자의 카드가 결제되었는지 판단하여(S370) 휴대 단말(100)에 대응한 사용자의 카드가 결제되었으면(S370-Y), 카드사 서버(200)에서는 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 제어한다(S380).

[0072] 도 4는 본 발명의 다른 실시예에 따른 전자 태그를 이용한 쿠폰 제공 과정을 보여주는 동작 흐름도를 나타낸다.

[0073] 도 4를 참조하면, 휴대 단말(100)은 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 다양한 위치에 부착된 전자 태그(30)의 태그 정보를 판독하여 태그 정보가 획득되었는지 판단하고(S410), 상기 판단한 결과에서 태그 정보가 획득되었으면(S410-Y), 태그 정보 및 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버(200)로 전송한다(S420).

[0074] 그리고, 카드사 서버(200)에서는 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말(100)로 전송하고(S430), 휴대 단말(100)에서는 쿠폰에 대한 정보 즉, 쿠폰에 대한 할인 정보를 화면(160)에 표시할 수 있다(S440).

[0075] 이때, 카드사 서버(200)에서 휴대 단말(100)의 쿠폰 제공 요청에 따라 태그 정보 및 휴대 단말(100)의 고유 정보에 대응한 쿠폰을 생성하여 휴대 단말(100)로 전송하고, 이와 함께 쿠폰에 대응한 휴대 단말(100)의 사용자 정보를 확인하여 사용자가 카드를 결제할 때 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 휴대 단말(100)의 사용자 정보에 쿠폰의 할인 정보를 등록 및 적용할 수 있다.

[0076] 다음으로, 휴대 단말(100)에 대응한 사용자의 카드가 결제되었는지 판단하여(S450) 휴대 단말(100)에 대응한 사용자의 카드가 결제되었으면(S450-Y), 카드사 서버(200)에서는 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 제어한다(S460).

[0077] 또는, 휴대 단말(100)에서는 카드사 서버(200)로부터 생성된 쿠폰이 전송되면, 쿠폰의 할인 정보를 화면(160)에 출력시키고, 카드 결제 시 쿠폰의 할인 정보대로 카드 할인이 즉시 적용되도록 제어할 수 있음은 물론이다.

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[0078] 이와 같이, 백화점이나 할인 마트와 같은 대형 유통 매장 또는 패밀리 레스토랑 등의 미리 정해진 다양한 위치에 부착된 전자 태그를 이용하여 휴대 단말에 쿠폰을 제공하고, 제공된 쿠폰의 인증을 통해 카드 결제 시 쿠폰을 제시하지 않더라도 쿠폰의 할인 정보대로 자동 청구 할인할 수 있기 때문에 보다 효과적으로 쿠폰 서비스를 제공받을 수 있다.

[0079] 한편, 카드사 서버(200)는 쿠폰의 발행 예정을 알리는 공지 메시지를 휴대 단말(100)로 전송하고, 휴대 단말(100)에서는 카드사 서버(200)로부터 공지 메시지를 전송받아 화면(160)에 출력할 수 있다. 예컨대, 휴대 단말(100)에서는 "오늘 오후 2시 ~ 3시 사이에 쿠폰이 발행될 예정입니다."와 같은 쿠폰의 발행 예정을 알리는 공지 메시지를 화면(160)에 출력하여 휴대 단말의 사용자에게 미리 안내할 수 있게 한다.

[0080] 또한, 카드사 서버(200)는 공지 메시지에 쿠폰의 할인 내용이나 쿠폰이 제공되는 날짜 및 시간에 대한 정보가 보다 구체적으로 포함되도록 제어함으로써 휴대 단말의 사용자로 하여금 원하는 쿠폰을 선택하여 제공받을 수 있게 한다. 예를 들어, 카드사 서버(200)는 휴대 단말(100)로 "2012년 7월 7일 오후 2시 ~ 3시 이마트 5만원 이상 결제 시 10% 청구 할인 쿠폰을 선착순 100명에게 증정할 예정입니다."와 같은 공지 메시지를 전송하여 휴대 단말의 사용자에게 쿠폰에 대한 보다 정확한 정보를 미리 안내할 수 있게 한다.

[0081] 본 발명의 일 실시예는 다양한 컴퓨터로 구현되는 동작을 수행하기 위한 프로그램 명령을 포함하는 컴퓨터로 읽을 수 있는 매체를 포함한다. 이 매체는 앞서 설명한 전자 태그를 이용한 쿠폰 제공 방법을 실행시키기 위한 프로그램을 기록한다. 이 매체는 프로그램 명령, 데이터 파일, 데이터 구조 등을 단독으로 또는 조합하여 포함할 수 있다. 이러한 매체의 예에는 하드디스크, 플로피디스크 및 자기 테이프와 같은 자기 매체, CD 및 DVD와 같은 광기록 매체, 플롭티컬 디스크(floptical disk)와 자기-광 매체, 롬, 램, 플래시 메모리 등과 같은 프로그램 명령을 저장하고 수행하도록 구성된 하드웨어 장치 등이 있다. 또는 이러한 매체는 프로그램 명령, 데이터 구조 등을 지정하는 신호를 전송하는 반송파를 포함하는 광 또는 금속선, 도파관 등의 전송 매체일 수 있다. 프로그램 명령의 예에는 컴파일러에 의해 만들어지는 것과 같은 기계어 코드뿐만 아니라 인터프리터 등을 사용해서 컴퓨터에 의해서 실행될 수 있는 고급 언어 코드를 포함한다.

[0082] 이상의 상세한 설명은 본 발명을 예시하는 것이다. 또한 전술한 내용은 본 발명의 바람직한 실시 형태를 나타내고 설명하는 것에 불과하며, 본 발명은 다양한 다른 조합, 변경 및 환경에서 사용할 수 있다. 즉, 본 명세서에 개시된 발명의 개념의 범위, 저술한 개시 내용과 균등한 범위 및/또는 당업계의 기술 또는 지식의 범위 내에서 변경 또는 수정이 가능하다. 전술한 실시예들은 본 발명을 실시하는데 있어 최선의 상태를 설명하기 위한 것이며, 본 발명과 같은 다른 발명을 이용하는데 당업계에 알려진 다른 상태로의 실시, 그리고 발명의 구체적인 적용 분야 및 용도에서 요구되는 다양한 변경도 가능하다. 따라서, 이상의 발명의 상세한 설명은 개시된 실시 상태로 본 발명을 제한하려는 의도가 아니다. 또한 첨부된 청구범위는 다른 실시 상태도 포함하는 것으로 해석되어야 한다.

부호의 설명

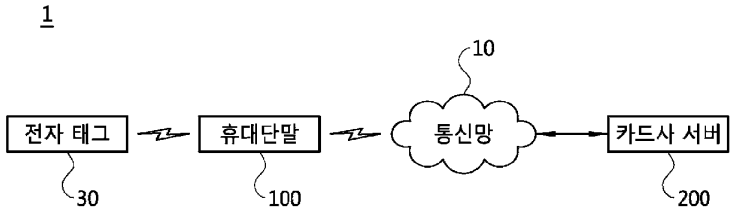
[0083] 1: 전자 태그를 이용한 쿠폰 제공 시스템

10: 통신망 30: 전자 태그

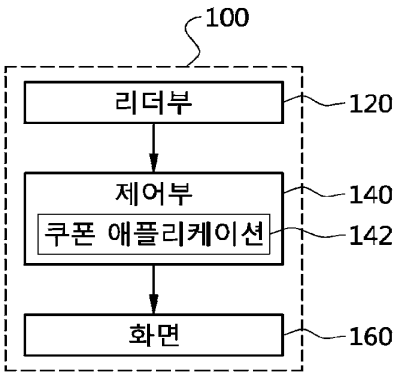
100: 휴대 단말 200: 카드사 서버

도면

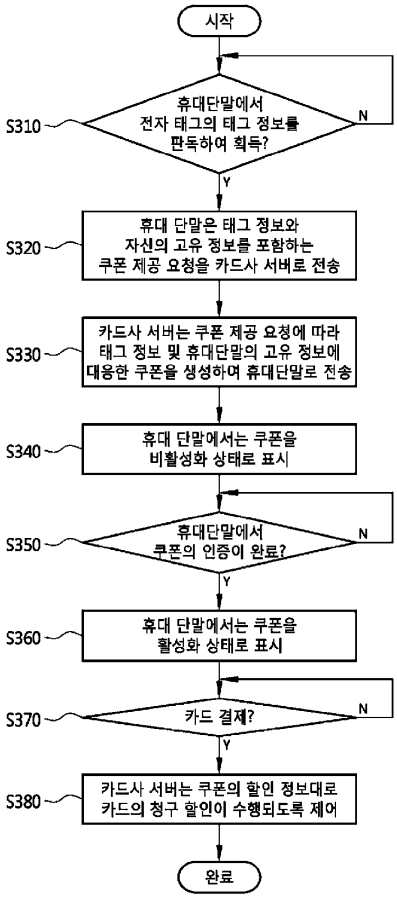
도면1



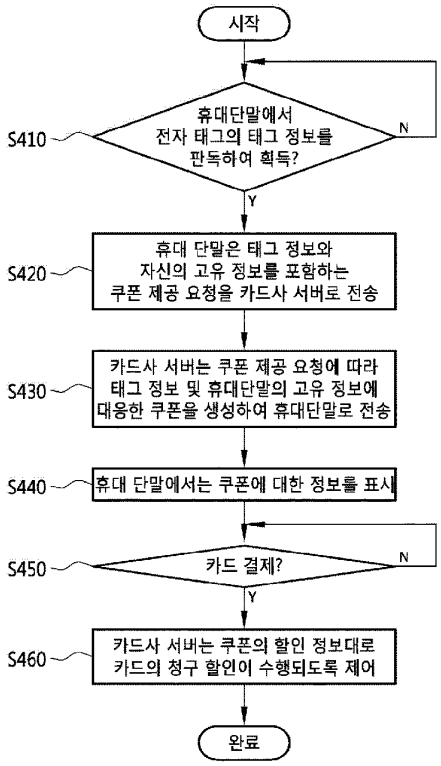
도면2


100
리더부
120
제어부
140
쿠폰 애플리케이션
142
화면
160

도면3


시작
S310
휴대단말에서 전자 태그의 태그 정보를 판독하여 획득?
N
Y
S320
휴대 단말은 태그 정보와 자신의 고유 정보를 포함하는 쿠폰 제공 요청을 카드사 서버로 전송
S330
카드사 서버는 쿠폰 제공 요청에 따라 태그 정보 및 휴대단말의 고유 정보에 대응한 쿠폰을 생성하여 휴대단말로 전송
S340
휴대 단말에서는 쿠폰을 비활성화 상태로 표시
S350
휴대단말에서 쿠폰의 인증이 완료?
N
Y
S360
휴대 단말에서는 쿠폰을 활성화 상태로 표시
S370
카드 결제?
N
Y
S380
카드사 서버는 쿠폰의 할인 정보대로 카드의 청구 할인이 수행되도록 제어
완료

도면4


시작
휴대단말에서
전자 태그의 태그 정보를
판독하여 획득?
N
Y
S410
휴대 단말은 태그 정보와
자신의 고유 정보를 포함하는
쿠폰 제공 요청을 카드사 서버로 전송
S420
카드사 서버는 쿠폰 제공 요청에 따라
태그 정보 및 휴대단말의 고유 정보에
대응한 쿠폰을 생성하여 휴대단말로 전송
S430
휴대 단말에서는 쿠폰에 대한 정보를 표시
S440
카드 결제?
N
Y
S450
카드사 서버는 쿠폰의 할인 정보대로
카드의 청구 할인이 수행되도록 제어
S460
완료

결제 시스템 및 방법

SYSTEM AND METHOD FOR PAYMENT

(51) Int. CL	G06Q 20/32(2013.02.08) G06Q 20/20(2014.12.30) G06K 7/10 (2014.12.30) H04B 5/02(2014.12.30)
(52) CPC	
(21) Application No.(Date)	1020120154748 (2012.12.27)
(71) Applicant	MOZIDO CORFIRE – KOREA, LTD.
(11) Registration No.(Date)	1015147490000 (2015.04.17)
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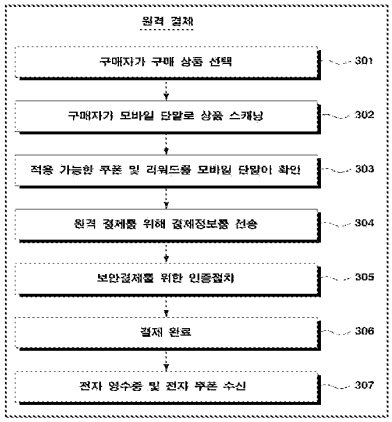
(87) Int'l Unex. Pub. No.(Date)	
(30) Priority info. (Country / No. / Date)	US(미국) | 61/581,849 | 2011.12.30
Legal Status	**Registered**
Examination Status	Decision to grant after reexamination
Trial Info	
Kind/Right of Org. Application	New Application /
Right of Org. Application No.(Date)	
Related Application No.	
Request for an examination(Date)	Y(2012.12.27)
Number of examination claims	6



PURPOSE: A payment system and a method are provided to remotely pay payments through a payment unit which is stored in a secure element (SE) of a mobile terminal.CONSTITUTION: A purchaser selects a product (301). The purchaser scans products by using a mobile terminal (302). The mobile terminal confirms whether or not a coupon and a reward are applied to the scanned products and/or stores (303). The purchaser transmits payment information for the selected product in order to complete a purchase transaction (304). When authentication information is

successfully confirmed, a financial institution approves a financial transaction and transmits transaction approval to a third party server, a trusted service manager (TSM) system, which relays the financial transaction, and the mobile terminal (305,306). A digital receipt and/or an additional service are transmitted to the mobile terminal (307).COPYRIGHT KIPO 2013

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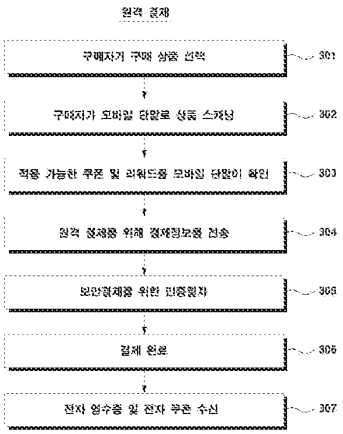
(54) 발명의 명칭 **결제 시스템 및 방법**

(57) 요 약

결제 시스템 및 방법이 제공된다. 본 발명의 실시예에 따른 결제 방법은, 구매자가 휴대하는 모바일 단말이 구매할 상품들을 판독하고, 판독된 상품들에 대한 결제 금액을 산정한다. 이에 의해, 구매자는 결제를 위한 대기 시간을 줄일 수 있고, 판매자는 운영경비를 절감할 수 있는 이점을 제공받게 된다.

대 표 도 - 도3



명 세 서

청구범위

청구항 1

구매자가 휴대하는 모바일 단말이, 구매할 상품이 나열된 전자 쇼핑 리스트를 생성하는 단계;

상기 모바일 단말이, 구매할 상품들을 판독하는 단계;

상기 모바일 단말이, 상기 판독단계에서 판독된 상품들을 상기 전자 쇼핑 리스트에서 삭제하는 단계;

상기 모바일 단말이, 상기 판독단계에서 판독된 상품들에 대한 결제 금액을 산정하는 단계;

상기 산정단계에서 산정된 결제 금액이 예산을 초과하면, 상기 모바일 단말이 경고를 발생시키는 단계;

상기 경고가 발생되면, 상기 모바일 단말이 동종의 대안 상품을 제시하는 단계;

상기 결제 금액을 지불하기 위한 수단으로, 상기 모바일 단말이 SE(Secure Element)에 저장된 결제정보를 상점의 POS(Point Of Sale), TSM(Trusted Service Manager) 또는 금융기관으로 제공하는 단계; 및

상기 제공단계에서 상기 결제정보가 상기 TSM 또는 금융기관으로 제공되는 경우, 상기 모바일 단말이 인증에 사용할 위치정보를 전송하는 단계;를 포함하고,

상기 제공단계에서 상기 결제정보가 상기 POS로 제공되는 경우, 상기 모바일 단말은 상기 결제 정보를 NFC(Near Field Communication)로 제공하며,

상기 위치정보가 상점의 특정 영역인 경우 인증에 성공하는 것을 특징으로 하는 결제 방법.

청구항 2

제 1항에 있어서,

상기 판독단계는,

상기 모바일 단말에 마련된 리더로 상기 구매 상품들의 바코드 또는 태그를 인식하여, 상기 구매 상품들을 판독하는 것을 특징으로 하는 결제 방법.

청구항 3

제 1항에 있어서,

상기 산정단계는,

상기 모바일 단말이, 보유하고 있는 쿠폰들 중 상기 판독된 상품들에 적용가능한 쿠폰들을 확인하는 단계; 및

상기 확인단계에서 확인된 쿠폰들을 적용한 후에, 상기 판독된 상품들에 대한 결제 금액을 산정하는 단계;를 포함하는 것을 특징으로 하는 결제 방법.

청구항 4

삭제

청구항 5

삭제

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청구항 6

삭제

청구항 7

삭제

청구항 8

제 1항에 있어서,

상기 모바일 단말이, 상기 결제정보에 의한 거래내역이 수록된 디지털 영수증을 수신하는 단계;를 더 포함하는 것을 특징으로 하는 결제 방법.

청구항 9

삭제

청구항 10

삭제

청구항 11

구매자가 구매할 상품들을 판독하는 리더; 및

상기 리더 의해 판독된 상품들에 대한 결제 금액을 산정하는 프로세서;를 포함하고,

상기 프로세서는,

상기 구매할 상품이 나열된 전자 쇼핑 리스트를 생성하고, 상기 리더를 통해 판독된 상품들을 상기 전자 쇼핑 리스트에서 삭제하며,

산정된 결제 금액이 예산을 초과하면, 경고를 발생시키고 동종의 대안 상품을 제시하고,

상기 결제 금액을 지불하기 위한 수단으로, SE(Secure Element)에 저장된 결제정보를 상점의 POS(Point Of Sale), TSM(Trusted Service Manager) 또는 금융기관으로 제공하며,

상기 결제정보가 상기 POS로 제공되는 경우, 상기 결제 정보를 NFC(Near Field Communication)로 제공하고,

상기 결제정보가 상기 TSM 또는 금융기관으로 제공되는 경우, 인증에 사용할 위치정보를 전송하며,

상기 위치정보가 상점의 특정 영역인 경우 인증에 성공하는 것을 특징으로 하는 모바일 단말.

청구항 12

구매자가 휴대하는 모바일 단말 및 금융기관과 통신가능하도록 연결되는 통신 인터페이스; 및

상기 통신 인터페이스를 통해 상기 모바일 단말로부터 수신한 결제정보를 이용하여 상기 통신 인터페이스를 통해 연결된 상기 금융기관과 결제 처리를 수행하는 프로세서;를 포함하고,

상기 결제 정보에 포함된 결제 금액은,

상기 모바일 단말이 상기 구매자가 구매할 상품들을 판독하여 산정하고,

상기 모바일 단말은,

상기 구매할 상품이 나열된 전자 쇼핑 리스트를 생성하고, 판독된 상품들을 상기 전자 쇼핑 리스트에서 삭제하며, 산정된 결제 금액이 예산을 초과하면 경고를 발생시키고 동종의 대안 상품을 제시하며,

상기 결제 금액을 지불하기 위한 수단으로, SE(Secure Element)에 저장된 결제정보를 상점의 POS(Point Of

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Sale), TSM(Trusted Service Manager) 또는 금융기관으로 제공하고,

상기 결제정보가 상기 POS로 제공되는 경우, 상기 결제 정보를 NFC(Near Field Communication)로 제공하며,

상기 결제정보가 상기 TSM 또는 금융기관으로 제공되는 경우, 인증에 사용할 위치정보를 전송하고,

상기 위치정보가 상점의 특정 영역인 경우 인증에 성공하는 것을 특징으로 하는 TSM(Trusted Service Manager) 시스템.

발명의 설명

기 술 분 야

[0001] 본 발명은 NFC(Near Field Communication) 기능을 갖는 모바일 단말을 이용하여 상품을 구매하기 하기 위한 시스템 및 방법에 관한 것이다.

배 경 기 술

[0002] 일반적으로, 상품 구매는 상점에서 종이 쇼핑 리스트를 참조하여 구매 상품을 확인하여 선택한 후, 계산원에 의해 운용되는 POS(Point Of Sale) 시스템이 있는 계산대로 가지고 가면, 상품들을 계산원이 스캔한 후에 전통적인 결제 방법인 현금, 체크 카드, 신용 카드, 직불 카드 및 기프트 카드 등을 통해 지불하는 과정으로 이루어진다.

[0003] 이 과정에서, 구매자는 부가적인 혜택을 받기 위해 구매 관련 쿠폰, 리워드(포인트) 등을 사용할 수 있다. 결제 완료 후에는, 구매 내역이 기록된 종이 영수증이 구매자에게 제공된다. 쇼핑 절차에 대한 더욱 상세한 설명이 도 1에 도시되어 있다.

[0004] 도 1은 상점에서 상품을 구매하는 기존의 방법을 도시한 흐름도이다.

[0005] 단계 101에서, 구매자는 상점에 들어가 구매할 상품들을 선택한다. 이 과정에서, 구매자는 구매 상품과 수량을 적어 놓은 종이 쇼핑 리스트를 이용할 수 있다. 단계 102에서, 구매자는 선택된 상품을 카트 또는 바스켓에 담는다. 선택된 상품이 카트 또는 바스켓에 담겨지면, 구매자는 그 상품을 종이 쇼핑 리스트에서 삭제한다. 구매 상품 선택을 완료하면, 구매자는 계산대로 가서 자신의 차례가 될 때까지 줄을 서서 기다려야 한다.

[0006] 단계 103에서, 구매자의 차례가 되면, 계산원은 선택된 상품들에 있는 바코드를 이용하여 선택된 상품들을 스캔한다. 이때, 구매자는 리워드 카드나 멤버쉽 카드를 통해 혜택을 받을 수 있다. 하지만, 구매자가 리워드 카드나 멤버쉽 카드 또는 그 정보를 제공하는 것을 잊었다면, 추가 할인 등의 혜택은 받을 수 없다. 또한, 구매하고자 선택한 상품들에 적용 가능한 쿠폰을 계산원에게 제공하여 이용할 수 있다. 하지만, 구매자가 그 쿠폰을 구매 시에 제공하지 않는다면, 쿠폰은 사용될 수 없다.

[0007] 단계 104에서, 총 지불액이 계산되면, 구매자는 결제 수단(예를 들어, 신용카드, 직불카드 또는 현금)을 제공한다. 만약, 결제 가능/예상 금액을 적게 잡았다면, 구매자는 총 지불액을 낮추기 위해 하나 이상의 상품을 구매 취소할 수 있다.

[0008] 단계 105에서 상품 결제가 완료되면, 단계 106에서 구매자는 종이 영수증을 받고 추가로 제공되는 쿠폰을 받는다.

[0009] 이와 같이, 상품 쇼핑하기 위한 종래의 방법은 구매자가 계산원과 소통하기 위해 대기 시간이 필요하며 구매를 위해 선택된 상품들을 계산원이 손으로 직접 스캔해야 된다는 점에서 비효율적이며 시간 소비적이다. 또한, 구매자는 적용 가능한 리워드, 멤버십 등의 인센티브(예를 들어, 쿠폰, 기프트 카드 등)를 일일이 관리해야 하는 불편함이 있다.

발명의 내용

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해결하려는 과제

[0010] 본 발명은 상기와 같은 문제점을 해결하기 위하여 안출된 것으로서, 본 발명의 목적은, 구매자가 휴대하는 모바일 단말을 통해 구매할 상품들을 판독하여 결제 금액을 산정하는 결제 방법 및 시스템을 제공함에 있다.

[0011] 또한, 본 발명의 다른 목적은, 위와 같은 방법으로 산정한 결제 금액을 모바일 단말의 SE(Secure Element)에 저장된 결제수단을 통해 모바일 결제 또는 원격 결제하는 결제 방법 및 시스템을 제공함에 있다.

과제의 해결 수단

[0012] 본 발명의 실시예들은 모바일 단말을 이용하여 상품을 구매하기 위한 시스템 및 방법을 제공한다.

[0013] 본 발명의 일 실시예에 따른 결제를 제공하기 위한 방법은, 모바일 단말로 상품을 스캐닝하는 단계, 모바일 단말에서 상품 관련 정보를 저장하는 단계, 상품 관련 정보를 구매를 위해 POS 단말로 전송하는 단계, 모바일 단말에서 결제정보를 전송하는 단계, 및 모바일 단말로 영수증을 수신하는 단계를 포함한다.

[0014] 본 발명의 일 실시예에 따른 원격결제 방법은, 모바일 단말로 상품을 스캐닝하는 단계, 모바일 단말에서 상품 관련 정보를 저장하는 단계, 상품 관련 정보를 TSM(Trusted Service Manager) 시스템에 전송하는 단계, 모바일 단말의 SE로부터 결제정보를 판독하는 단계, 결제정보를 TSM 시스템에 전송하는 단계, 및 수행된 금융거래의 영수증을 수신하는 단계를 포함한다.

[0015] 본 발명의 일 실시예에 따르는 결제를 위한 모바일 단말은, 상품 정보를 인식하는 제품 리더, 정보를 POS 단말로 송신하고 수신하는 NFC 송신기/수신기, 구매 상품 관련 정보를 저장하는 메모리, 및 결제정보를 저장하는 SE를 포함한다.

[0016] 앞선 일반적인 설명과 다음의 상세한 설명은 예시적이며 설명하기 위한 것으로, 청구한 바와 같이 발명의 추가 설명을 제공하고자 한다는 것을 이해하여야 한다. 다른 특징들 및 태양들은 다음의 상세한 설명, 도면, 및 청구항으로부터 명백해질 것이다.

[0017] 본 발명의 일 실시예에 따른 결제 방법은, 구매자가 휴대하는 모바일 단말이, 구매할 상품들을 판독하는 단계; 및 상기 모바일 단말이, 상기 판독단계에서 판독된 상품들에 대한 결제 금액을 산정하는 단계;를 포함한다.

[0018] 상기 판독단계는, 상기 모바일 단말에 마련된 리더로 상기 구매 상품들의 바코드 또는 태그를 인식하여, 상기 구매 상품들을 판독할 수 있다.

[0019] 상기 산정단계는, 상기 모바일 단말이, 보유하고 있는 쿠폰들 중 상기 판독된 상품들에 적용가능한 쿠폰들을 확인하는 단계; 및 상기 확인단계에서 확인된 쿠폰들을 적용한 후에, 상기 판독된 상품들에 대한 결제 금액을 산정하는 단계;를 포함 할 수 있다.

[0020] 본 발명의 일 실시예에 따른 결제 방법은, 상기 모바일 단말이, 상기 구매할 상품이 나열된 전자 쇼핑 리스트를 생성하는 단계; 및 상기 판독단계에서 판독된 상품들을 상기 전자 쇼핑 리스트에서 삭제하는 단계;를 더 포함 할 수 있다.

[0021] 본 발명의 일 실시예에 따른 결제 방법은, 상기 결제 금액을 지불하기 위한 수단으로, 상기 모바일 기기가 SE(Secure Element)에 저장된 결제정보를 제공하는 단계;를 더 포함 할 수 있다.

[0022] 상기 제공단계는, 상기 결제정보를, 상점의 POS(Point Of Sale), TSM(Trusted Service Manager) 또는 금융기관으로 제공 할 수 있다.

[0023] 본 발명의 일 실시예에 따른 결제 방법은, 상기 제공단계에서 상기 결제정보가 상기 TSM 또는 금융기관으로 제공되는 경우, 인증에 사용할 위치정보를 전송하는 단계;를 더 포함하고, 상기 위치정보가 상점의 특정영역인 경우 인증에 성공하는 것으로 구현가능하다.

[0024] 본 발명의 일 실시예에 따른 결제 방법은, 상기 모바일 단말이, 상기 결제정보에 의한 거래내역이 수록된 디지털 영수증을 수신하는 단계;를 더 포함 할 수 있다.

[0025] 본 발명의 일 실시예에 따른 결제 방법은, 상기 산정단계에서 산정된 결제 금액이 예산을 초과하면, 상기 모바일 단말이 경고를 발생시키는 단계;를 더 포함 할 수 있다.

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[0026] 본 발명의 일 실시예에 따른 결제 방법은, 상기 경고가 발생되면, 상기 모바일 단말이 동종의 대안 상품을 제시하는 단계;를 더 포함 할 수 있다.

[0027] 한편, 본 발명의 일 실시예에 따른 모바일 단말은, 구매자가 구매할 상품들을 판독하는 리더; 및 상기 리더 의해 판독된 상품들에 대한 결제 금액을 산정하는 프로세서;를 포함한다.

[0028] 본 발명의 일 실시예에 따른 TSM(Trusted Service Manager) 시스템은, 구매자가 휴대하는 모바일 단말 및 금융기관과 통신가능하도록 연결되는 통신 인터페이스; 및 상기 통신 인터페이스를 통해 상기 모바일 단말로부터 수신한 결제정보를 이용하여 상기 통신 인터페이스를 통해 연결된 상기 금융기관과 결제 처리를 수행하는 프로세서;를 포함하고, 상기 결제 정보에 포함된 결제 금액은, 상기 모바일 단말이 상기 구매자가 구매할 상품들을 판독하여 산정한다.

발명의 효과

[0029] 이상 설명한 바와 같이, 본 발명의 실시예들에 따르면, 구매자가 휴대하는 모바일 단말을 통해 구매할 상품들을 판독하여 결제 금액을 산정할 수 있어, 결제를 위한 대기 시간을 줄일 수 있게 된다. 또한, 모바일 단말의 SE에 저장된 결제수단을 통해 모바일 결제 또는 원격 결제가 가능하여, 결제 과정에서 구매자는 시간을 절약할 수 있고, 판매자는 운영경비를 절감할 수 있게 된다.

[0030] 아울러, 모바일 단말에 보유된 쿠폰들이 자동으로 확인되어 적용되므로, 구매자는 일일이 쿠폰을 체크하지 않아도 되는 쿠폰 사용상의 편리함을 제공받게 된다.

[0031] 그리고, 모바일 단말에 의해 제공되는 전자 쇼핑 리스트로 종이 쇼핑 리스트를 대체할 수 있어, 쇼핑 과정에서 구매할 상품들에 대한 관리가 간편해지고, 결제 예상 금액을 실시간으로 확인할 수 있다는 장점이 있다.

[0032] 뿐만 아니라, 결제 예정 금액이 예산을 초과하는 경우 모바일 단말에 의해 경고 발생이 이루어지므로, 합리적인 소비를 조장할 수 있게 된다.

도면의 간단한 설명

[0033] 도 1은 상점에서 상품을 구매하기 위한 종래의 방법을 도시한 흐름도,

도 2는 본 발명의 일 실시예에 따른 결제 방법을 도시한 흐름도,

도 3은 본 발명의 일 실시예에 따른 원격 결제 방법을 도시한 흐름도,

도 4는 본 발명의 일 실시예에 따른 모바일 단말을 도시한 블럭도,

도 5는 본 발명의 일 실시예에 따른 구매 상품 판독 방법을 도시한 도면,

도 6은 본 발명의 일 실시예에 따른 상품 구매를 완료하기 위한 금융거래를 도시한 도면,

도 7은 본 발명의 일 실시예에 따른 상품 대금 결제 과정을 도시한 도면, 그리고,

도 8은 본 발명의 일 실시예에 따른 TSM 시스템을 도시한 블럭도이다.

발명을 실시하기 위한 구체적인 내용

[0034] 본 발명의 실시예들이 도시된 첨부도면을 참조하여 본 발명에 대하여 더욱 상세하게 설명된다. 그러나, 본 발명은 많은 다른 형태로 실시될 수 있으며, 여기 설명된 실시예들에 한정되는 것으로 해석되어서는 안 된다. 오히려, 이 실시예들이 제공됨으로써, 본 개시는 완전하며, 본 발명의 범주를 당업자들에게 완벽하게 전달할 것이다.

[0035] 도 2는 본 발명의 일 실시예에 따른 결제 방법을 도시한 흐름도이다.

[0036] 단계 201에서, 구매자는 구매할 상품을 선택한다. 상품은 구매자가 사용하는 모바일 단말이 제공하는 전자 쇼핑 리스트를 참조하여 선택할 수 있다.

[0037] 단계 202에서, 구매자는 모바일 단말을 이용하여 상품을 스캔한다. 모바일 단말은 사전에 또는 상점에서 수신

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가능한 바코드 판독 어플리케이션을 구비하고 있을 수 있다. 또한, 모바일 단말은 구매할 상품의 NFC 태그를 판독하기 위한 NFC 기능을 구비할 수 있다. 바코드, NFC 태그를 판독하는 어플리케이션은 Wi-Fi 서비스를 통해 판매자의 상점에서 제공되거나, 무선 또는 이동 통신망을 이용하여 제3자 또는 판매자의 웹사이트에서 제공될 수 있다.

[0038] 모바일 단말은 휴대폰, PDA(Personal Digital Assistant), 소형 컴퓨팅 장치 등을 포함하지만, 이에 한정하지 않는다. 또한, 모바일 단말은 결제정보, 구매 이력, 개인 선호도 등을 저장하기 위한 SE(Secure Element)를 포함할 수 있다. 예를 들어, 모바일 단말이 전자 쿠폰 또는 전자 기프트 카드와 같은 부가 서비스를 받는 경우, 수신된 서비스는 모바일 단말의 SE(또는 내부 메모리)에 저장될 수 있다.

[0039] 상품이 스캔되면, 선택된 상품의 수량 및 상품이 속하는 카테고리(예를 들어, 조미료, 육류, 음료, 주류 등)가 전자 쇼핑 리스트에서 추적된다. 또한, 상품이 스캔되면, 대응하는 상품이 전자 쇼핑 리스트에서 삭제되어, 아직 구매하지 않은 상품들만 남게 된다. 또한, 적용될 세금과 적용될 할인을 포함하는 총 금액이 표시되는데, 이는 구매자로 하여금 소비할 총 금액을 확인할 수 있도록 하기 위함이다.

[0040] 또한, 스캔된 상품을 기초로, 인센티브가 구매자에게 제공될 수 있다. 인센티브에는 선택 상품 또는 관련 상품과 관련된 쿠폰 또는 특별 서비스를 포함할 수 있다. 단계 203에서, 모바일 단말은 적용 가능한 쿠폰 및 리워드를 스캔된 상품 및/또는 구매자가 쇼핑하고 있는 상점에 적용 가능한지 확인한다. 일 예로, 머스타드를 구매하고자 스캔한 경우, 구매자는 세일 중인 머스타드의 경쟁 브랜드에 대한 통지, 다른 머스타드 브랜드에 적용가능한 쿠폰을 안내하는 통지, 또는 현재 스캔된 머스타드가 세일 중이라는 통지 중 적어도 하나를 수신할 수 있다. 또한, 세일 중인 관련 상품의 통지가 또한 추가적인 혜택으로서 제공될 수 있다.

[0041] 또한, 리워드가 구매자가 쇼핑하고 있는 상점에서 적용 가능한 것으로 확인된 경우, 리워드가 자동으로 적용될 수 있다. 예를 들어, 리워드는 상품이 스캐닝 되는 동안, 상점에 입장할 때, 또는 결제처리 중에 POS 시스템에 적용될 수 있다. 이와 달리, 리워드가 수동으로 적용되도록 구현할 수도 있다.

[0042] 쇼핑을 완료하면, 단계 204에서, 구매자는 구매 거래를 완료하기 위해 선택된 상품에 대한 결제를 위한 결제정보를 제공한다.

[0043] 구매자는 모바일 단말의 SE에 저장되어 있는 결제용 애플릿을 이용하여 결제정보를 제공할 수 있다. NFC 기능을 구비하고 결제 애플릿을 포함하는 모바일 단말은 POS 단말에서 결제가 가능하다. 구체적으로, 구매자는 구매 정보를 저장하고 있는 모바일 단말을 NFC 리더를 구비한 POS 단말에 접촉시켜, NFC 리더가 쿠폰, 프로모션, 및 관련된 리워드 뿐만 아니라 구매를 위해 스캔된 상품 리스트 및 지불액 등을 판독하도록 한다. 이후, 구매자는 지불할 금액을 확인하고 구매 거래를 완료하기 위해 결제 애플릿을 선택한다.

[0044] 단계 S205에서, 모바일 단말로부터 결제 정보를 수신한 POS 단말은 결제를 요청하기 위해 금융기관과 인터랙션하여, 결제 승인을 요청한다. 금융기관에 의해 결제가 승인되면, 승인 응답은 POS 단말로 전송된다.

[0045] 단계 206에서, POS 단말은 결제과정을 완료하기 위해 거래 내역이 수록된 전자 영수증을 모바일 단말로 전송할 수 있다. 또한, 전자 쿠폰, 리워드 포인트, 및/또는 프로모션 아이템이 추후에 사용할 수 있도록 모바일 단말로 전송될 수 있다. 다양한 인센티브가 모바일 단말에 저장되므로, 이러한 아이템들은 후속 구매 거래에서 자동적으로 적용될 수 있다. POS 단말과의 인터랙션에 대한 더욱 상세한 설명이 도 5에 도시되어 있다.

[0046] 이와 달리, 구매자는 POS 단말과 인터랙션 하기 위해 줄을 서서 대기하지 않고 원격으로 결제정보를 제공할 수도 있다. 구체적으로, 쇼핑 완료시 구매자는 모바일 단말을 이용하여 원격 결제를 개시할 수 있다. 원격 결제 과정에 대해서는, 이하에서 도 3을 참조하여 상세히 설명한다.

[0047] 도 3은 본 발명의 일 실시예에 따른 원격 결제 과정을 도시한 흐름도이다.

[0048] 단계 301에서, 구매자는 구매할 상품을 선택한다. 상품은 구매자가 보유하고 있는 모바일 단말에서 제공되는 전자 쇼핑 리스트에 따라서 선택될 수 있다.

[0049] 단계 302에서, 구매자는 모바일 단말을 이용하여 상품을 스캔한다. 모바일 단말은 사전에 입수되었거나 상점에서 수신된 바코드 판독 어플리케이션을 구비할 수 있다. 또한, 모바일 단말은 구매하고자 선택한 상품의 NFC 태그를 판독하기 위한 NFC 기능을 구비할 수 있다. 바코드 및/또는 NFC 태그를 판독하는 데 필요한 어플리케이션은 Wi-Fi 서비스를 통해 상점에서 제공되거나 또는 무선 또는 이동 통신망을 이용하여 제3자 또는 판매자의 웹사이트에서 제공될 수 있다.

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[0050] 상품이 스캔되면, 선택된 상품의 수량 및 상품이 속하는 카테고리가 전자 쇼핑 리스트에서 추적된다. 또한, 상품이 스캔되면, 상품이 전자 쇼핑 리스트에서 삭제되어 구매하지 않은 상품만이 남게 된다. 적용될 세금 및 적용될 할인을 포함하는 총 금액이 표시되어, 구매자는 소비할 총 금액을 확인할 수 있다.

[0051] 한편, 모바일 단말이 개인 금융 어플리케이션과 연관된 경우, 모바일 단말은 구매자가 소정의 예산을 초과한 경우 구매자에게 경고할 수 있다. 또한, 구매자는 그러한 어플리케이션 없이 쇼핑 이전에 스스로 예산을 잡을 수 있다. 총 금액이 예산을 초과하는 것으로 판단되면, 모바일 단말은 총 금액을 낮추기 위해 이용 가능한 더 저렴한 동종의 대안 상품을 구매자에게 통지할 수 있다.

[0052] 또한, 스캔된 상품을 기초로, 선택된 상품 및/또는 관련 상품과 관련된 쿠폰 및 특별 서비스 등이 포함된 인센티브가 구매자에게 제공될 수 있다. 단계 303에서, 모바일 단말은 적용 가능한 쿠폰 및 리워드가 스캔된 상품 및/또는 구매자가 쇼핑하고 있는 상점에 적용 가능한지 확인한다. 일 예로, 머스타드를 구매하고자 스캔한 경우, 구매자는 세일 중인 머스타드 경쟁 브랜드의 통지, 다른 머스타드 브랜드에 적용가능한 쿠폰을 안내하는 통지, 또는 현재 스캔된 머스타드가 세일 중이라는 통지 중 적어도 하나를 수신할 수 있다. 또한, 세일 중인 관련 상품의 통지가 부가적인 혜택으로서 제공될 수 있다.

[0053] 구매자가 쇼핑을 완료하면, 단계 304에서, 구매자는 구매 거래를 완료하기 위해 선택된 상품에 대한 결제를 위한 결제정보를 전송한다. 구체적으로, 결제정보는 판매자 또는 상점에 의해 제공될 수 있는 무선 인터넷 연결 또는 이동 통신망을 이용하여 원격으로 전송될 수 있다. 또한, 금융처리를 위한 이 결제정보는 모바일 단말의 SE에 저장될 수 있다. 결제정보는 총 지불액, 구매할 상품 리스트, 판매자, 결제방법 등을 포함할 수 있지만, 이에 한정하지 않는다. 원격 결제거래 요청은 TSM(Trusted Service Manager) 시스템, 제3자 서버를 통해 또는 직접 금융기관으로 전송될 수 있다.

[0054] 단계 305에서는, 결제처리 과정에서 인증 수행을 위해 인증정보가 확인된다. 이 인증절차에서는, 인증정보로 단말 관련 정보, SE 관련 정보, 결제수단과 관련한 개정정보, 전송 위치, 보안 코드(예를 들어, PIN), 결제수단의 유효기간 중 적어도 하나를 포함할 수 있다.

[0055] 단계 306에서, 인증정보가 성공적으로 확인되어 인증되면, 금융기관은 금융거래를 승인하고, 모바일 단말 또는 금융거래를 중계하는 TSM 시스템, 제3자 서버에 거래승인을 전송한다.

[0056] 단계 307에서, 디지털 영수증 및/또는 부가 서비스가 모바일 단말로 전송된다. 거래승인이 TSM 시스템이나 제3자 서버에 전송되는 경우, 거래 내역이 디지털 카피로 TSM 시스템이나 제3자 서버에 기록되고, TSM 시스템이나 제3자 서버는 거래 내역 및/또는 부가 서비스를 모바일 단말로 전달할 수 있다. 또한, 금융기관은 금융거래의 승인을 판매자의 상점에 있는 POS 단말로 전송할 수 있다. POS 단말은 이후 기록 유지를 위해 거래내역에 대한 디지털 영수증을 생성할 수 있다.

[0057] 위 실시예에서, 인증정보로서 이용될 전송위치가 일관되도록 하기 위해, 상점의 특정 영역만을 원격 결제가 수행 가능한 곳으로 지정/제한할 수 있다.

[0058] 도 4는 본 발명의 일 실시예에 따른 모바일 단말을 도시한 블럭도이다.

[0059] 도 4에 도시된 바와 같이, 모바일 단말(400)은 모바일 지갑 어플리케이션(410), NFC 송수신기(420), 어플리케이션 프로세서(430) 및 SE(440)를 포함한다. SE(440)는 WMA(Wallet Management Applet)(441), PPSE(Payment Procedure Secure Elements) (442), SE 메모리(443) 및 비접촉식 결제 애플릿(444)를 포함한다.

[0060] 모바일 지갑 어플리케이션(410)은, 다양한 결제, 기프트 카드, 쿠폰, 리워드 카드 멤버십, 교통카드 등을 나타내는 하나 이상의 위젯을 포함할 수 있다. 또한, 모바일 지갑 어플리케이션(410)은 모바일 단말의 사용자가 그 안에 저장된 정보를 보고, 선택하고, 조정하도록 하는 인터페이스를 제공할 수 있다.

[0061] NFC 송수신기(420)는 정보가 모바일 단말에서 NFC 단말(예를 들어, NFC 리더가 구비된 POS 단말)로 전송되도록 할 수 있다. NFC 기술은 서로 인접하고 있는 2개의 단말 사이에서 데이터 교환을 가능하게 한다. 따라서, 결제정보 및 다른 데이터가 NFC 기술을 이용하여 교환될 수 있다.

[0062] 어플리케이션 프로세서(430)는 외부로부터 수신된 요청에 의해 어플리케이션을 실행할 수 있다. 예를 들어, 'NFC 송수신기(420)가 구비된 모바일 단말(400)'이 'NFC 리더가가 구비된 POS 단말' 앞에서 흔들려, 이를 감지한 POS 단말이 모바일 지갑 어플리케이션(410)의 결제 처리를 위해 실행되도록 하기 위한 요청 신호를 NFC 송수신기(420)를 통해 모바일 단말로(400) 전송하면, 어플리케이션 프로세서(430)가 모바일 지갑 어플리케이션(41

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0)을 실행시킬 수 있다.

[0063] WMA(441)는 일반적으로 사용자가 접근할 수 없는 비접촉식 결제 애플릿(444)을 관리하기 위해 SE(440)에 상주하는 소프트웨어 어플리케이션이다. 금융거래 동안, 모바일 단말(400)는 구매 거래를 완료하기 위해 비접촉식 결제 애플릿(444)의 정보를 POS 단말로 전송할 수 있다. PPSE(442)는 SE에 저장되어 있는 비접촉 결제 애플릿(444)의 라벨과 어플리케이션 ID를 저장한다.

[0064] 도 5는 본 발명의 일 실시예에 따른 구매 상품 판독 방법을 도시한 도면이다.

[0065] 위에서 설명한 바와 같이, 구매자는 옵션 ①에 도시된 바와 같이 상품에 부착된 바코드를 스캔하여 구매 상품을 판독하거나 옵션 ②에 도시된 바와 같이 상품의 NFC 태그를 읽어들여 구매 상품을 판독할 수 있다.

[0066] 전술한 바와 같이, 바코드는 모바일 단말에 저장된 일반적인 바코드 판독 어플리케이션으로 스캔되어 판독될 수 있음은 물론, 판매자에 특별히 제공된 바코드 어플리케이션으로 스캔되어 판독될 수 있다. 후자의 어플리케이션은 판매자의 상점, 판매자의 웹사이트 또는 다른 이용 가능한 방법들을 통해 구매자에 제공된다.

[0067] 또한, 상품의 NFC 태그를 읽어들여, 구매하고자 선택한 상품이 판독될 수 있다. 모바일 단말에 NFC 송수신기가 구비되어 있다면, 모바일 단말을 NFC 태그에 아주 근접시켜 NFC 태그를 판독할 수 있다.

[0068] 바코드 또는 NFC 태그가 판독되면, 상품은 전자 쇼핑 리스트에 반영된다. 더욱 상세하게, 쇼핑 리스트의 상품 리스트는, 구매를 위해 선택한 상품 리스트와 구매하여야 하지만 아직 선택되지 않은 상품 리스트를 포함하고, 바코드 또는 NFC 태그 판독결과는 양자 모두에 반영/조정된다.

[0069] 전자 쇼핑 리스트는 선택된 상품의 상세 정보, 수량, 가격 등을 제공하고, 총 지불액의 누계 기록을 표시하여 사용자에게 제공한다. 또한, 상품이 판독되면, 선택된 상품에 적용될 수 있는 쿠폰이 저장되어 있는지 확인하고 쿠폰을 반영한 조정된 가격을 표시할 수도 있다. 또한, 세일 중인 동종의 경쟁 상품, 대체 상품, 보완 상품 등을 구매자에게 통지할 수 있다.

[0070] 도 6은 본 발명의 일 실시예에 따른 상품 구매를 완료하기 위한 금융거래를 도시한 도면이다.

[0071] 단계 601에서, 구매자는 POS 단말로 결제 요청을 하기 위해 모바일 단말에서 비접촉식 결제 애플릿(예를 들어, Visa® 신용카드, MasterCard® 신용카드, 은행 직불카드, 기프트 카드 등)을 선택한다. 결제 요청은 POS 단말의 NFC 리더에 모바일 단말을 인접하여 둠으로써 이루어지며, 이로써 비접촉식 결제 애플릿에 수록되어 있는 암호화된 결제정보가 NFC로 전송된다.

[0072] 단계 602에서, POS 단말은 모바일 단말에 의해 제시된 결제 요청의 승인을 위해 결제정보와 함께 금융거래 요청을 금융기관으로 전송한다. 단계 603에서, 금융기관은 POS 단말에 결제 요청에 대한 응답으로 결제 승인을 회신한다. 결제 요청이 승인된 경우, 단계 604에서 POS 단말은 전자 영수증을 모바일 단말로 전송한다. 또한, 단계 605에서 종이 영수증 또한 선택적으로 제공될 수 있다. 구매 상품, 구매 수량, 기타 다른 쇼핑 이력 데이터에 기초하여 전자 쿠폰이 후속 구매에서의 사용을 위해 모바일 단말로 전송될 수 있다.

[0073] POS 단말은 구매자에 의한 구매 상품과 관련된 금융거래를 취급하기 위해 사용되는 하드웨어 및 소프트웨어를 말한다. POS 단말은 판매원이 접근 가능한 인터페이스 또는 자동화된 구매자 접근 가능한 인터페이스에 의해 판매 처리를 관리할 수 있다. POS 단말은, NFC 가능한 단말로 RF 신호를 수신 및 전송하기 위한 NFC 리더 뿐만 아니라, 저울, 통합 신용카드 처리 시스템, 서명 캡쳐 장치, 구매자 핀 패드장치 등을 더 포함할 수 있다.

[0074] 도 7은 본 발명의 일 실시예에 따른 제품의 구매를 완료하기 위한 금융거래를 도시한 도면이다.

[0075] 구매자는 선택된 상품을 계산원 또는 POS 단말로 결제하기 위해 줄을 서서 대기하지 않고, 원격으로 결제정보를 제공하여 결제하는 원격 결제를 선택할 수 있다. 원격 결제를 위해, TSM 시스템이 모바일 단말과 금융기관 사이의 거래를 중계하는 중계자로 기능할 수 있다.

[0076] 단계 701에서, 모바일 단말은 TSM 시스템에 원격 결제 요청을 전송한다. 도 7에서는 결제정보가 TSM 시스템으로 전송되는 것으로 도시하였지만, 다른 대안도 가능하다. 예를 들어, 결제정보가 금융기관(예를 들어, 신용카드회사, 은행 등)으로 직접 전송되거나 제3자 서버를 통해 금융기관으로 전송될 수도 있다.

[0077] 단계 702에서, 전송된 결제정보, 모바일 단말 및 결제정보를 전송하는 구매자를 인증하기 위해, TSM 시스템은 모바일 단말에 인증정보를 요청한다. 단계 703에서, 모바일 단말은 SE로부터 인증정보를 검색하고, 단계 704에서, 인증정보를 TSM으로 전송할 수 있다. 예를 들어, 인증정보는 SE 정보(CPLC(Card Production Life Cycle),

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CSN(Card Serial Number), CIN(Card Image Number), ICCID(Integrated Circuit Card Identification))와, 모바일 단말 또는 모바일 기기 관련 정보(IMEI(International Mobile Equipment Identify)/MEID(Mobile Equipment Identifier), MSISDN(Mobile Subscriber Integrated Services Digital Network Number)) 중 적어도 하나를 포함할 수 있다.

[0078] 단계 705에서, 수신된 인증정보를 인증하여 승인 한 후, TSM 시스템은 모바일 단말을 대신하여 금융기관에 금융거래를 요청한다. 단계 706에서, 금융기관은 확인 과정을 수행하며, 요청된 금융거래의 승인을 전송한다. 또한, 단계 706에서, 금융기관은 POS 단말로도 금융거래 승인을 전송할 수 있다.

[0079] 단계 707에서, POS 단말은 금융거래 승인을 수신하고, POS 단말에 저장될 금융거래의 영수증을 작성한다. 단계 708에서, TSM 시스템은 금융거래의 승인을 수신하고, 모바일 단말로 금융거래에 대한 디지털 영수증을 전송한다. 또한, 현재의 구매 및/또는 구매자의 구매 이력을 기초로 하는 하나 이상의 인센티브 또는 쿠폰 또한 미래의 사용을 위해 전송될 수 있다. 영수증의 카피 또한 TSM 시스템에 저장될 수 있다.

[0080] 도 8은 본 발명의 일 실시예에 따른 TSM 시스템의 블럭도이다. 도 8에 도시된 바와 같이, 본 발명의 일 실시예에 따른 TSM 시스템(800)은 통신 인터페이스(810), 프로세서(820) 및 저장부(830)를 포함한다.

[0081] 통신 인터페이스(810)는 구매자가 휴대하는 모바일 단말 및 금융기관과의 통신을 위한 수단이다.

[0082] 프로세서(820)는 통신 인터페이스(810)를 통해 모바일 단말로부터 결제정보를 수신하고, 수신된 결제정보를 이용하여 통신 인터페이스(810)를 통해 연결된 금융기관과 대금 결제 처리를 수행한다. 대금 결제 처리 전에, 프로세서(820)는 모바일 단말에 인증정보를 요청하여 인증절차를 수행할 수도 있다.

[0083] 대금 결제 처리가 완료되면, 프로세서(820)는 통신 인터페이스(810)를 통해 모바일 단말에 디지털 영수증을 전송할 수 있다.

[0084] 저장부(830)는 프로세서(820)의 통신, 결제 처리 및 인증 절차에 필요한 프로그램과 데이터가 저장되는 저장매체이다.본 발명의 기술적 사상 또는 범주를 벗어남이 없이 본 발명에서 다양한 수정 및 변형실시가 가능한 것은 당해 발명이 속하는 기술분야에서 통상의 지식을 가진 자에게 명백할 것이다. 따라서, 본 발명이 첨부된 청구항 및 그들의 균등물의 범주 내에 있다는 것을 전제로 본 발명이 이 발명의 수정 및 변형을 포함하는 것을 의도한다.

부호의 설명

[0085] 400 : 모바일 단말 410 : 모바일 지갑 어플리케이션

420 : NFC 송수신기 430 : 어플리케이션 프로세서

440 : SE(Secure Element) 441 : WMA(Wallet Management Applet)

442 : PPSE(Payment Procedure Secure Elements)

443 : SE 메모리 444 : 비접촉식 결제 애플릿

800 : TSM 시스템 810 : 통신 인터페이스

820 : 프로세서 830 : 저장부

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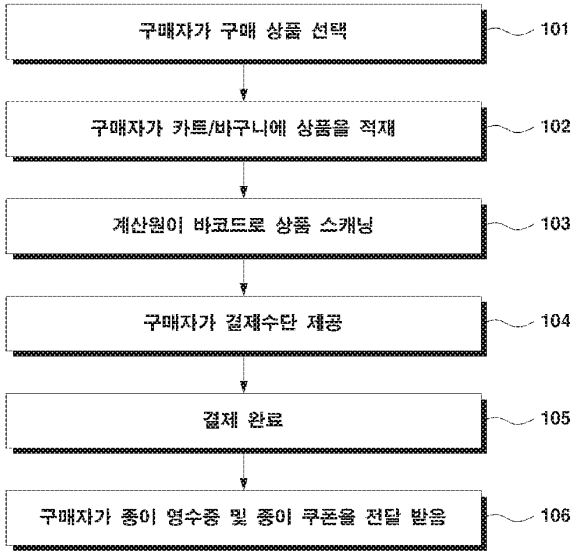
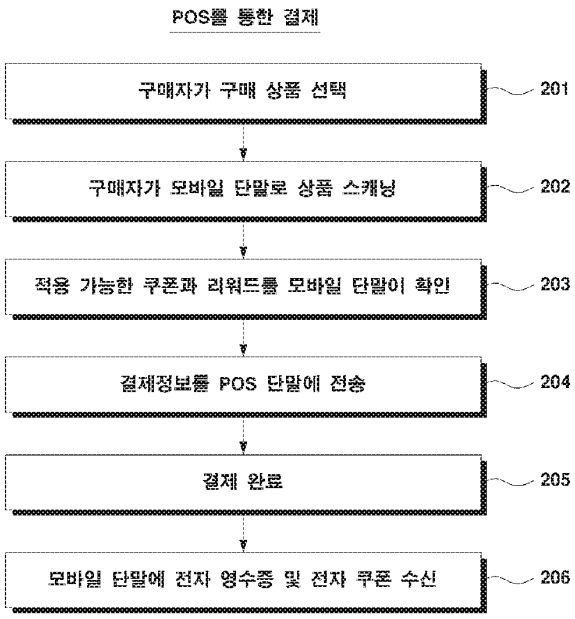
도면

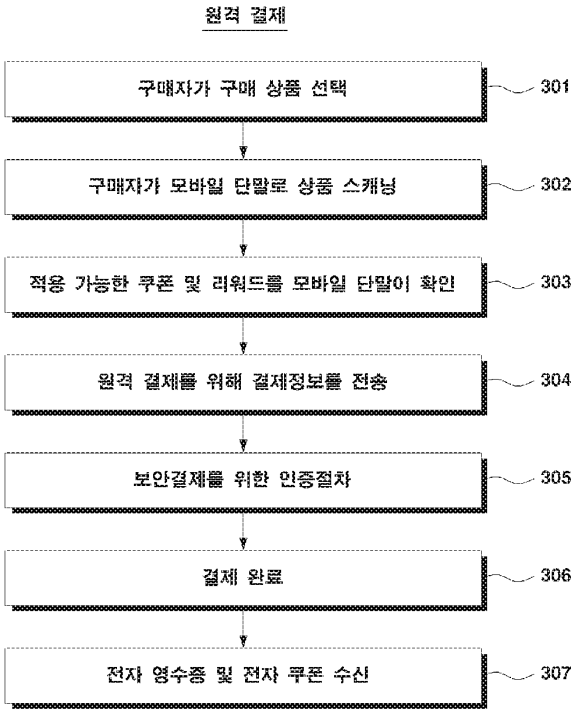
도면1


구매자가 구매 상품 선택
101
구매자가 카트/바구니에 상품을 적재
102
계산원이 바코드로 상품 스캐닝
103
구매자가 결제수단 제공
104
결제 완료
105
구매자가 종이 영수증 및 종이 쿠폰을 전달 받음
106

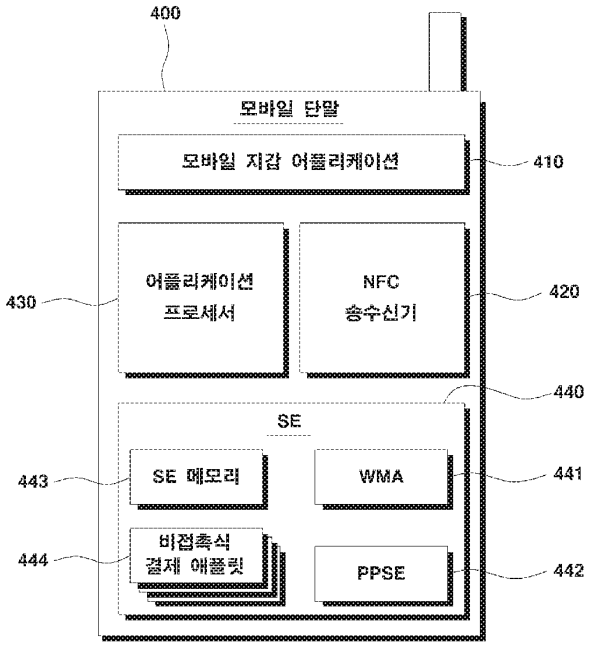
도면2


POS를 통한 결제
구매자가 구매 상품 선택
201
구매자가 모바일 단말로 상품 스캐닝
202
적용 가능한 쿠폰과 리워드를 모바일 단말이 확인
203
결제정보를 POS 단말에 전송
204
결제 완료
205
모바일 단말에 전자 영수증 및 전자 쿠폰 수신
206

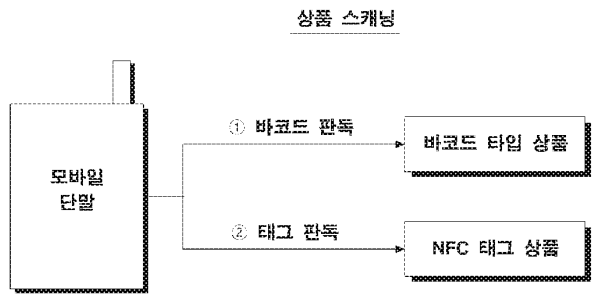
도면3


원격 결제
구매자가 구매 상품 선택
301
구매자가 모바일 단말로 상품 스캐닝
302
적용 가능한 쿠폰 및 리워드를 모바일 단말이 확인
303
원격 결제를 위해 결제정보를 전송
304
보안결제를 위한 인증절차
305
결제 완료
306
전자 영수증 및 전자 쿠폰 수신
307

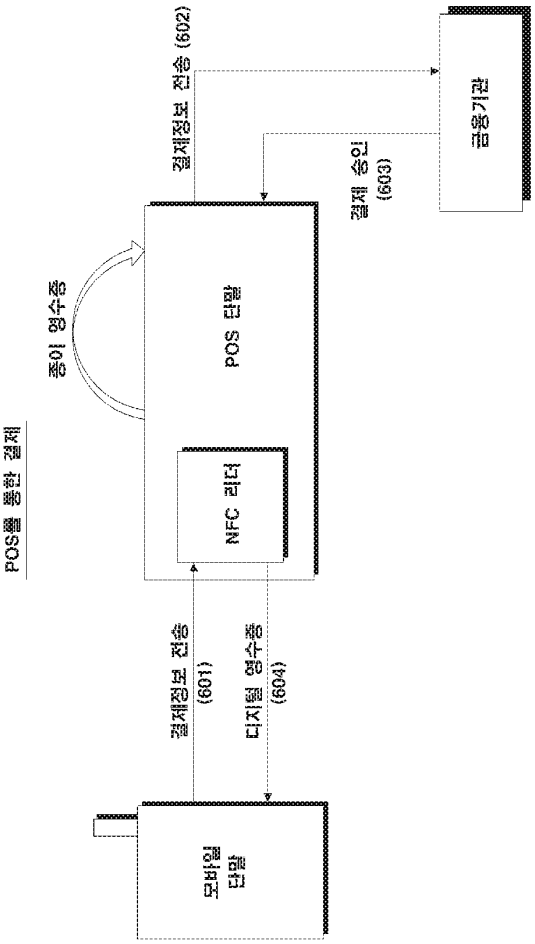
도면4


400
모바일 단말
모바일 지갑 어플리케이션
410
어플리케이션
프로세서
NFC
송수신기
430
420
440
SE
SE 메모리
WMA
443
441
비접촉식
결제 애플릿
PPSE
444
442

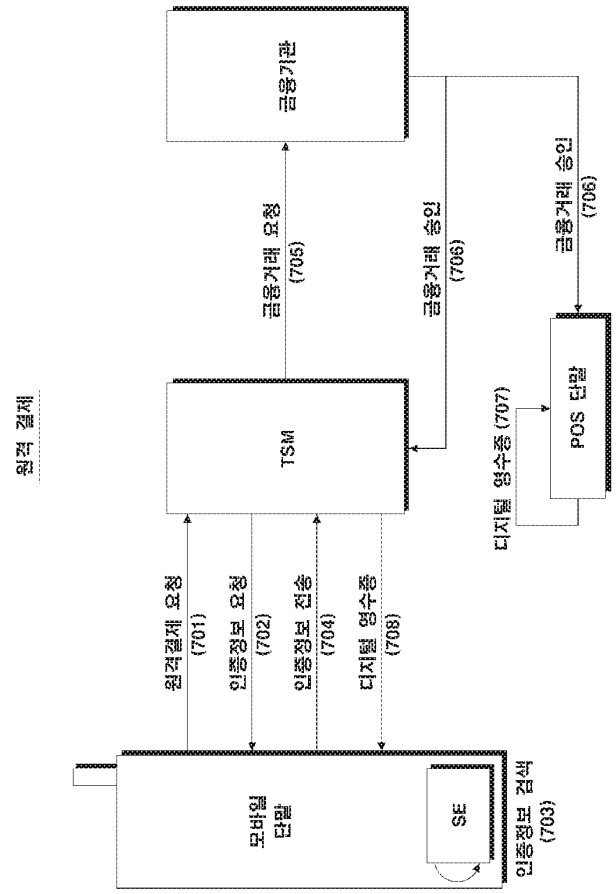
도면5


상품 스캐닝
모바일
단말
① 바코드 판독
바코드 타입 상품
② 태그 판독
NFC 태그 상품

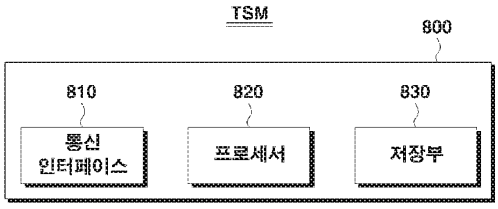
도면6


POS를 통한 결제
종이 영수증
POS 단말
NFC 리더
결제정보 전송 (602)
결제 승인 (603)
금융기관
결제정보 전송 (601)
디지털 영수증 (604)
모바일 단말

도면7


원격 결제
금융기관
TSM
POS 단말
모바일 단말
SE
금융거래 요청 (705)
금융거래 승인 (706)
금융거래 승인 (706)
디지털 영수증 (707)
원격결제 요청 (701)
인증정보 요청 (702)
인증정보 전송 (704)
디지털 영수증 (708)
인증정보 검색 (703)

도면8


TSM
800
810
820
830
통신 인터페이스
프로세서
저장부

Electronic Patent Application Fee Transmittal

Application Number:	14647859
Filing Date:	28-May-2015
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Filer:	John C. Stringham/Sarah Warcup
Attorney Docket Number:	20533.40a.1

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

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

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Submission- Information Disclosure Stmt	1806	1	180	180
		Total in USD ($)		**180**

Electronic Acknowledgement Receipt	
EFS ID:	29939280
Application Number:	14647859
International Application Number:	
Confirmation Number:	5414
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Customer Number:	22913
Filer:	John C. Stringham/Sarah Warcup
Filer Authorized By:	John C. Stringham
Attorney Docket Number:	20533.40a.1
Receipt Date:	31-JUL-2017
Filing Date:	28-MAY-2015
Time Stamp:	17:21:20
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$180
RAM confirmation Number	080117INTEFSW17222801
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 1.17 (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)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

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)	20533-40a-1_2017-07-28_IDS.pdf	860830 c71ecda894527ebd237aad7b9594d6952e58bb3a	no	3
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Information:					
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					
This is not an USPTO supplied IDS fillable form					
2	Foreign Reference	1_FR_WO2009112793A1.pdf	943293 83dde5604be9a9270c79a6b0a916caff8634e380	no	25
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3	Foreign Reference	2_FR_JP2015069269A.pdf	1259527 d69e6acab097a6e9cdb0156bbfdba92e5d4ab952	no	28
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4	Foreign Reference	3_FR_KR20120051950A.pdf	769439 09e0ee3e4e96c5f5838128b1d8dde28808e88ae5	no	14
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9	Other Reference-Patent/App/Search documents	1_Final_OA_2016-06-29.pdf	561819 53a52805d384417c35ddab306a2bcab47aab813a	no	15
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Warnings:					
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		Total Files Size (in bytes):	9424262		

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

PATENT APPLICATION
Docket No. 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	Min Hwan JEON	)
Serial No.:	14/647,859	) Art Unit) 3695
Confirmation No.:	5414	)
Filed:	May 28, 2015	)
For:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)

AMENDMENT A AND RESPONSE

AFTER NON-FINAL

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

Dear Sir:

In response to the Office Action of March 27, 2017 ("*Office Action*"), (Paper No. 20170316), please amend and reconsider the above-identified application, in which:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 5 of this paper.

AMENDMENTS TO THE CLAIMS

Listing of Claims:

1. (Currently Amended) A method for setting a temporary payment card, comprising:

displaying a list of mobile payment cards at a first portion of a touch screen interface;

receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, setting, as a temporary card, ~~a~~ the mobile payment card ~~which is moved by a user from among the mobile payment card listed in the list~~; and

resetting the setting of the temporary payment card when a payable time passes.

2. (Currently Amended) The method of claim 1, further comprising:~~,~~

receiving, through the touch screen interface, a user input selecting the mobile payment card;

detecting the user input sliding the mobile payment card from the second portion of the touch screen interface to an original position within the first portion of touch screen interface;

~~when~~ based upon the ~~moved~~ mobile payment card being moved to the ~~is moved to an~~ original position by the user, resetting the setting of the temporary payment card.

3. (Original) The method of claim1, further comprising displaying a remaining payable time.

4. (Original) The method of claim 1, further comprising, when a payment is made within the payable time, resetting the setting of the temporary payment card.

5. (Currently Amended) The method of claim 1, further comprising:~~,~~

determining that the payable time has passed;

~~when~~ based upon the determination that the payable time has passed~~passes~~, ~~moving~~ displaying the mobile payment card ~~moved by the user to~~being moved to an original position.

6. (Currently Amended) The method of claim 1, further comprising:

determining that a particular portion of the payable time has passed;

~~gradually~~ moving the mobile payment card a first distance ~~moved by the user to~~towards an original position according to a remaining payable time, wherein the first distance is determined based upon the proportion of the payable time that has passed.

7. (Original) The method of claim 1, further comprising, when the mobile payment card set as the temporary payment card is moved again by the user prior to the payable time passing, extending the payable time.

8. (Original) The method of claim 7, wherein the movement by the user in the setting operation is performed in the same method as the movement by the user in the extending operation.

9. (Original) The method of claim 1, further comprising, when the mobile device is moved by the user in a specific pattern prior to the payable time passing, extending the payable time.

10. (Original) The method of claim 1, further comprising, when the payable time passes, making the mobile payment card moved by the user disappear.

11. (Original) The method of claim 1, further comprising making the mobile payment card moved by the user gradually disappear according to a remaining payable time.

12. (Original) The method of claim 1, further comprising, when the remaining payable time is shorter than or equal to a threshold, outputting an alarm.

13. (Original) The method of claim 1, further comprising:

displaying a list of additional services issued to the mobile devices; and

setting an additional service moved by the user from among the additional services listed in the list to be used.

14. (Original) The method of claim 13, further comprising, when a usable time passes, setting the additional service to be disabled.

15. (Currently Amended) A mobile device comprising:

a touch screen configured to display a list of mobile payment cards; and

a processor configured to:

receive, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;

detect the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;

based upon the user input sliding the mobile payment card, set~~,~~ as a temporary payment card, a mobile payment card ~~which is moved by a user from among the mobile payment cards listed in the list displayed on the touch screen~~, and

reset the setting of the temporary payment card when a payable time passes.

REMARKS

The Non-Final Office Action ("*Office Action*"), mailed March 27, 2017, considered claims 1-15.

By this amendment claims 1, 2, 5, 6, and 15 have been amended. Accordingly, claims 1-15 are pending, of which claims 1 and 15 are the only independent claims at issue. Support for the claim amendments is found throughout the originally filed application and claims, including the disclosure presented in at least Figures 10-19 and the accompanying description.

35 U.S.C. § 101 Rejection of Claims 1-15

The *Office Action* rejected claims 1-15 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Applicant respectfully traverses this rejection, and further respectfully submits that claims, as amended, are directed to statutory subject matter under §101, as discussed below.

When determining whether a claim is directed to a judicial exception to §101, an Examiner must follow a two-step analysis found in the 2014 Interim Guidance on Patent Subject Matter Eligibility. In Step 2A of this analysis, the Examiner first determines whether the claim is directed to a judicial recognized exception (e.g., an Abstract Idea), and in Step 2B the Examiner determines whether the claim recites additional elements that amount to significantly more than the judicial exception. The Office has provided additional guidance for how these steps are to be applied. For example, in its May 4, 2016 memorandum[1] the Office details how each of these steps are to be applied, and in its May 16, 2016 memorandum in view of *Enfish, LLC. v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive LLC*,[2] the office further describes how to apply Step 2A to claims representing improvements to computer-related technology.

With respect to Step 2A, the Office directs that "when an examiner determines that a claim is directed to an abstract idea (Step 2A), the rejection should identify the abstract idea as it is recited (i.e., set forth or described) in the claim, *and explain why it corresponds to a concept that*

[1] "Formulating a Subject Matter Eligibility Rejection and Evaluating the Applicant's Response to a Subject Matter Eligibility Rejection."
[2] "Recent Subject Matter Eligibility Decisions (*Enfish, LLC. v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive LLC*)."

the courts have identified as an abstract idea."[3] The Office further directs that "a subject matter eligibility rejection should point to the specific claim limitation(s) that recites (i.e., sets for or describes) the judicial exception. The rejection must *identify the specific claim limitations and explain why those claim limitations set forth a judicial exception*."[4] In doing so, the Federal circuit has "cautioned against describing the claim at a high level of abstraction untethered from the language of the claim when determining the focus of the claimed invention." [5]

In performing Step 2A in the §101 rejection of the present claims, the *Office Action* has merely stated at a high level that the claims were directed towards "managing the selection of a payment card by is a method of organizing human activity." [6] In doing so, the *Office Action* failed to heed the Federal Circuit warning "against describing the claim at a high level of abstraction untethered from the language of the claim when determining the focus of the claimed invention." [7] For example, the *Office Action* fails to properly recognize that the claims are directed towards a novel embodiment of a user interface scheme. Instead, the *Office Action* describes the claims at such a high level of abstraction that the *Office Action* presents the claims as being directed towards long prevalent business practice. As such, Applicant respectfully submits that this §101 rejection is facially deficient for at least this reason, and respectfully requests withdrawal of the §101 rejection on these grounds.

Additionally, Applicant respectfully submits that the claims, particularly as now amended, do not recite a judicial exception under Step 2A. Taking claim 1 as an example, Applicant notes that claim 1 is directed to an improvement of the computer-related technology of managing a computer interface that allows a user to easily select a particular electronic payment card that is capable of electronically transferring money. Applicant notes that while the transfer of physical money is a conventional practice, the technology involved in the wholly digital transfer of money is neither conventional nor abstract. Instead, the processes and systems involved in managing electronic money transfers are directed towards technical/computer-specific problems.

Per *Enfish* and the May 16, 2016 memorandum, the Federal Circuit has emphasized that "claims directed to improvements in computer-related technology, including claims directed to

[3] See page 1 of the May 4, 2016 memorandum, emphasis added.
[4] See page 2 of the May 4, 2016 memorandum, emphasis added.
[5] See page 1 of the May 16, 2016 memorandum.
[6] See pages 2 of the Office Action.
[7] See page 1 of the May 16, 2016 memorandum.

software, are not necessarily abstract (Step 2A)," that "software can make non-abstract improvements to computer technology just as hardware can," and that "claims directed to software, as opposed to hardware, are also not inherently abstract."[8] Indeed, the memo notes that "a claim directed to an improvement to computer-related technology (e.g., computer functionality) is likely **not** similar to claims that have previously been identified as abstract by the courts."[9] Thus, "an examiner may determine that a claim directed to improvements in computer-related technology is **not** directed to an abstract idea under Step 2A of the subject matter eligibility examination guidelines (and is thus patent eligible), *without the need to analyze the additional elements under Step 2B*."[10] Inasmuch as the present claims represent a concrete improvement to a computer-related technology, Applicant respectfully submits that the claims, particularly as amended are not directed to an Abstract idea, and that the analysis need not proceed past Step 2A.

Moreover, Applicant also notes that, with respect to Step 2B, the Office directs that "[f]or the second part of the analysis (Step 2B), the rejection should identify the additional elements in the claim and explain why the elements taken *individually and in combination* do not amount to a claim as a whole that is significantly more than the judicial exception identified in Step 2A."[11] In performing Step 2B in the §101 rejection of the present claims, the *Office Action* has asserted the conclusory statement that "displaying a list of mobile payment cards is well-understood, routine, conventional computer function performed by a generic computer {e.g. mobile device). Generic computer components performing generic computer functions, alone, do not amount to significantly more than the abstract idea."[12] In contrast to the reasoning of the *Office Action*, the Office pointed out that "the court stated that an invention's ability to run on a general purpose computer does not automatically doom the claim."[13] Additionally, applicants respectfully submit that characterizing the claims as merely "[d]isplaying a list of mobile payment cards" is not an accurate reflection of the current claims. Instead, the current claims provide unique digital interface elements that allow a user to interact with and control their mobile wallet. Further, in *Enfish,* the Federal Circuit explained that "unlike the claims here that are directed to a specific improvement

[8] See pages 1 and 2 of the May 16, 2016 memorandum.
[9] See page 2 of the May 16, 2016 memorandum, emphasis added.
[10] See page 2 of the May 16, 2016 memorandum, emphasis added.
[11] See page 1 of the May 4, 2016 memorandum, emphasis added.
[12] See page 3 of the Office Action.
[13] "Recent Subject Matter Eligibility Decisions (*Enfish, LLC. v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive LLC*)."

to computer functionality, the patent-ineligible claims at issue in other cases recited use an abstract mathematical formula on any general purpose computer."[14] Similar to the claims at issue in *Enfish,* the currently recited claims are not "a situation where general-purpose computer components are added post-hoc to a fundamental economic practice or mathematical equation." [15] Applicant's respectfully submit that in view of *Enfish*, the present claims are directed towards patentable subject matter.

In view of the foregoing remarks, Applicant respectfully submits that the claims as previously presented were directed to statutory subject matter, and further that the claims as now presented are also directed to statutory subject matter, and respectfully requests favorable reconsideration of the present claims in view of §101.

35 U.S.C. §103(a) Rejection of Claims 1, 2, 4-6, 12 & 15

The *Office Action* rejected claims 1, 2, 4-6, 12 & 15 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,707,113 DiMartino ("DiMartino") in view of U.S. Patent Publication No. 2012/0123937 Spodak ("Spodak"). The *Office Action* also rejected claims 3, 7, 8, 10, 11, 13 & 14 under 35 U.S.C. § 103(a) as being unpatentable over DiMartino in view of Spodak and in further view of U.S. Patent No. 7,967,196 Bierbaum ("Bierbaum"). The *Office Action* also rejected claim 9 under 35 U.S.C. § 103(a) as being unpatentable over DiMartino in view of Spodak and in further view of Bierbaum and in further view of U.S. Patent Publication No. 2013/0084797 Avadhanam ("Avadhanam").

Applicants respectfully traverse this rejection and submit that the claims in their current form are allowable over the art of record. The *Office Action* failed to cite prior art that taught or suggested several features of the original claims. Instead, the *Office Action* alleged that these

[14] *Enfish, LLC. v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive LLC*
[15] *Enfish, LLC. v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive LLC*

features were "nonfunctional descriptive material." Applicants submit that this is not an accurate portrayal of the referenced features in the claims.

Nevertheless, Applicant has amended the claims to further clarify the features of the claims as being functional aspects of the claimed invention. Because the *Office Action* failed to cite any art that taught these features, Applicants submit that the current claims are allowable over the art.

For example, Independent Claim 1 recites:

> receiving, through the touch screen interface, a user input selecting a mobile payment card from the list of mobile payment card;
>
> detecting the user input sliding the mobile payment card from the first portion of the touch screen interface to a second portion of the touch screen interface;
>
> based upon the user input sliding the mobile payment card, setting, as a temporary card, the mobile payment card

Applicants submit, and the *Office Action* does not assert otherwise, that the art of record fails to teach or suggest at least these limitations. Applicants further submit that Independent Claim 15, which recites similar limitations is also allowable for the same reasons. Accordingly, Applicants respectfully request prompt allowance of Independent Claims 1 and 15, and their associated dependent claims.

Conclusion

In view of the foregoing, Applicants respectfully submit that the remaining rejections of record are also now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that Applicants have not acquiesced to any of the purported teachings or assertions made in the Office Action regarding the cited art or the pending application, including any official notice. Instead, Applicants reserve the right to challenge any of the purported

teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any official notice, explicitly or implicitly, Applicants specifically request that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event the Examiner finds any other issues that would need to be addressed before allowance, the Examiner is invited to contact Applicants' undersigned Attorneys directly.

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; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefor and charge any additional fees that may be required to Deposit Account No. 23-3178.

Dated this 23rd day of June, 2017.

Respectfully submitted,

/W. Brad Barger/

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VIA eFILE

PATENT APPLICATION
Docket No. 20533.40a.1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of	Min Hwan JEON	)
Serial No.:	14/647,859	) Art Unit) 3695
Filed:	May 28, 2015	)
Conf. No.:	5414	)
For:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME	)
Examiner:	Kito R. Robinson	)
Customer No.:	22913	)

TRANSMITTAL FOR AMENDMENT "A"
AND RESPONSE AFTER NON-FINAL

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

Dear Sir:

Transmitted herewith is an Amendment "A" and Response for entry in the above-identified application.

_____

_X_ To render the transmitted Amendment "A" and Response timely filed enclosed are the following:

_X_ No other additional fee is required.

The fee has been calculated as follows:

			SMALL ENTITY		LARGE ENTITY	
CLAIMS REMAINING AFTER	**HIGHEST NO. PREVIOUSLY PAID FOR**	**PRESENT EXTRA**	**RATE**	**ADDT'L FEE**	**RATE**	**ADDT'L FEE**
TOTAL 15	MINUS 20	= 0	X		X $80.00	00.00
INDEPENDENT 2	MINUS 3	= 0	X		X $420.00	00.00
1st PRESENTATION OF MULTIPLE DEPENDENT CLAIM			+_____=		+_____=	
			TOTAL		**TOTAL**	00.00

_X_ 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; (2) any patent application and reexamination processing fees under 37 CFR § 1.17; and/or (3) any post issuance fees under 37 CFR § 1.20. In addition, if any additional extension of time is required, which has not otherwise been requested, please consider this a petition therefore and charge any additional fees that may be required to **Deposit Account No. 23-3178**.

Dated this 23rd day of June, 2017.

Respectfully submitted,

/W. BRAD BARGER/

JOHN C. STRINGHAM
Registration No. 40,831
W. BRAD BARGER
Registration No. 69,566
WORKMAN | NYDEGGER
Attorneys for Applicant
Customer No. 22913

Electronic Acknowledgement Receipt

EFS ID:	29597358
Application Number:	14647859
International Application Number:	
Confirmation Number:	5414
Title of Invention:	METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME
First Named Inventor/Applicant Name:	Min Hwan JEON
Customer Number:	22913
Filer:	William Brad Barger/Lindsey Gifford
Filer Authorized By:	William Brad Barger
Attorney Docket Number:	20533.40a.1
Receipt Date:	23-JUN-2017
Filing Date:	28-MAY-2015
Time Stamp:	18:18:23
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	20533-40a-1_2017-06-23_Amendment-A-and-Response.pdf	179786 772e2f9f1b59d03f3ef1b01f6f5ecbd6254bf5b9	no	11

Warnings:

Information:					
2	Transmittal Letter	20533-40a-1_2017-06-23_Transmittal.pdf	108749 cc9ab3c0cf7dd48d5fbfa9615ac36580e6dd5d02	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	288535	

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

New Applications Under 35 U.S.C. 111

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

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

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

New International Application Filed with the USPTO as a Receiving Office

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

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/647,859	05/28/2015	Min Hwan JEON	20533.40a.1	5414

22913 7590 03/27/2017

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111

EXAMINER
ROBINSON, KITO R

ART UNIT	PAPER NUMBER
3695	

NOTIFICATION DATE	DELIVERY MODE
03/27/2017	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

Office Action Summary	Application No. 14/647,859	Applicant(s) JEON, MIN HWAN	
	Examiner KITO R. ROBINSON	Art Unit 3695	AIA (First Inventor to File) Status No

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

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

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

Status

1)☒ Responsive to communication(s) filed on *28 May 2015*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

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

3)☐ 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.

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

Disposition of Claims*

5)☒ Claim(s) *1-15* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-15* is/are rejected.

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

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

* If any claims have been determined allowable, 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 or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

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

11)☒ The drawing(s) filed on *28 May 2015* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

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

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

Priority under 35 U.S.C. § 119

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

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)).

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

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date *05/13/2016*.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

DETAILED ACTION

Status of Claims

1. This action is in reply to the application filed on 28 May 2015.

2. Claims 1-15 are currently pending and have been examined.

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

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claims 1-15 are rejected under 35 U.S.C. 101 because the claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claim(s) 1-15 is/are directed to setting a temporary payment card. Claim 1 recites displaying a list, setting a mobile payment card which is moved by a user from among the mobile payment card listed in the list; and resetting the setting of the temporary payment card when a payable time passes. These steps describe a method of managing payment card, which is a "long prevalent" business practice that cardholders have used for many years. Managing the selection of a payment card by is a method of organizing human activity. The claim as a whole is also similar to classifying and storing digital images in an organized manner (*TLI Comms.*), delivering user-selected media content to portable devices (*Affinity Labs v. Amazon.com*) and budgeting (*Int. Ventures v. Cap One Bank*), which the Federal Circuit described as directed to an abstract mental process that can be performed in the human mind, or by a human using pen and paper. Further, the claim is not made any less abstract by the invocation of a programmed computer. Unlike *Enfish*, where the claims were focused on a specific improvement in ***how*** the computer functioned, the claim here merely uses the computer as a tool to perform the abstract

concepts. Therefore, based on the similarity of the concept described in this claim to abstract ideas identified by the courts, claim 1 is directed to an abstract idea (*Step 2A: Yes*).

6. The claim(s) does/do not include additional elements that are sufficient to amount to significantly more than the judicial exception because the claim recites the additional limitations of mobile device to perform the steps of displaying. Displaying a list of mobile payment cards is well-understood, routine, conventional computer function performed by a generic computer (*e.g.* mobile device). Generic computer components performing generic computer functions, alone, do not amount to significantly more than the abstract idea. Viewing the limitations in combination also fails to amount to significantly more than the abstract idea. The claimed invention display data and process user input, but these functions reflect ordinary mental thought typically performed by a cardholder selecting a payment card for a purchase. Unlike the eligible claims in *Diehr* and *Bascom*, in which the elements limiting the exception were individually conventional but taken together provided an inventive concept because they improved a technical field, the claim here does not invoke any of the considerations that courts have identified as providing significantly more than an exception. The combination of elements is no more than the sum of their parts, and provides nothing more than mere automation of managing and organizing payment cards that were in years past performed mentally by cardholders when engaging in purchase transaction. Mere automation of organizing human activity does not provide significantly more (*i.e.*, provide an inventive concept).For these reasons, claim 1 is ineligible (*Step 2B: No*).

Claim Rejections - 35 USC § 103

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

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

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under pre-AIA 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

9. Claims 1, 2, 4-6, 12 & 15 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over DiMartino et al. US 7,707,113, hereafter DiMartino in view of Spodak US 2012/0123937 A1.

Claim 1

DiMartino discloses:

- *displaying a list of mobile payment cards* **(column 7, lines 2-5: "If the user chooses to select a payment card, the method 130 proceeds to block 144 in which the user may select a payment card, for example, selecting an appropriate payment card from a list of payment cards displayed in a dialog box.")** *;*
- *setting, as a temporary payment card, a mobile payment card which is moved by a user from among the mobile payment card listed in the list* **(column 7, lines 52-55: "In an embodiment, the device 102 may provide the user with a dialog box to select a different card to override the always on card, for example to use a different credit card which has a different interest rate. In an embodiment, the device 102 may provide the user with a dialog box for**

selecting a different default always on card."); DiMartino does not expressly show: *moved by a user from among the mobile payment card listed in the list.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *setting as a temporary card* step would be performed the same regardless of how the mobile payment card is set as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994). *and*

DiMartino does not disclose the following, however Spodak does:

- *resetting the setting of the temporary payment card when a payable time passes* **(paragraph 0090: "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card.")**

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 2

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino does not disclose the limitation of *when the moved mobile payment card is moved to an original position by the user, resetting the setting of the temporary payment card.* However, Spodak, in paragraph

0052 discloses “Second, the universal card can be programmed in a "temporary card" mode, where the universal card stores only one set of information required for emulation. The user utilizes the mobile device to program the card to emulate a specific card either for a set amount of time or number of transactions. Once programmed in this mode, the universal card would remain programmed to emulate that one card for the set time or the number of transactions. If the user wanted to change the universal card to emulate a different card, the user would need to reconnect the mobile device to reprogram the card. Third, the universal card can be programmed in a "default card" mode, where the universal card always emulates a specific card, unless programmed otherwise. In this mode, the information of the default card is saved in the universal card and the universal card is always configured to emulate the default card, unless the user re-programs the universal card to temporarily act as another card or to change to a new default card.” Note: Spodak does not expressly show: *the moved mobile payment card is moved to an original position by the user, resetting the setting of the temporary payment card.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *resetting the setting of the temporary payment card* step would be performed the same regardless of how the mobile payment card is reset as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994).

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 4

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino does not disclose the limitation of *when a payment is made within the payable time, resetting*

the setting of the temporary payment card. However, Spodak, in paragraph 0090 discloses "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 5

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino does not disclose the limitation of *when the payable time passes, moving the mobile payment card moved by the user to an original position.* However, Spodak, in paragraph 0052 discloses "Second, the universal card can be programmed in a "temporary card" mode, where the universal card stores only one set of information required for emulation. The user utilizes the mobile device to program the card to emulate a specific card either for a set amount of time or number of transactions. Once programmed in this mode, the universal card would remain programmed to emulate that one card for the set time or the number of transactions. If the user wanted to change the universal card to emulate a different card, the user would need to reconnect the mobile device to reprogram the card. Third, the universal card can be programmed in a "default card" mode, where the universal card always emulates a specific card, unless programmed otherwise. In this mode, the information of the default card is saved in the universal card and the universal card is always configured to emulate the default card, unless the user re-programs the universal card to temporarily act as another card or to change to a new default card." Note: Spodak does

not expressly show: *the moved mobile payment card is moved to an original position by the user, resetting the setting of the temporary payment card.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *resetting the setting of the temporary payment card* step would be performed the same regardless of how the mobile payment card is reset as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994).

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 6

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino does not disclose the limitation of *gradually moving the mobile payment card moved by the user to an original position according to a remaining payable time.* However, Spodak, in paragraph 0090 discloses "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by

known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 12

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino does not disclose the limitation of *when the remaining payable time is shorter than or equal to a threshold, outputting an alarm.* However, Spodak, in paragraph 0090 discloses "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 15

DiMartino discloses:

- *a touch screen configured to display a list of mobile payment cards* **(column 7, lines 2-5: "If the user chooses to select a payment card, the method 130 proceeds to block 144 in which the user may select a payment card, for example, selecting an appropriate payment card from a list of payment cards displayed in a dialog box." & column 10, lines 7-8: "The handset 400 includes a display 402 and a touch-sensitive surface or keys 404 for input by a user.")**; and

- *a processor configured to set, as a temporary payment card, a mobile payment card which is moved by a user from among the mobile payment cards listed in the list displayed on the touch screen* **(column 7, lines 52-55: "In an embodiment, the device 102 may provide the user with a dialog box to select a different card to override the always on card, for example to use a different credit card which has a different interest rate. In an embodiment, the device 102 may provide the user with a dialog box for selecting a different default always on card.")***;* DiMartino does not expressly show: *moved by a user from among the mobile payment card listed in the list.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *setting as a temporary card* step would be performed the same regardless of how the mobile payment card is set as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994). *, and*

DiMartino does not disclose the following, however Spodak does:

- *reset the setting of the temporary payment card when a payable time passes* **(paragraph 0090: "In another example of a notification, a VISA card may have been selected as a default card for the universal card 110, but the user may have programmed the universal card 110 to emulate a DISCOVER card for a three-hour period and then revert back to the default VISA card. This situation may occur when the user is planning to spend several hours at a shopping mall and wants to use the DISCOVER card while at the mall. At or near the end of the three-hour period, the universal card 110 may send a signal to the mobile device that the universal card 110 is about to revert back to the default VISA card.")**

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino with the technique of Spodak because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention. .

10. Claims 3, 7, 8, 10, 11, 13 & 14 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over DiMartino in view of Spodak and in further view of Bierbaum et al. US 7,967,196 B1, hereafter Bierbaum.

Claim 3

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino & Spodak do not disclose the limitation of *displaying a remaining payable time.* However, Bierbaum, in Column 3, lines 20-23 discloses "The time remaining until expiration of the ready-to-pay timer and the closing of the electronic wallet may be displayed on the portable electronic device containing the electronic wallet."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 7

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino discloses *when the mobile payment card set as the temporary payment card is moved again by the user prior to the payable time passing* in **column 7, lines 52-55.** DiMartino does not expressly show: *the temporary payment card is moved again by the user prior to the payable time passing.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *setting as a temporary card* step would be performed the same regardless of how the mobile payment card is set as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994). DiMartino & Spodak do not disclose the limitation of *extending the payable time.* However, Bierbaum, in Column 3, lines 23-27 discloses "A first soft key of the device containing the electronic wallet may be

activated to reset the ready-to-pay timer, for example extending the time-out interval by an additional increment of time."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 8

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino discloses *setting the temporary payment card* in **column 7, lines 52-55.** DiMartino does not expressly show: *the temporary payment card is moved again by the user prior to the payable time passing.* However this difference is only found in the nonfunctional descriptive material and is not functionally involved in the step recited. The *setting as a temporary card* step would be performed the same regardless of how the mobile payment card is set as the temporary card. Thus, this descriptive material will not distinguish the claimed invention from the prior art in terms of patentability, see In re Gulack, 703 F.2d 1381, 1385, 217 USPQ 401, 404 (Fed. Cir. 1983); In re Lowry, 32 F.3d 1579, 32 USPQ2d 1031 (Fed. Cir. 1994). DiMartino & Spodak do not disclose the limitation of *wherein the movement by the user in the setting operation is performed in a same method as the movement by the user in the extending operation.* However, Bierbaum, in Column 3, lines 23-27 discloses "A first soft key of the device containing the electronic wallet may be activated to reset the ready-to-pay timer, for example extending the time-out interval by an additional increment of time."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements

as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 10

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino & Spodak do not disclose the limitation of *when the payable time passes, making the mobile payment card moved by the user disappear.* However, Bierbaum, in Abstract discloses "The electronic wallet application enters a ready-to-pay mode, initiates a ready-to-pay timer when entering the ready-to-pay mode, transmits the confidential information when in the ready-to-pay mode based on receiving contactless communication, and leaves the ready-to-pay mode when the ready-to-pay timer expires."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 11

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino & Spodak do not disclose the limitation of *making the mobile payment card moved by the user gradually disappear according to a remaining payable time.* However, Bierbaum, in Abstract discloses "The electronic wallet application enters a ready-to-pay mode, initiates a ready-to-pay timer when entering the ready-to-pay mode, transmits the confidential information when in the ready-to-pay mode based on receiving contactless communication, and leaves the ready-to-pay mode when the ready-to-pay timer expires." Column 9, lines 59-67-column 10, lines 1 discloses " At block 170, if the first electronic wallet 110 is commanded to leave the ready-to-pay mode, for example by the user activating a soft key of a dedicated function key that commands the first electronic wallet 110 to leave the ready-to-pay mode or an authorized payment transaction with the POS terminal 104 has been completed, the method 160

proceeds to block 174 where the first electronic wallet 110 leaves the ready-to-pay mode. When the first electronic wallet 110 leaves the ready-to-pay mode, the confidential information is unavailable for reading."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Claim 13 & 14

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino & Spodak do not disclose the limitation *displaying a list of additional services issued to the mobile device; and setting an additional service moved by the user from among the additional services listed in the list to be used and when a usable time passes, setting the additional service to be disabled.* However, Bierbaum, in column 5, lines 35-49 discloses "The portable electronic device 102 includes one or more applications 116 that provide services and functionality to a user, such as a mobile phone subscriber or a PDA user. These applications 116 may include, but are not limited to, a mobile telephone service, an electronic wallet, an email service, an address book, a contacts list, a spreadsheet, a scheduler, a virtual private network (VPN) portal, a web browser, and other applications. In an embodiment, these applications 116 may be launched or activated or started by a number of methods. When an application 116 is inactive or not yet launched, accessing the functionality of the application 116 may involve first loading at least portions of the application 116 into a memory area that is more accessible or more rapidly accessible to a processor 140 of the portable electronic device 102."

Column 5, lines 61-67- column 6, lines 1-14 discloses "In an embodiment the portable electronic device 102 includes a plurality of electronic wallets, for example a first electronic wallet 110, a second electronic wallet 112, and a third electronic wallet 114. Each of the several electronic wallets 110, 112, and 114 may be associated with different members of a family, for example a father, a mother, and a

child. Alternatively, each of the several electronic wallets 110, 112, and 114 may be associated with different employees of a business firm. Alternatively, each of the electronic wallets 110, 112, 114 may be associated with different roles of an individual, for example a personal wallet, a business wallet, and a social organization wallet. The individual may use the personal wallet for buying a birthday gift for a spouse, use the business wallet to pay for business related expenses, and use the social organization wallet to pay for food for a group campout. In an embodiment, the electronic wallet launching input sequence may select one of the electronic wallets 110, 112, 114. In another embodiment, the electronic wallet launching sequence may trigger the display to show a selector, for example a dialog box or window, to select one of the electronic wallets 110, 112, 114."

Column 6, lines 64-67-column 7, lines 1-18 discloses "The ready-to-pay timer 142 may be used to implement a security feature to help protect the confidential information contained in the electronic wallets 110, 112, and 114 and/or the applications 116 from identity theft. For example, when the first wallet 110 has been opened and a payment card has been selected for payment, the ready-to-pay timer 142 can be used by the first electronic wallet 110 to automatically close after the ready-to-pay timer 142 marks the passage of a limited period of time. Another way of saying this is the first electronic wallet 110 may be configured or programmed to close after the ready-to-pay timer 142 exceeds a time threshold, a time limit, or simply a limit. For example, the first electronic wallet 110 may close automatically after about 1 minute of elapsed time, after 2 minutes of elapsed time, after about 4 minutes of elapsed time, or after some other period of time. This may be referred to as an open wallet time-out or a time-out feature. In an embodiment, all of the electronic wallets 110, 112, and 114 may be protected with the time-out function; in another embodiment, selected ones of the electronic wallets 110, 112, and 114 may be protected with the time-out functions while the other electronic wallets are not protected with the time-out function."

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

11. Claims 9 is/are rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over DiMartino in view of Spodak and in further view of Bierbaum and in further view of Avadhanam et al. US 2013/0084797 A1, hereafter Avadhanam.

Claim 9

DiMartino & Spodak discloses the limitations as shown in the rejection of Claim 1 above. DiMartino & Spodak do not disclose the limitation of *when the mobile device is moved by the user in a specific pattern prior to the payable time passing, extending the payable time*. However, Bierbaum discloses *extending the payable time*, in Column 3, lines 23-27.

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino & Spodak with the technique of Bierbaum because all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

DiMartino, Spodak & Bierbaum do not disclose the limitation of *when the mobile device is moved by the user in a specific pattern prior to the payable time passing.* However, Avadhanam, in paragraph 0038 discloses "*As one of ordinary skill in the art will appreciate in view of this disclosure, when the sensor 110 is realized by the accelerometer 230, the application 102 will detect (via an accelerometer driver that is used to implement the sensor driver 112 and an accelerometer service that is used to implement the sensor service 114) the accelerometer 232 output to determine: 1) whether the user has moved the mobile communication device 100 in one direction or another direction (translational movement); 2) whether the user has tilted the mobile communication device 100 (rotational movement); and/or 3) an amount of dynamic acceleration that enables an analysis of the way the mobile communication device 100 is moving. And this information may be used to enable the user to select a particular credit card using a particular action that may include translational and/or rotational movement of the mobile communication device 100.*"

It would have been obvious to one of ordinary skill in the art at the time of the invention to [combine/modify] the method of DiMartino, Spodak & Bierbaum with the technique of Avadhanam

because simply substituting one known element (selection of a credit card) for another known element (extending a payable time) produces predictable results rendering the claim obvious.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KITO R. ROBINSON whose telephone number is (571)270-3921. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RYAN DONLON can be reached on (571) 270-3602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KITO R ROBINSON/
Primary Examiner, Art Unit 3695

17 March 2017

Notice of References Cited	Application/Control No. 14/647,859	Applicant(s)/Patent Under Reexamination JEON, MIN HWAN	
	Examiner KITO R. ROBINSON	Art Unit 3695	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-7,707,113 B1	04-2010	DiMartino; Allison	G06Q20/105	705/41
*	B	US-7,967,196 B1	06-2011	Bierbaum; Christopher J.	G06Q20/127	235/375
*	C	US-2012/0123937 A1	05-2012	Spodak; Douglas	G06K19/06187	705/41
*	D	US-2013/0084797 A1	04-2013	Avadhanam; Phani Bhushan	G06F9/44505	455/41.1
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	F	US-				
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Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14647859	JEON, MIN HWAN
	Examiner	Art Unit
	KITO R ROBINSON	3695

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

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

CLAIM		DATE								
Final	Original	03/17/2017								
	1	✓								
	2	✓								
	3	✓								
	4	✓								
	5	✓								
	6	✓								
	7	✓								
	8	✓								
	9	✓								
	10	✓								
	11	✓								
	12	✓								
	13	✓								
	14	✓								
	15	✓								

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
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	Art Unit	3693
	Confirmation Number	5414
	Examiner Name	Shahid R. Merchant
	Attorney Docket Number	20533.40a.1

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	95	20030042639	KR	2-Jun-2003	Coregate Co., Ltd.		X
	96	20030047962	KR	18-Jun-2003	Choi		X
	97	20030075062	KR	22-Sep-2003	Park		X
	98	20030081817	KR	22-Oct-2003	KTFreetel Co., Ltd.		X
	99	20040099041	KR	26-Nov-2004	Bizmodeline Co., Ltd.		X
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	101	20050114635	KR	6-Dec-2005	Nokia Corp.		X
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	103	20060035421	KR	26-Apr-2006	SK Telecom Co., Ltd.		X
	104	20060039997	KR	10-May-2006	Electronics and Telecommunications Research Inst.		X
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	114	20070047264	KR	4-May-2007	Icash Co., LTD		X
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	116	20070065863	KR	25-Jun-2007	Firstpocket Co., Ltd.		X
	117	20070070573	KR	4-Jul-2007	Nautilus Hyosung Inc.		X
	118	20070072814	KR	5-Jul-2007	Bizmodeline Co., Ltd.		X
	119	20070091808	KR	12-Sep-2007	Shin		X
	120	20070104049	KR	25-Oct-2007	SK Telecom Co., Ltd.		X
	121	20070120223	KR	24-Dec-2007	Samsung Electronics Co., Ltd.		X
	122	20080009242	KR	25-Jan-2008	You		X
	123	20080025238	KR	20-Mar-2008	Cyberpass Inc.		X
	124	20080050208	KR	5-Jun-2008	Electronics and Telecommunications Research Inst.		X
	125	20080054790	KR	19-Jun-2008	Kim		X
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	146	20100058401	KR	3-Jun-2010	KGMobilians Co., Ltd.		X
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	148	20100106256	KR	1-Oct-2010	Kim et al.		X
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	150	20110019678	KR	28-Feb-2011	VP Inc.		X
	151	20110032350	KR	30-Mar-2011	Lee et al.		X
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	158	20110068116	KR	22-Jun-2011	SK Planet Co., Ltd.		X
	159	20110086614	KR	28-Jul-2011	Smith et al.		X
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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]
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	246	International Search Report for PCT/KR2014/010006 dated January 9, 2015	
	247	International Search Report for PCT/KR2014/010131 dated January 9, 2015	
	248	International Search Report for PCT/KR2014/011701 dated March 3, 2015	
	249	Jung, "Applications, Solutions, and Field Services," SK Planet, 25 June 2012, pp. 13-15	
	250	Kim, "Trend on World Market of Smart Phone Mobile Payment and Secure Project," BC Card, 14 October 2010, pp. 27-28, pp. 32-33	
	251	Labrou et al., "Wireless Wallet," Proceedings of the First Annual International Conference on Mobile and Ubiquitous Systems: Networking and Services (MobiQuitous'04), IEEE, 22 August 2004, pg. 32-41 XIP 10721016A	

OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
	252	14/369990	27-Oct-2014	Office Action
	253	14/369990	19-Mar-2015	Final Office Action
	254	14/362251	14-Aug-2015	Office Action
	255	14/369990	13-Nov-2015	Office Action
	256	14/362251	26-Feb-2016	Final Office Action

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.R.R/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/647,859
	Filing Date	05/28/2015
	First Named Inventor	Min Hwan Jeon
	Art Unit	3693
	Confirmation Number	5414
	Examiner Name	Shahid R. Merchant
	Attorney Docket Number	20533.40a.1

EXAMINER SIGNATURE			
Examiner Signature	/KITO R ROBINSON/	Date Considered	03/16/2017
*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.			
[1]Applicant is to place a check mark here if English language translation is attached.			

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.R.R/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)		
	Application Number	14/647,859
	Filing Date	05/28/2015
	First Named Inventor	Min Hwan Jeon
	Art Unit	3693
	Confirmation Number	5414
	Examiner Name	Shahid R. Merchant
	Attorney Docket Number	20533.40a.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.

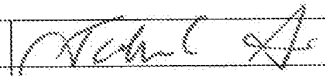
☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ 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	5/12/16
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.**

5682994_1

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.R.R/

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	14647859	JEON, MIN HWAN
	Examiner	Art Unit
	KITO R ROBINSON	3695

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
705	41	03/17/2017	KR

SEARCH NOTES		
Search Notes	Date	Examiner
EAST	03/17/2017	KR

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	0	(((payment or debit or credit or default or prefer$4) near2 card) with activat$4 with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:56
L2	12	(((payment or debit or credit or default or prefer$4) near2 card) with limited with time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:56
L3	1	(((payment or debit or credit or default or prefer$4) near2 card) near6 few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58
L4	1	(((payment or debit or credit or default or prefer$4) near2 card) with few near6 (hours or minutes)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:58
L5	9	(((payment or debit or credit or default or prefer$4) near2 card) near6 (restrict$4 or frozen or freeze or activat$4)) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 09:59
L6	25	(((payment or debit or credit or default or prefer$4) near2 card) near6 (buy$4 or purchas$4) near4 time) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:02
L7	8	(((payment or debit or credit or default or prefer$4) near2 card) near6 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:03
L8	9	(((payment or debit or credit or default or prefer$4) near2 card) near8 timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:04
L9	15	(((payment or debit or credit or default or prefer$4) near2 card) with timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:05
L10	57	(((payment or debit or credit or default or prefer$4) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
L11	19	705/$$ and (((payment or debit or credit or default or prefer$4 or smart) near2 card) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:07
L12	2	705/$$ and ((electronic near2 wallet) same timer) same (remain$4 near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/17 10:08

S1	1	temporar$4 with setting near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:56
S2	4	temporar$4 with setting near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:57
S3	729	temporar$4 near4 (payment or debit or credit) near2 card	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:58
S4	3	temporar$4 near4 (payment or debit or credit) near2 card near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S5	7	temporar$4 near6 (payment or debit or credit) near2 card near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 08:59
S6	16	temporar$4 with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:01
S7	795	temporar$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S8	18	temporar$4 near4 ((payment or debit or credit) near2 card) near4 select$3	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:29
S9	192	(limit$3 or momentary or alternative or substitute or temp) with ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S10	80	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S11	19	(limit$3 or momentary or alternative or substitute or temp) near4 ((payment or debit or credit) near2 card) near4 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:33
S12	6	(momentary or alternative or substitute or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:34
S13	6	(momentary or alternative or substitut$3 or temp) near6 ((payment or debit or credit) near2 card) near6 default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:37
S14	4	temporar$4 near4 ((payment or debit or credit) near2 card) near4 automatic$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:46
S15	13	temporar$4 near6 ((payment or debit or credit) near2 card) near6 automatic$4	US-PGPUB; USPAT;	OR	ON	2017/03/16 09:49

			USOCR			
S16	0	temporar$4 near6 ((payment or debit or credit) near2 card) near6 overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S17	0	temporar$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:50
S18	282	overrid$4 with ((payment or debit or credit) near2 card) with overrid$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S19	282	overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S20	105	overrid$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:51
S21	22	overrid$4 near4 default$4 near4 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:52
S22	22	overrid$4 near6 default$4 near6 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:53
S23	22	overrid$4 near8 default$4 near8 ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S24	40	overrid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:54
S25	0	over-rid$4 with default$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 09:59
S26	25	overrid$4 with exist$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:00
S27	0	temporar$4 with overrid$4 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:01
S28	33912	temporar$4 with overrid$4 with default$4 (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S29	0	temporar$4 with overrid$4 with default$4 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:02
S30	5	temporar$4 with default$4 with (wallet or	US-	OR	ON	2017/03/16

		e-wallet)	PGPUB; USPAT; USOCR			10:03
S31	3	temporar$4 with desir$3 with (wallet or e-wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S32	32	temporar$4 with desir$3 with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:04
S33	0	temporar$4 with ((virtual) near2 card) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:06
S34	0	temporar$4 with ((payment or debit or credit) near2 account) with default$4	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S35	0	temporar$4 with default$4 with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S36	100678	temporar$4 with setting ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S37	2	temporar$4 with setting with ((payment or debit or credit) near2 account)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:07
S38	26	temporar$4 with setting with ((payment or debit or credit) near2 card)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:08
S39	0	default near4 ((payment or debit or credit) near2 card) near4 limited near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S40	2	default with ((payment or debit or credit) near2 card) with limited with time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:10
S41	95	default$4 with ((payment or debit or credit) near2 card) near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:17
S42	20	default$4 near4 ((payment or debit or credit) near2 card) near4 time	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 10:17
S43	1	("20090173781").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2017/03/16 13:36
S44	42	("20020071076" | "20030132298" | "20040111320" | "20040225567" | "20040230489" | "20050187873" | "20050230472" | "20060165060" |	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:29

		"20060219780" | "20070210155" | "20080242274" | "20090094100" | "20090228966" | "20100063893" | "20100082447" | "20100174649" | "20100205045" | "20100287057" | "20110082765" | "20110254796" | "20110320293" | "20120054841" | "20120099756" | "20120172026" | "20120172089" | "20120197743" | "20120290420" | "20130041752" | "20130080289" | "20130185150" | "20130215116" | "20140058944" | "20140337230" | "20140351071" | "6512919" | "6587835" | "6636833" | "6755342" | "7707113" | "8271344" | "8403215" | "8849706").PN.				
S45	0	S44 and (default$4 near4 ((payment or debit or credit) near2 card) near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S46	0	S44 and (temporar$4 with ((payment or debit or credit) near2 account) with default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S47	0	S44 and (temporar$4 same ((payment or debit or credit) near2 account) same default$4)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:30
S48	1	S44 and (overrid$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:31
S49	5	705/41 and (overrid$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:31
S50	0	705/41 and (moving near4 ((payment or debit or credit) near2 card) near wallet)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:49
S51	2	705/41 and (finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S52	252	(finger near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S53	1	(finger near4 moving near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S54	2	(finger near8 moving near8 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:50
S55	12	(finger with moving with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:51

S56	0	(finger with rearrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S57	0	(finger with re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S58	10049087	(f re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S59	1	(re-arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S60	2512	(arrang$4 with ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S61	17	(arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:52
S62	1	(rearrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:53
S63	0	(re-arrang$4 near4 order$4 near4 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S64	0	(re-arrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S65	1	(rearrang$4 near6 order$4 near6 ((payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 14:54
S66	11	(changing near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:23
S67	0	((select$4 or overrid$3) near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:24
S68	2	((using) near3 ((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:25
S69	154	(((payment or debit or credit) near2 card) near4 limited near4 time)	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:26
S70	27	((resetting near4 (payment or debit or credit) near2 card))	US-PGPUB; USPAT;	OR	ON	2017/03/16 16:26

			USOCR			
S71	44	((resetting near8 (payment or debit or credit) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:37
S72	12	((resetting near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:46
S73	103	((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:48
S74	34	((reset near4 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S75	9	705/$$ and ((reset near8 (default) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:49
S76	0	705/$$ and ((reset$4 near8 (prefer$3) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:51
S77	38	705/$$ and ((reset$4 near4 card near4 used))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 16:55
S78	66	((revert$4 near8 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S79	54	((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29
S80	29	705/$$ and ((revert$4 near4 (payment or debit or credit or default or prefer$4) near2 card))	US-PGPUB; USPAT; USOCR	OR	ON	2017/03/16 17:29

3/17/2017 12:15:44 PM
C:\Users\krobinson1\Documents\EAST\Workspaces\Temporary Payment Card.wsp

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BIB DATA SHEET

CONFIRMATION NO. 5414

SERIAL NUMBER	FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
14/647,859	05/28/2015 RULE	705	3695	20533.40a.1

APPLICANTS
MOZIDO CORFIRE - KOREA, LTD., Seongnam-si Gyeonggi-do, KOREA, REPUBLIC OF;

INVENTORS
Min Hwan JEON, Gwangju-si, KOREA, REPUBLIC OF;

**** CONTINUING DATA ***************************
This application is a 371 of PCT/KR2013/007775 08/29/2013

**** FOREIGN APPLICATIONS ***************************
REPUBLIC OF KOREA 10-2012-0135940 11/28/2012

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
07/06/2015

Foreign Priority claimed ☑ Yes ☐ No 35 USC 119(a-d) conditions met ☑ Yes ☐ No Verified and Acknowledged /KITO R ROBINSON/ Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		KOREA, REPUBLIC OF	20	15	2

ADDRESS

Workman Nydegger
60 East South Temple
Suite 1000
Salt Lake City, UT 84111
UNITED STATES

TITLE

METHOD FOR SETTING TEMPORARY PAYMENT CARD AND MOBILE DEVICE APPLYING THE SAME

FILING FEE RECEIVED		
1480	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	14/647,859
Filing Date	05/28/2015
First Named Inventor	Min Hwan Jeon
Art Unit	3693
Confirmation Number	5414
Examiner Name	Shahid R. Merchant
Attorney Docket Number	20533.40a.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	6512919	28-Jan-2003	Ogasavara	
	2	6587835	1-Jul-2003	Treyz et al.	
	3	6636833	21-Oct-2003	Flitcroft et al.	
	4	6755342	29-Jun-2004	Jordan Jr	
	5	7707113	27-Apr-2010	DiMartino et al.	
	6	8271344	18-Sep-2012	Channakeshava et al.	
	7	8403215	26-Mar-2013	Aihara et al.	
	8	8849706	30-Sep-2014	King	

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
	9	20020071076	13-Jun-2002	Webb	
	10	20030132298	17-Jul-2003	Swartz et al.	
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	12	20040225567	11-Nov-2004	Mitchell et al.	
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	Art Unit	3693
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	Attorney Docket Number	20533.40a.1

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	56	100861390	KR	1-Oct-2008	Park		X
	57	100988528	KR	12-Oct-2010	Unknown		X
	58	101092786	KR	9-Dec-2011	Yu et al.		X
	59	101116009	KR	7-Feb-2012	Hyun		X
	60	101228442	KR	25-Jan-2013	EcoOneSolution Co., LTD		X
	61	101245272	KR	12-Jul-2011	Moon		X
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	63	101309431	KR	23-Sep-2013	Jin		X
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	65	101369540	KR	5-Mar-2014	Zhu et al.		X
	66	101395719	KR	16-May-2014	Lee		X
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	69	101430141	KR	14-Aug-2014	You		X
	70	101448085	KR	13-Oct-2014	Choi		X
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	83	20000037129	KR	5-Jul-2000	Net4Biz Co., Ltd.		X
	84	20000049878	KR	5-Aug-2000	Bang et al.		X
	85	20010000616	KR	5-Jan-2001	Kee		X
	86	20010010526	KR	15-Feb-2001	LG Electronics Inc		X
	87	20010086959	KR	15-Sep-2001	Unknown		X
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	94	20030040370	KR	22-May-2003	Telemac Corp.		X
	95	20030042639	KR	2-Jun-2003	Coregate Co., Ltd.		X
	96	20030047962	KR	18-Jun-2003	Choi		X
	97	20030075062	KR	22-Sep-2003	Park		X
	98	20030081817	KR	22-Oct-2003	KTFreetel Co., Ltd.		X
	99	20040099041	KR	26-Nov-2004	Bizmodeline Co., Ltd.		X
	100	20050017948	KR	23-Feb-2005	Pantech & Curitel Communications, Inc.		X
	101	20050114635	KR	6-Dec-2005	Nokia Corp.		X
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	103	20060035421	KR	26-Apr-2006	SK Telecom Co., Ltd.		X
	104	20060039997	KR	10-May-2006	Electronics and Telecommunications Research Inst.		X
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	106	20060099899	KR	20-Sep-2006	Lee Hoon Young		X
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	112	20070021461	KR	23-Feb-2007	Unknown		X
	113	20070044993	KR	2-May-2007	SK Telecom Co., Ltd.		X
	114	20070047264	KR	4-May-2007	Icash Co., LTD		X
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	116	20070065863	KR	25-Jun-2007	Firstpocket Co., Ltd.		X
	117	20070070573	KR	4-Jul-2007	Nautilus Hyosung Inc.		X
	118	20070072814	KR	5-Jul-2007	Bizmodeline Co., Ltd.		X
	119	20070091808	KR	12-Sep-2007	Shin		X
	120	20070104049	KR	25-Oct-2007	SK Telecom Co., Ltd.		X
	121	20070120223	KR	24-Dec-2007	Samsung Electronics Co., Ltd.		X
	122	20080009242	KR	25-Jan-2008	You		X
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	133	20090098766	KR	17-Sep-2009	Shinhan Bank		X
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	148	20100106256	KR	1-Oct-2010	Kim et al.		X
	149	20110010880	KR	8-Feb-2011	Ok Yun Sun		X
	150	20110019678	KR	28-Feb-2011	VP Inc.		X
	151	20110032350	KR	30-Mar-2011	Lee et al.		X
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	153	20110044131	KR	28-Apr-2011	Inuni Co., LTD		X
	154	20110049649	KR	12-May-2011	Kim et al.		X
	155	20110064182	KR	15-Jun-2011	SK Planet Co., Ltd.		X
	156	20110065814	KR	16-Jun-2011	Lee		X
	157	20110066025	KR	16-Jun-2011	Park		X
	158	20110068116	KR	22-Jun-2011	SK Planet Co., Ltd.		X
	159	20110086614	KR	28-Jul-2011	Smith et al.		X
	160	20110090642	KR	10-Aug-2011	Samsung Electronics Co., Ltd.		X
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	174	20120081483	KR	19-Jul-2012	Seo Woo Seon		X
	175	20120081886	KR	20-Jul-2012	LG Electronics Inc		X
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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]
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OFFICE ACTION / NOTICE OF ALLOWANCE DOCUMENTS				
Examiner Initials*	Cite No.	Application Number	Mail Date	Document
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	253	14/369990	19-Mar-2015	Final Office Action
	254	14/362251	14-Aug-2015	Office Action
	255	14/369990	13-Nov-2015	Office Action
	256	14/362251	26-Feb-2016	Final Office Action

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	Attorney Docket Number	20533.40a.1

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.			
[1]Applicant is to place a check mark here if English language translation is attached.			

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	Attorney Docket Number	20533.40a.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.

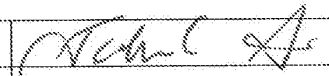
☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ 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	5/12/16
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.**

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(54) Wireless computer wallet for physical point of sale (POS) transactions

(57) Methods and systems provide a secure transaction server (STS); provide an authentic point of sale (POS) device, according to a first authentication parameter of the STS; provide an authentic mobile purchasing device, according to a second authentication parameter of the STS; provide a short-range communication method between the POS device and the mobile purchasing device; correlate by the STS a personal identification entry (PIE) and the authentic mobile purchasing device; transmit, by the POS device, a time dependent transformed secure POS authenticable POS purchase action to the STS; input the PIE to the mobile purchasing device to transmit a time dependent transformed secure user authenticable POS purchase action to the POS device via the short-range communication method; and approve, by the STS, the POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

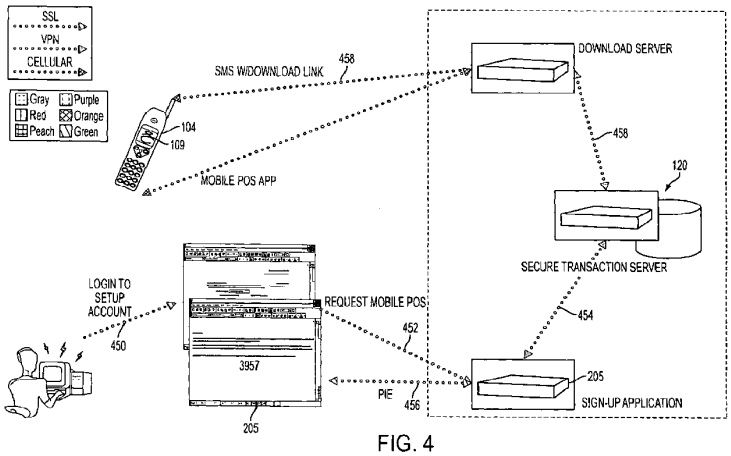

FIG. 4

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Description

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of priority to US Provisional Application Serial Number 60/703,862, entitled WIRELESS WALLET FOR PHYSICAL POINT OF SALE (POS) TRANSACTIONS, by Yannis Labrou and Jonathan Agre, filed August 1, 2005 in the U.S. Patent and Trademark Office and to the corresponding US regular application with the same title and inventors, filed 18 July 2006, the contents of which are incorporated herein by reference.

[0002] The regular US application is a continuation-in-part of US patent application no. 11/388,202, filed March 24, 2006, entitled "Authentication Services Using Mobile Device," which claims priority to US Provisional Application Serial Number 60/669,375 filed April 8, 2005; and also a continuation-in-part of US patent application no. 11/045,484, filed January 31, 2005, entitled "WIRELESS WALLET," which claim priority to US Provisional Application Serial Number 60/544,300 filed February 17, 2004; and also a continuation-in-part of US application no. 10/458,205, filed June 11, 2003, which claims the benefit of US provisional application no. 60/401,807, filed August 8, 2002; and also a continuation-in-part of US application no. 10/628,584 filed July 29, 2003, which claims the benefit of US provisional application no. 60/401,807 filed August 8, 2002; and also a continuation-in-part of US application no. 10/628,569 filed July 29, 2003, which claims the benefit of US provisional application no. 60/401,807 filed August 8, 2002; and also a continuation-in-part of US application no. 10/628,583 filed July 29, 2003, which claims the benefit of US provisional application no. 60/401,807 filed August 8, 2002.

[0003] This application is also related to pending US patent application no. 11/388,202, filed March 24, 2006, entitled AUTHENTICATION SERVICES USING MOBILE DEVICE, the entire disclosure of which is hereby incorporated herein by reference and attached hereto. This application is also related to pending US patent application no. 11/045,484, filed January 31, 2005, entitled WIRELESS WALLET, the entire disclosure of which is hereby incorporated herein by reference and attached hereto.

[0004] This application is also related to pending US patent application nos. 10/458,205, filed June 11, 2003; 10/628,584, filed July 29, 2003; 10/628,569, filed July 29, 2003; and 10/628,583, filed July 29, 2003, the entire disclosures of all of which are hereby incorporated herein by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0005] The present invention relates to a wireless computing apparatus/device for physical Point of Sale (POS) transactions.

2. Description of the Related Art

[0006] There is a need to improve payment speed at a physical POS. There is also a need to improve the cost of a transaction with the physical POS using a wireless communication computing apparatus. There is also a need to reduce the size of messages for communication efficiency in short-range communication methods.

SUMMARY OF THE INVENTION

[0007] The invention is defined in the independent claims, to which reference should now be made. Advantageous embodiments are set out in the sub claims.

[0008] The present invention provides a wireless communication computing apparatus/device for physical Point of Sale (POS) transactions. For example, a mobile phone and/or a personal digital assistant (PDA) wireless communication wallet for physical POS transactions.

[0009] The above as well as additional aspects and advantages will be set forth in part in the description which follows and, in part, will be obvious from the description, or may be learned by practice of the described embodiments.

[0010] Methods and systems providing a secure transaction server (STS); providing an authentic point of sale (POS) device, according to a first authentication parameter of the STS; providing an authentic mobile purchasing device, according to a second authentication parameter of the STS; providing a short-range communication method between the POS device and the mobile purchasing device; correlating by the STS a personal identification entry (PIE) and the authentic mobile purchasing device; transmitting, by the POS device, a time dependent transformed secure POS authenticable POS purchase action to the STS; inputting the PIE to the mobile purchasing device to transmit a time dependent transformed secure user authenticable POS purchase action to the POS device via the short-range communication method; and approving, by the STS, the POS purchase action for the POS device and for the mobile purchasing

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device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

[0011] According to an aspect of the embodiments, the POS purchase action identifies payment for a good and/or a service.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] The above-described aspects and advantages together with other aspects and advantages will become apparent and more readily appreciated from the following description of the embodiments, taken in conjunction with the accompanying drawings of which:

FIG. 1 is a diagram of a computer system 100 to provide a mobile wireless communication apparatus to a physical point of sale (POS) transaction service, according to an embodiment of the present invention,

FIG. 2 is a functional block diagram of Universal Pervasive Transaction Framework Secure Agreement Submission (UPTF SAS) system architecture to execute a mobile device POS authenticable transaction, according to an embodiment of the present invention,

FIG 3 is a diagram of UPTF mobile device POS authenticable transaction messages based upon Secure Agreement Submission (SAS) protocol to provide an authenticable mobile POS service, according to an embodiment of the present invention,

FIG. 4 is a system flow diagram of provisioning a mobile POS, according to an embodiment of the present invention, and

FIGS. 5-16 are flowcharts of mobile device to POS authenticable transactions, according to the embodiments of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0013] Reference will now be made in detail to the present embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to the like elements throughout. The embodiments are described below to explain the present invention by referring to the figures.

[0014] The described embodiments provide a wireless communication computing apparatus/device for physical Point of Sale (POS) transactions. For example, a mobile phone and/or a personal digital assistant (PDA) wireless communication wallet for physical POS transactions. The discussed methods and apparatuses and variations improve on the speed of a payment at a physical POS, the cost of the transactions since they do not always require that the mobile phone connect to the wireless Internet or cellular telephone network for the transaction to be authenticated and approved. In addition, the size of the messages is reduced for short-range communication methods.

[0015] FIG. 1 is a diagram of a computer system 100 to provide a mobile wireless communication apparatus to a physical point of sale (POS) transaction service, according to an embodiment of the present invention. According to the embodiments, a user 102 uses a mobile device 104, such as (without limitation) a mobile phone or a PDA, with wireless communication capability, to transact with a Point of Sale (POS) device 103, such as (without limitation) a cash register, of a provider 106, for example, to purchase an item or receive a service, etc. According to an aspect of the embodiments, the POS 103 can be another mobile device 104, such as another mobile phone. According to an aspect of the embodiments, a provider 106 operates one or a plurality of POSs 103. According to an aspect of the embodiment, the provider 106 and the POS 103 can be collapsed together. The mobile device 104 can be any mobile wireless communication computing device or mobile radio computing device, including, without limitation, a mobile phone, that wirelessly communicates (e.g., wireless Internet or mobile phone network 211) with other mobile devices 104a-n, with a secure transaction server 120, or with a POS 103, or any combinations thereof. According to an aspect of the embodiments, the mobile device 104 has one or more short-range communication methods 210 implemented therein, for example (without limitation), image, audio, and/or RF, to communicate with the POS 103.

[0016] According to an aspect of the embodiments, the invention improves using a mobile device 104, such as a mobile phone 104, for physical POS transactions, within the context of the Universal Pervasive Transactions Framework (UPTF). One main concept behind the discussed methods and variations is that the consumer's or customer's mobile phone 104 communicates to the Point of Sale (POS) 103 a transaction message, for example, a UPTF SAS based transaction message, used to authenticate and approve the transaction via:

[0017] (1) An image,

[0018] (2) An audio signal,

[0019] (3) Any short-range wireless connectivity technology, such as (without limitation) a short range RF signal, such as WiFi, Bluetooth, Radio Frequency Identification (RFID), or smart card, Near Field Communication (NFC) signal, or any combinations thereof, or

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[0020] (4) Any combinations thereof.

[0021] According to an aspect of the embodiments, the POS 103 has equipment that can send, receive, and interpret a locally transmitted/received message to re-construct a corresponding UPTF SAS message for UPTF transaction verification protocol. For example, an image interpreter at the POS 103 can decode a UPTF SAS message from an image displayed on the mobile phone's 104 display. Another example is to use an audio processor at the POS 103 that can decode a UPTF SAS message from an audio signal "played" through the mobile phone's 104 speaker to the POS 103 microphone. Another example is an RF signal between the POS 103 and mobile phone 104. The information received by the POS 103 is used to create one or more of the UPTF SAS messages (i.e., POS transaction view or the provider/merchant/payee transaction view) needed for the UPTF transaction verification protocol, which the mobile device 104 and/or the POS 103 (as the case may be) transceive with the STS 120. According to an aspect of the embodiments, the POS 103 transmits to the Secure Transaction Server (STS) 120 the mobile phone 104 provided RF based UPTF SAS message, or an image, audio after converting the same to a corresponding UPTF SAS message; the result of this conversion being a UPTF SAS based digital message. According to an aspect of the embodiments, the POS also transceives, by passing through any user related UPTF SAS messages (e.g., user transaction view generated at the mobile phone 104), such as an image or audio, without any prior conversion of the same to/from the STS 120. The POS 103 can be connected to the STS 120 possibly through a data network that can be a wireless connection and/or a wired connection.

[0022] In the case of an image, the POS 103 equipment can be a barcode scanner, preferably one that is capable of processing 2-Dimensional barcodes. In the case of an audio signal, the POS equipment 103 is an acoustic coupler or a DTMF (Dual Tone Multi-Frequency) tone recognizer. A DTMF recognizer (detector) is usable to recognize touchtone entries into over-the-phone customer service systems.

[0023] Another method discussed improves on physical POS 103 purchasing by using Short Message Service (SMS) and/or Multimedia Message Service (MMS) messages to transmit UPTF SAS messages among the mobile phone 104, POS 103 and/or the STS120. More generally, SMS messages can be used as the transported mechanism for all types of UPTF transactions (see co-pending UPTF-related patent applications incorporated herein by reference.

[0024] The invention can be implemented in any mobile device 104 capable of executing UPTF SAS based Wireless Wallet software 108, in a POS 103 (a computing apparatus) capable of executing the UPTF SAS protocol and POS functions, and a UPTF-SAS based Secure Transaction Server (STS) 120. Companies interested in allowing their users to securely perform transactions from a mobile device 104 can adopt the UPTF SAS protocol.

[0025] Therefore, embodiment(s) described herein relate to a mobile device authenticable transaction with the POS 103. According to an aspect of the embodiments, an authenticated or authenticable transaction is based upon Universal Pervasive Transaction Framework Secure Agreement Submission (UPTF SAS) protocol. Universal Pervasive Transaction Framework (UPTF) is a framework for authenticating transactions initiated by a mobile (radio) device. The UPTF SAS protocol is discussed in related pending US patent application nos. 11/388,202, filed March 24, 2006; 11/045,484, filed January 31, 2005; 10/458,205, filed June 11, 2003; 10/628,584, filed July 29, 2003; 10/628,569, filed July 29, 2003; and 10/628,583, filed July 29, 2003, the entire disclosures of all of which are hereby incorporated herein by reference. According to an aspect of the embodiments, a mobile device 104 provides authenticated transaction services according to authenticable transaction view(s) of one or more parties (i.e., in a typical embodiment paired and/or more than two authenticated transaction views), wherein the authenticated transaction views are time, user and software dependent, secured (e.g., encrypted), matched (verified against each other), and transaction party anonymous to the POS 103 (e.g., a transacting party does not have to receive personal/private/confidential information (e.g., account information) of the other transacting party. Therefore, according to the embodiments authentication includes transaction or agreement of parties verification.

[0026] FIG. 2 is a functional block diagram of Universal Pervasive Transaction Framework Secure Agreement Submission (UPTF SAS) system 200 architecture to execute an authenticable transaction using a mobile device and a POS, according to an embodiment of the present invention. In FIG. 2 and other figures, color designations are used to highlight features/concepts described, for example, a type of, or a possible type of, communication channel. For example, communication channels may be Virtual Private Network (VPN), mobile phone or cellular network, or unknown by referring to any known type of computer data communication network. The Universal Pervasive Transaction Framework (UPTF) defines a system architecture based upon independent and anonymous transaction agreement views and a communication security protocol called the Secure Agreement Submission (SAS) protocol to transmit the views. Essentially the UPTF offers a vessel, which is able to securely carry the individual views of a transaction agreement, in this case a mobile device POS authenticable transaction (collectively referred to as a mobile device POS transaction), from each party involved in the transaction to a trusted third party for verification, using a communication network which may comprise insecure segments, such as wireless Internet, mobile telephone network or cellular links, short-range communication methods. According to an aspect of the embodiments, a UPTF SAS message is an authorization for a specific transaction at this time. When a mobile POS 104 is used for a POS transaction, the transaction parties are the user 102 and the provider 106 that operates the POS 103 with which the user 102 desires to conduct a transaction. A typical

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example of a "mobile device POS transaction" agreement view may comprise: "User A, Transaction Token."

[0027] In FIG. 2, the UPTF SAS protocol encrypts/decrypts a transaction message using a symmetric, secret-key $352_{c,m}$ approach where the secret key $352_{c,m}$ is producible only by an individual party's mobile device 104 and a trusted third party (e.g., implemented as STS 120) and without transmission of the secret key among the parties. In other words, the UPTF SAS provides an implicit user authentication, because decryption by a trusted third party, such as STS 120, of a sending party's encrypted message, authenticates the sending party. The SAS insures that the authenticity of the parties is verified and during delivery, the privacy of the information is preserved (transaction party anonymity), even when the parties distrust each other and the messages from one party may be forvvarded by the other to the third party verification (as the case may be). The UPTF provides the mechanism for the trusted third party 120 to verify that the independent views of the mobile device POS transaction are consistent with each other.

[0028] In FIG. 2, after the STS 120 extracts the mobile device POS transaction data from the transaction views received from the parties and the STS 120 verifies the received mobile device POS transaction data, further actions may be needed, which, for example, may be realized by the trusted third party 120 interacting with financial institutions associated with the user payer 102 and the provider (merchant) payee 106 to cause the transfer of the specified funds between the user payer 102 and the provider payee 106.

[0029] In FIG. 2, a UPTF based mobile device POS authenticable transaction system architecture comprises a user 102 operating a UPTF device (also referred to as Universal Pervasive Transaction Device - UPTD), such as a mobile phone 104 loaded with a mobile point of sale (POS) application 109 (hereinafter referred to as mobile POS application that can be implemented in software and/or computing hardware), a provider 106 operating another UPTF based device 205, a Secure Transaction Server (STS) 120, and optionally for additional transactions a number of financial institutions (not shown), and several non-secure and secure (as the case may be) communication channels among them. Typically according to an embodiment, the separation of the STS 120 and the provider 106 as shown in FIG. 2 is a logical separation, as a single entity or separate entities (as the case may be) can implement each.

[0030] In FIG. 2, according to an aspect of the embodiment described herein, the STS 120 authenticates a mobile device 104 by an authentication parameter(s) 350 to provide an authenticable mobile POS 104. The authentication parameter(s) of the STS is secret information used for encrypting the messages to/from each user 102 mobile POS 104 and provider 106 (POS 103), which are stored in a database storage 203. The STS 120 receives independently generated UPTF SAS mobile device POS authenticable transaction views (described in more detail further below) from both the user 102 and the provider 106 (POS 103) regarding a transaction conducted between them. The STS 120 is able to decode both of the views based upon information from UPTF SAS mobile device POS authenticable transaction messages and the information stored in the STS 120 database 203. Following successful decoding, the STS 120 verifies that the view messages are original, authentic, involve the intended user 102 and provider 106 and that the information fields in the transaction views are consistent with each other. The STS 120 can maintain a log of messaging activity for non-repudiation purposes. Therefore, the authenticable mobile POS 104 mobile POS application 109 is based on a general framework, called the Universal Pervasive Transaction Framework (UPTF), a generic new architecture and security protocol for conducting secure multi-party agreements, using mobile devices over a wireless transport network. The framework is designed to address several key aspects specific to the envisioned pervasive communication, including wireless, environments.

[0031] In FIG. 2, according to an aspect of the embodiments, the mobile device 104 mobile POS application 109 communicates with the POS 103 of the provider 106 via any short-range communication method 210 comprising an image, audio (sound, oral/written communication and recognition thereof, such as voice recognition), or wireless communication connectivity technology, or any combinations thereof. The range of the short-range communication 210 can be according to application design from a few inches or less to a predetermined area. The short-range communication 210 is typically non-secure by itself (meaning that the communication channel might not be secure, but the communication channel can carry a protocol, such as the UPTF SAS scheme, that has the desired security properties). Although the embodiments are not limited to such a configuration and the short-range communication 210 can be secure by itself and also carry the UPTF SAS protocol. The mobile device 104 mobile POS application 109 can also communicate with the STS 120 via a wireless communication channel 211, which is typically non-secure, and can be a wireless Internet, a mobile phone network, a local wireless network, or any combinations thereof. According to an aspect of the embodiment, the wireless communication channel 211 includes SMS and/or MMS. Thus, wireless UPTF SAS based messages are transportable over the wireless communication channel 211 using SMS messages to/from the STS 120, or using Hyper Text Transfer Protocol (HTTP), or web service calls, or other known wireless message transport services, or any combinations thereof. The provider 106 and the STS 120 can be separate or collapsed (as the case may be), and the provider 106 communicably connects with the STS 120 via known secure, non-secure, wire or wireless, or any combinations thereof communication channel(s) 220.

[0032] FIG. 3 is a diagram of UPTF mobile device POS authenticable transaction messages based upon Secure Agreement Submission (SAS) protocol to provide an authenticable mobile POS service, according to an embodiment of the present invention. The SAS protocol is used for encrypting and submitting views of desired UPTF based authen-

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ticable transactions. The message structure and encryption mechanism of SAS are designed to provide many of the desired security properties in an insecure pervasive communication, including wireless, environment for transactions, such as:

[0033] Authentication: the agreement parties and the verification party are authenticated to each other, as is the integrity of the agreement group;

[0034] Anonymity: agreement parties may remain anonymous to each other and personal and/or other account related information is not revealed to the other party;

[0035] Protection of the agreement content: the agreement is kept private, it is tamper-resistant, non-replayable, and strong non-repudiation properties are provided. In particular, a continuously changing, time dependent, device specific key is used to encrypt each view.

[0036] The underlying SAS algorithms are well-suited for a system using low-cost user devices, which have limited computing resources, while minimizing the complexity of use for the user. In addition, some of the information necessary to use the SAS, in particular a Personal Identification Entry (PIE), is not permanently stored on the mobile POS 104 and not included in any data transmissions, so if the mobile POS 104 is lost or stolen, the mobile POS 104 cannot be used. Additional details of the SAS and the encryption mechanism are provided with reference to FIG. 3, as follows.

[0037] FIG. 3 shows the internal structure and the generation process of a mobile device POS authenticable transaction view messages 402, 404 (i.e., UPTF SAS authenticable transaction messages among a mobile device 104, a POS 103 and an STS 120). The provider 106 includes a provider device 103, such as a POS 103, on which the provider UPTF based transaction messages are implemented. The UPTF SAS based views 402, 404 are also implemented in software and/or computing hardware as the mobile POS software 109 that is executed in the mobile POS 104. Since the views 402, 404 from the user 102 and the provider 106, respectively, are symmetrical, the user's 102 view 402 is only described. The identifiers used in FIG. 3 are explained below:

[0038] DIDc: device ID, a unique identifier for the mobile POS 104 (the user consumer (c) or source transaction party).

[0039] DIDm: device ID, a unique identifier for the provider 106 POS device 103 (the merchant (m) or destination transaction party).

[0040] RSN: random sequence number.

[0041] TS: local current timestamp.

[0042] TID: transaction ID, a unique identification number assigned to an agreement, which is maintained by the STS 120 to identify corresponding UPTF agreement views 402, 404. For example, a purchase transaction identifier uniquely identifying a particular purchase.

[0043] MD: message digest 410

[0044] PIE: Personal identification entry, a user and STS 120 maintained input secret entry, such as an alphanumeric string. In a typical embodiment described herein, the PIE is only maintained by the user and the STS 120, is not known to and/or maintained by another party to a transaction and/or any financial institutions and is temporally known as an intermediate parameter to the mobile POS 104 of the user 102 for encrypting the user transaction view 402. More particularly, the PIE is not included in transaction messages (e.g., UPTF SAS messages and/or SAS based informational messages) and, thus, the mobile POS 109 does not transmit the PIE. The PIE can be non-secure by being a substantially short alphanumeric string, such as a 4 digit number. The user enters the PIE whenever the user attempts a transaction. Preferably the PIE is issued to the user when the user registers for the authenticable mobile POS service using a client device 104, which executes the mobile POS 109. The user can also select the PIE at such time of registration. The PIE is, however, a piece of highly secure information in the sense that it is never transmitted during the UPTF protocol execution, it is only known to the user and the STS 120, and its secrecy should be well protected. The PIE can be input by the user on a mobile POS 104 in a secure fashion or it may be deterministically generated using a biometric device, such as a fingerprint sensor. For example, a computation applied on the fingerprint data received from a fingerprint sensor can be used to generate a PIE that is initially communicated by the user to the STS 120. Whenever the user attempts a transaction, the user applies her finger to the fingerprint sensor, thus generating the PIE. The PIE is not kept in permanent storage on the mobile POS 104, but is used as an intermediate parameter required for the generation of the encryption key for a transaction and the mobile POS 104 should not retain the PIE for a period longer than a transaction execution time as determined according to application criteria. If a particular implementation of the present invention uses a form of PIE that is not convenient for a user to input for each agreement transaction and the device needs to store its user's PIN, the storage must be secure and tamper-resistant. According to another aspect of the embodiment, the PIE can be a user 102 biometric input data.

[0045] As shown in the FIG. 3, a view 402 comprises a cipher text part (or encrypted part) 406 and a perceptible (e.g., plaintext) part 408. A plaintext part 408 includes the TID, the DIDc of the mobile POS 104 generating the view 402, and the local current timestamp (TS) of device 104. The TS, among other functions described herein, is also used to prevent transaction replay. The encrypted part 406 includes two critical fields: the agreement data (transaction data) and the DIDm of the provider's 106 POS 103 device involved in the agreement. The DIDm is the minimum necessary reference field to provide the desired verification properties of the UPTF protocol. According to an aspect of the embodiments, the

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DIDm is communicably provided to the user 102 and/or the mobile POS 102 via any known methods, for example, via the short-range communication 210. Therefore, a user can execute a mobile POS 104 authenticable transaction with a transaction party based upon a PIE and a mobile POS application 109 authentication parameter RSN, and authenticable transaction messages comprising an identifier of the mobile device POS 104, an identifier of the transaction party, and an identifier for the transaction (for example, an identifier and/or other transaction related data, such as a type of transaction, payment amount, etc.), thereby providing the mobile POS 104 based upon a combination of the mobile POS application 109 at the mobile POS 104 and the STS 120 association of the PIE and an authentication parameter, which is known and/or determinable by the devices 103, 104 and 120, with the user 102, and exchange of the authenticable transaction messages among the user 102, the provider 106 (POS 103) and the STS 120.

[0046] First, DIDc and the TS obtained from the mobile device 104 local clock (and/or as provided as a part of the agreement data) are utilized by the device's 104 pseudorandom number generator to generate a time-dependent RSN. Therefore, the parameters of the generator are particular to each device 104. The encryption key K is then generated from the RSN and user input PIE (shown in FIG. 3 with orange coloring), where the PIE is provided from or generated by the STS 120. Firstly, the RSN and PIE are combined using a function F and then a hash function H is applied to the result (typically a string) to generate the encryption key:

[0047] K = H (F ((PIE, RSN))

[0048] A message digest 410 function can be applied to the agreement data, the DIDm, and the DIDc to generate a MD of the view. According to an aspect of the embodiments, the MD 410 is generated by applying a hash function to the UPTF SAS agreement data as shown in FIG. 3 to shorten the same. The MD can further strengthen the security by ensuring that no other party has tampered with or modified the contents of the view 402 in any way. The encryption algorithm with the encryption key K is then applied to the MD, the agreement data, the DIDc, and the DIDm to generate the cipher text part of the view 402, as shown in FIG. 3 with peach coloring. For further protection, the SAS protocol uses random message padding in order to further prevent "known-text" attacks. According to an aspect of the embodiment described herein, the embodiment uses Advanced Encryption Standard (AES) for encryption, a Keyed-Hashing for Message Authentication (HMAC)-based scheme for random number generation, and SHA1 Secure Hash Algorithm for the hash function.

[0049] The STS 120 has sufficient prior knowledge of the functions and specific parameters used by each device 104 in the encryption process, so that when combined with the plaintext portions of a message 402, 404, it is possible to decrypt the message 402, 404 by reversing the above process. For example, from the plaintext part 408 of the view 402, the STS 120 recovers the DIDc and TS, which are used to look-up the customer's 102 PIE and other parameters of the RSN generator that can be stored in the STS 120 database 203. These are used to compute the RSN. The encryption key K can then be computed using the same method with which the device 104 generates the encryption key. The cipher text part 406 of the view message 402 is then decoded.

[0050] After all applicable fields of the user 102 view 402 are acquired, the STS 120 locates the provider's 106 view 404 for the same transaction, using the DIDm and TID included in the previously decoded user 102 view 402. After going through a similar decryption process, the decoded fields of the agreement data of the provider 106 view 404 are compared with the corresponding fields from the user 102 view 402. If all applicable corresponding fields match (correspond according to application design), the received views 402, 404 are considered verified. Further processing is then carried out and external executions are triggered as necessary.

[0051] Any responses from the STS 120 to the user 102 or provider 106 are encrypted by the STS 120 using the same encryption methods and using the parameters for the destination devices 104, 103 and the TS of the original transaction. Only the intended recipient can decrypt the response message, insuring privacy protection and authentication of the STS 120.

[0052] Another example encryption key generation for the UPTF SAS is described herein. In FIG. 3, using the view 402, the key KEYc is a hash of a RSNc and a PIEc; the detailed key generation procedure is as follows:

[0053] The initialization data for the RSNc are created when the STS 120 creates a new authenticable mobile POS service account (e.g., when the mobile POS 109 is created or initialized by the STS 120). Specifically:

[0054] 1. a random 128-bit seed is generated using a software service function.

[0055] 2. a random 160-bit initialization timestamp is created also at new authenticable mobile POS service account creation time, using software service function. Therefore, the STS 120 can generate or provide device 104 specific initialization parameters of a random number and an initialization time stamp, both of which are provided (installed) via the mobile POS application 109 to the mobile device 104.

[0056] The PIE creatable by the STS 120 when a new account is created at the STS 120, as follows: a 32-byte random value is created using a software service function, convert each byte to a decimal value string, and concatenate them all to produce a long string. Randomly chop 4 digits from this string to create PIE.

[0057] When the key needs to be created in order to encrypt a transaction message, the following steps take place:

[0058] 1. A 160-bit current timestamp is generated, as follows:

[0059] a. Convert current time to string, for example, converting the current time to a 16 characters string, e.g., 5:

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04pm, Jan 26, 2006 is written in "0000170401262006."

[0060] b. Take the string and a one way function to output another value, for example by hashing the current time string using SHA1 algorithm, which produces a 160-bit output.

[0061] 2. XOR an init timestamp and current timestamp to produce a 160-bit output. This operation is essentially a form of deterministically calculating a difference between two values of time (i.e., a deterministic transformation between two values).

[0062] 3. Use the 128-bit seed software authentication parameter as data, and the XORed value of the two time stamps as the key, compute the HMAC result (a 160-bit value). The result of the HMAC is the RSNc. Use of the HMAC accommodates unpredictability in the RSNc generation.

[0063] 4. Chop the first 128-bit of the HMAC result, combine (e.g., concatenate) with the 32-bit PIE (convert from a 4 digit string) for a 160-bit value.

[0064] 5. Compute the hash (SHA1) value of the 160 bit stream in operation (4), and chop the first 128 bit as the final key.

[0065] In the encrypted part of the message a hash of the transaction part of the message (with the padding) using SHA1 (altematively a CRC can be used) is used.

[0066] In the above-described embodiment, the values of a number of bits are provided as unlimiting examples, and the present invention is not limited to a specific number of bits values. Therefore, as illustrated with reference to FIGS. 2 and 3, a UPTF SAS based transaction requires a device 104 which provides device-specific parameters that determine a device-specific and time-specific key and an operator for the device 104 who provides a PIE determinable only by the STS 120 and the operator. The combination of the two is required for an encrypted transaction request that can be validated by the STS 120. Intercepting one (or more) transaction message and successfully decrypting it would not be sufficient for purposes of inferring either the PIE, or the device specific parameters employed in the key generation process. Moreover, a single, time-dependant key is not re-usable because of the pair-wise agreement notion of transactions processed by the STS 120.

[0067] According to an aspect of the embodiments, the STS 120 can reset the RSN seed after every successful response from STS 120 to a device 103, 104; after that the STS 120 will expect the new seed to be used by the devices 103, 104. The seed can be derived as follows:

[0068] (1) use a predetermined portion of the message padding, and/or

[0069] (2) include the new seed in the STS's response (in the transactional content of the response) to the devices 103, 104.

[0070] FIG. 4 is a system flow diagram of provisioning (i.e., "providing a service," which includes distribution to a user and associated system actions) a mobile POS 104, according to an embodiment of the present invention. In FIG. 4, a mobile phone is used as an example mobile POS 104. A method, comprising, at operation 450, a user 102 logs into a mobile phone POS service registration site 205. For example, the provider 106 and/or the STS 120 with which various providers 106 participate can provide the mobile POS service registration. At operation 452, the user selects a mobile POS service, which according to an embodiment is a mobile POS application 109 download request from the provider 106. However, the embodiments are not limited to a configuration of downloading a mobile POS application 109 to the mobile phone 104, and a mobile POS 104 can be activated through other techniques, such as (without limitation) pre-installed software and/or computing hardware (e.g., an integrated circuit), so long as a mobile POS 104 authenticable by the STS 120 is provided. At operation 454, the provider 106 device 205 communicably connects with the STS 120 for providing a mobile POS 104.

[0071] In FIG. 4, the method at operation 454 further comprises initializing, at the STS 120, a mobile POS application 109 with software authentication parameter(s), as an authentic mobile POS application 109. Also, at operation 454, correlating, at the STS 120, a personal identification entry (PIE) (e.g., a PIN) and an identifier of the mobile phone 104 with the authentic mobile POS application 109. At operation 456, the PIN can be communicated to the user 102. Of course, at operation 450, the user 102 can supply a PIN. At operation 458, installing, in the mobile phone 104, the authentic mobile POS application 109. According to an aspect of the embodiment, at operation 458, the mobile phone 104 receives a Short Message Service (SMS) with a download link to the authentic mobile POS application 109. At operation 462, the user 102 can download the authentic mobile POS application 109. When the authentic mobile POS application 109 is installed in the mobile phone 104, the user can execute, at the mobile phone 104, the installed authentic mobile POS application 108 using the PIE (e.g., PIN) to execute a mobile phone POS authenticable transaction as an authenticable mobile POS 104.

[0072] According to an aspect of the embodiment described herein, at operation 454, one or more software authentication parameters are selected, which can be (without limitation) creation of a new seed, such as a new random seed number, and an initialization time. At operation 454, the STS 120 stores in a database 203, a unique identifier (referred to as Device ID, or DID) for the mobile phone 104, which can, for example, be a mobile phone number of the mobile phone 104 or some randomly generated globally unique identifier (GUID), a mobile phone carrier (as the case may be), or the software authentication parameter(s), and the generated PIE, or any combinations thereof. According to an aspect of the described embodiment, a mobile phone number can also be used as a device identifier for the mobile phone 104.

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The unique identifier (device ID (DID)) of the mobile phone 104 is used by the STS 120 to correlate a transaction message with the authentic mobile POS application 109 (i.e., to correlate the DID with the software authentication parameter(s) and the PIE stored at the STS 120, so that the STS 120 can generate a key that corresponds to a device 104 having the DID. The mobile phone number can be used to communicate short messages (e.g., notifications, etc.) with the mobile phone 104 (e.g., Short Message Service (SMS), including (and/or) Multimedia Message Service (MMS)). The mobile phone 104 can be an Internet enabled, according to known techniques, mobile phone. According to an aspect of the embodiment(s) described herein, a mobile device POS authenticable transaction message is bound to a unique combination of a user 102 and a mobile POS 104, the binding to the user is via the PIE and the binding to the device 104 is via the software authentication parameter(s) of the authentic mobile POS app 109. In particular, a transaction is an SAS based encrypted message and the encrypted message can be traced back to a combination of the user 102 and the device 104 through the PIE and the software authentication parameter(s) of the authentic mobile POS application 109. Similar binding applies with respect to the POS 103 transaction messages.

[0073] According to an aspect of the embodiments, a variation on the sign-up and registration process, which could be particularly useful for person-to-person payments, in which the payer is the payer mobile POS 104a and the payee serves as a payee mobile POS 104b, is described next. This method has the advantage that it does not require that a payee is already signed-up with a payment service to receive payment by a payer mobile POS 104a. A user with mobile POS application 109 on the mobile phone 104 can make a payment to another mobile phone owner that is not registered yet for the mobile POS service. The first user specifies the recipient of the payment via the mobile phone number of the second user. The second user subsequently receives an SMS at the second user's mobile phone with the aforementioned phone number. The SMS informs (with text) the second user of a pending payment to the second user and includes a link for downloading the mobile POS software 109. A version of the mobile POS software 109 for this specific second user was created at the STS 120 upon receipt of the first payment request to the STS 120 from the first user. Upon completion of the download, the second user needs to register for the mobile POS service to complete receiving payment. To maximize security, it is preferred that the second user does the registration at the provider's website, as discussed with reference to FIG. 4. Alternatively, the registration can be done from inside the mobile POS application 109, by invoking a "new account" action.

[0074] Wireless communication computing apparatus/device transactions with a physical Point of Sale (POS) are described next. The methods and systems described have several variations that make tradeoffs between various categories, such as convenience to the customer, security, time of transaction, local communication and cellular network communication. For example, whether a customer needs to type any transaction identifying information into the phone is one category. In the case of a mobile phone, another category is whether the transaction can be accomplished with or without any information transmitted over the cellular network.

[0075] METHODS (SYSTEMS): The discussed methods/systems consider the following options to better conform to the requirements of the cell phone-POS purchasing environment and constraints:

[0076] Communication mechanisms: Several communication mechanisms are utilized by these methods. These are roughly characterized as "local communication" (short-range communication methods 210) and "remote communication":

[0077] Local communication is considered to be

[0078] 1. Image, such as any type of barcode and scanner thereof, camera, scanner, or any combinations thereof at the POS 103 and/or the mobile POS 104. According to an aspect of the embodiments, the barcode system is capable of processing 2-Dimensional barcodes.

[0079] 2. Audio, such as any output audio signal or Dual Tone Multi-Frequency tone, or voice, or any combinations thereof, and recognizer(s) thereof at the POS 103 and/or the mobile POS 104.

[0080] 3. Radio Frequency (RF) (Radio Frequency Identification (RFID), Bluetooth, WLAN, NFC, etc., or any combinations thereof) at the POS 103 and/or the mobile POS 104

[0081] Remote Communication is considered to be

[0082] 1. Short Message Service (SMS), Multimedia Messaging Service (MMS)

[0083] 2. Wired Internet

[0084] 3. Cellular Internet (wireless Internet access through the mobile telephone network as implemented according to known techniques)

[0085] Message Lengths: Several options for decreasing the size of the UPTF messages are incorporated. The messages can be either:

[0086] 1. The full UPTF message is used as the transaction authorization message, and/or

[0087] 2. The Message Digest MD 410 of the mobile POS 104 UPTF message is used as the transaction authorization message of the consumer; using the MD instead of a full UPTF message results in a shorter message length.

[0088] 3. One-time transaction code - A one-time use random number, called the C-Nonce, generated by the phone using the UPTF key generation scheme to indicate that the customer authorizes the transaction.

[0089] Computation reductions: To avoid burdening the phone or the POS equipment 103, the "local send" messages, or rather, their representations (image or audio signal) can be transmitted "as is" by the POS 103 to the STS 120, i.e.,

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there is no conversion of the signal to a UPTF message at the POS 103; rather the STS 120 performs such conversion.

[0090] CONSTRAINTS: To understand the described process flows and the related actions, the following constraints should be taken into consideration. The purpose of these constraints is to further the understanding of why the actions have been defined as they have.

[0091] Message Length: If sending a SMS to STS, message length preferably needs to comply with applicable SMS, network, phone model, and/or wireless service provider/carrier (as the case may be) requirements for delivering the short messages. For example, message length might need to be <= 160 chars, which means either no padding or use of the UPTF SAS based Message Digest (MD).

[0092] If a MD is used there can be no padding since then the STS 120 will not know where the payload of the encrypted message begins and ends.

[0093] Some barcode types require MD instead of full encrypted message, because they cannot accommodate a full UPTF message length.

[0094] The MD with timestamp and DID requires about 16 bytes (for Timestamp), plus 8 Bytes (for DID), plus possibly 10 Bytes (for TID), plus the MD length (typically 16-20 Bytes, although it can be less), for a total of between 40-54 Bytes (typically). By contrast, a full UPTF message's length can vary between 100 and 1024 bytes depending on the message type and the amount of padding

[0095] If the MD is used and the message is sent by SMS or MMS, a TID is necessary for the STS to identify which merchant message the customer message matches with. An alternative is to provide the POS ID and transaction amount to the mobile POS application 109. In general, the mobile POS application's 109 and the POS's 103 UPTF messages are not sent in the same communication, although the embodiments are not limited to such a configuration and the mobile POS software 109 and POS 103 UPTF message can be sent in same communication.

[0096] The payment account by the payer 102 selection is always optional, and since some of the embodiments are "off-line" schemes, the selected account can be drawn from default settings.

[0097] Regardless of using MD or full message, the DID and timestamp are necessary in the unencrypted part of the UPTF message so that the STS 120 knows where and when the message came from and the STS 120 can successfully decrypt the UPTF message.

[0098] ACTIONS: Several variations are described based on whether the phone 104 and the POS 103 use short-range communication 210 and whether the transaction details (e.g., merchant ID, amount) are entered by the customer or received automatically via local 210 or remote communication 211.

[0099] Table 1 lists the embodiments and variations therefore as described herein. Table 1 lists mobile device 104 with POS 103 transaction variations including communication modes of the mobile device 104 with the POS 103 and/or the STS 120. In particular, for example, in Table 1, variation 1 is applicable when the mobile phone 104 uses SMS to the STS 120 to communicate a UPTF SAS transaction message, and variation 2 is applicable when the mobile phone 104 uses SMS to the STS 120 or when the mobile phone 104 uses a short-range communication method to the POS 103, and so on.

Table 1:

Variation nos./mobile device 104 communication modes	1	2	2-1	3	3-1	4	4-1
Mobile Device Mode 1: Phone uses SMS to STS	X	X		X	X	X	
Mobile Device Mode 2: Phone uses short-range communication method to POS		X	X				X
Mobile Device Mode 3: Phone receives amount and approves						X	X
Mobile Device Mode: 4 POS uses short-range communication to phone			X	X	X		X

[0100] The steps involved with the embodiments and variations thereof are described with reference to FIGS. 5-16. FIGS. 5-16 are flowcharts of mobile device to POS authenticable transactions, according to the embodiments of the present invention. According to an aspect of the embodiments, the user/customer/client 102 and mobile device 104 can be collapsed together, since the mobile device 104 can automatically generate and/or reply to any UPTF SAS based transaction messages, obviating any user input.

[0101] FIG. 5 is a flow chart of variation 1: Remote Communications 211 with the mobile POS 104.

[0102] Step 500. The merchant (cashier POS 103) sends a UPTF message to the STS 120 requesting a transaction ID and receives a transaction ID (TID) reply from the STS 120. The merchant displays the details of the transaction on a monitor (as in a normal store). This information may include the amount, a transaction ID and/or a POS ID to identify the merchant. Then, the merchant sends a UPTF message to the STS 120, called the M-View 404, with the encrypted

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portion 406 containing the POS ID, transaction ID, the amount, the Time stamp (but may or may not contain the device ID of the mobile POS 104), using its preferred connection. According to an aspect of the embodiments, if the views 402, 404 do not contain a device ID, the transaction ID (since both the mobile device 104 and the POS 103 point to the transaction identifier) can be usable to bind the views 402, 404 for STS 120 authentication and verification.

[0103] Step 502. The customer launches the mobile POS application 109 and enters the transaction ID and/or the POS ID as obtained from the merchant in operation 500. The customer enters the PIN. The customer selects an account. The mobile POS application 109 sends a UPTF message to the STS 120 using a cellular network 211, called the C-View 402. The encrypted portion 406 contains the transaction ID, the account, the time stamp and may or may not contain the POS ID. According to an aspect of the embodiments, the UPTF SAS message 402, 404 agreement data 412 can be explicit transaction information, and/or implicit or abstracted transaction data, such as the transaction identifier (TID) (as the case may be).

[0104] Step 504. The STS 120 receives the messages from the merchant 103 and the client 104. The STS 120 decodes the messages and verifies the identity of the parties. The STS authorizes the transaction. The STS 120 sends receipt messages to the merchant using its preferred connection 220 and to the customer over the cellular network 211.

[0105] FIG. 5 variation uses the remote messaging over the cellular network 211 to perform the communication from the customer. This customer never explicitly acknowledges the amount of the transaction, except implicitly by optionally typing in the transaction ID and PIN. In general, this method of transaction has been discussed in the above-identified related co-pending patent applications.

[0106] FIG. 6 is a flowchart of variation 2: Local Communication 210 between the mobile POS 104 and the POS 103.

[0107] Step 600. The merchant optionally sends a UPTF message to the STS requesting a transaction ID (see operation 500). The merchant provides the details of the transaction, for example, on a monitor (as in a normal store). This transaction information may include the amount, a transaction ID and/or a POS ID to identify the merchant 103.

[0108] Step 602. The customer launches the mobile POS application 109 and enters the transaction ID and/or the POS ID as obtained from the merchant in operation 600. The customer enters the PIN. The customer selects a payment account. The mobile POS application 109 locally via a short-range communication 210 sends a UPTF message to the merchant 103 using the preferred local medium 210. The message can be a complete C-View 402, where the encrypted portion 408 contains the time stamp, a nonce, and optionally contains the transaction ID, the account, and/or the POS ID. If the length of the message is constrained, it is possible to send a shortened message consisting of the digest or the nonce.

[0109] Step 604. The merchant 103 receives the local communication and sends both its UPTF M-View 404 message and the received C-view 402 to the STS 120 via the communication channel 220. For example, the encrypted portion 408 of the M-view 404 containing the POS ID, the amount, the Time stamp, optional Transaction ID (but no device ID), is transmitted from the POS 103 to the STS 120 using a preferred connection 220.

[0110] Step 606. The STS 120 receives both the messages from the merchant 103 and the client 104. The STS 120 decodes the messages and verifies the identity of the parties. The STS authorizes the transaction. The STS 120 can send receipt messages to the merchant using its preferred connection 220 and to the customer over the cellular network 211.

[0111] FIG. 6 variation uses the local messaging 210 to perform the communication from the customer. For example, after the customer types in the PIN to authorize the transaction, the mobile phone 104 creates a 2-d barcode containing the complete C-View 402 message. The customer holds the phone display to an imager at the POS 103 that records the barcode and creates a digital message. Again, this customer never explicitly acknowledges the amount of the transaction, except implicitly by typing in the transaction ID and PIN. The receipts are delivered by the cellular network 211 to the phone 104.

[0112] FIG. 7 is a flowchart of variation 2-1: If the phone 104 is capable of receiving local communication via a short-range communication 210 from the POS 103, then, at operation 706 (606 in FIG. 6), the receipts can be delivered by the STS 120 to the POS 103 and the POS 103 can transmit the customer receipt to the phone 104 via local communication 210. This will avoid the need for the mobile POS 104 to have any remote communication 211, thus reducing communication 211 traffic and cost.

[0113] FIG. 8 is a flowchart of variation 3: Local Communication 210 from the POS 103 to the mobile phone POS 104:

[0114] Step 800: The POS 103 generates a local message via a short-range communication 210 to the phone 104, called the T-Info that contains the transaction ID, the amount and the POS ID. The POS 103 also generates an M-View 404 and sends the same to the STS 120.

[0115] Step 802. The customer starts the mobile POS application 109. The phone 104 receives the local message from the POS 103 and decodes the data. The user is asked to approve the transaction by entering the PIN. The Phone 104 generates a C-View message 402 containing a full UPTF message for the transaction. The phone sends the C-View message 402 via the cellular network 211 to the STS 120.

[0116] Step 804. The STS 120 receives the messages 402, 404 from the merchant 103 and the client 104. The STS 120 decodes the messages and verifies the identity of the parties. The STS 120 authorizes the transaction. The STS

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sends receipt messages to the merchant 103 using its preferred connection 220 and to the customer 104 over the cellular network 211.

[0117] FIG. 9 is a flowchart of variation 3.1: This variation uses 2-way local communication 210, i.e., both the phone and the POS are capable of local communication via a short-range communication 210. At operation 900, the C-View 402 is first sent to the POS 103 as a local message, and, at operation 902, the POS 103 relays the same along with the M-view 404 to the STS 120. Also, at operation 904, the merchant 103 sends the phone receipt to the phone 104 as a local message via the short-range communication 210.

[0118] FIG. 10 is a flowchart of variation 4. This variation uses the cellular network 211 to send the transaction data to the phone 104.

[0119] Step 1000. The merchant 103 provides, for example, displays on a monitor, the details of the transaction (as in a normal store). This information may include the amount, a transaction ID and/or a POS ID to identify the merchant.

[0120] Step 1002. The user starts the mobile POS application 109 and enters the PIN. The phone 104 sends a message to the POS 103 to identify itself using local communication 210. The message, called a CN-View 402 contains the device ID and a nonce.

[0121] Step 1004. The merchant 103 sends both the M-View 404 and the CN-View 402 to the STS 120. The M-View 404 has the encrypted portion 406 containing the POS ID, transaction ID, the amount, and the Time stamp (but no device ID).

[0122] Step 1006. The STS 120 generates a UPTF message for the mobile POS 104 called the T-View that contains the transaction information, including amount, via the cellular network 211, based upon the received M-view 404 and the CN-View 402 in operation 1004.

[0123] Step 1008. The customer 104 approves the transaction by selecting OK and a C-View message 402 is generated. The C-View message 402 is sent to the STS 120 over the cellular network 211.

[0124] Step 1010. The STS 120 receives the messages 402, 404 from the merchant 103 and the client 104. The STS 120 decodes the messages and verifies the identity of the parties. The STS 120 authorizes the transaction according to the verification. At operation 1012, the STS 120 sends receipt messages to the merchant 103 using its preferred connection 220 and to the customer 104 over the cellular network 211.

[0125] The FIG. 10 scheme has the STS 120 send the transaction details to the user for approval. It uses both remote 211 and local communication 210 with the mobile POS 104. FIG. 11 is a variation 4-1 of this scheme that transmits transaction information to/from the STS 120 and the mobile POS 104 by using, at operations 1100, 1101, 1102, 1103, 1104 and 1105, only local communication 210 with the mobile POS 104 via the POS 103.

[0126] Benefits of the mobile device 104 communication modes are described next. A benefit of the mobile POS communication mode 1 is the mobile POS 104 only needs to have an SMS plan, but does not need to have a wireless Internet access plan from a wireless communication provider, reducing communication and device cost. A benefit of the mobile POS communication mode 2 is the mobile device 104 only needs short-range communication 210, but does not need to have a wireless Internet access plan or an SMS plan, reducing communication cost. A benefit of the mobile POS communication modes 3 and 4 are to reduce and minimize (as the case may be) user input at the mobile device 104, for example, to a single input PIE corresponding to a transaction type (i.e., a purchase) specification or identification at the mobile POS 104 to conclude a transaction, such as a purchase, providing a substantial new effect of inviting a user 102 purchase.

[0127] Additional variations 5-8, mostly derived from the variations discussed above with more detailed options, are discussed with reference to FIGS. 12-16 in which the numerals refer to action numbers described herein. FIG. 12 is an action number legend 1200 for variations 5-8, according to an embodiment of the present invention. First the following lower layer actions are defined:

[0128] In FIGS. 13-16, actions 1-3 concern the information displayed by the POS 103.

[0129] Action number 1. POS 103 displays a POS Identifier. Such an identifier, e.g., a phone number or a 10-digit unique ID, could be posted on the POS itself

[0130] Action number 2. POS 103 displays a transaction identifier. The transaction identifier corresponds to the TID in the UPTF message (per the Secure Agreement Submission protocol). The transaction identifier is dynamically created after the POS begins processing for a new transaction and is preferably generated after the amount of the transaction has been identified and so that the transaction identifier can be cross-referenced with the transaction amount.

[0131] Action number 3. The POS 103 displays a purchase amount.

[0132] Actions 4-10 concern the information input by the user 102 to the mobile POS 104.

[0133] Action number 4. The mobile user starts the mobile POS application 109 on the mobile device 104.

[0134] Action number 5. The mobile user selects the physical POS option on the mobile POS application 109.

[0135] Action number 6. The mobile user enters the POS identifier in the mobile POS application 109; a POS identifier is deemed as the DID of the POS 103.

[0136] Action number 7 (optional). The mobile user enters the transaction identifier in the mobile POS application 109.

[0137] Action number 8. The mobile user types her PIN in the mobile POS application 109.

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[0138] Action number 9 (optional). The mobile user types the purchase amount (amount of the transaction) in the mobile POS application 109.

[0139] Action number 10 (optional). The mobile user selects an account from the cache of accounts known to the mobile POS application 109. If for some reason the chosen account is not eligible for payment, the default account (or some other alternate account of the consumer) will be used for the payment.

[0140] Actions 11-14 concern the messages and the formats created by the mobile device POS 104.

[0141] Action number 11. The mobile POS 104 creates a UPTF message for the specific POS identifier, and optionally an amount of transaction and type of transaction (payment at a physical POS).

[0142] Action number 12. The mobile POS 104 creates a UPTF message for the specific transaction identifier, and optionally an amount of transaction and type of transaction (payment at a physical POS).

[0143] Action number 13. The mobile POS 104 creates a UPTF message for the type of transaction (payment at a physical POS), without specifying the amount of the transaction, a transaction identifier or a POS identifier. When STS 120 processes this message, the STS will assume that the amount of transaction and the POS identifier (essentially the ID of the other transaction party) are those submitted in the POS's UPTF message. This is possible in a case the POS 103 transmits to the STS 120 its message 404 and the mobile phone's message 402 (hence the two messages arrive in the STS 120 together in the same action)

[0144] Action number 14. The mobile phone calculates the message digest (MD) 410 of the encrypted part of 11 or 12 or 13 (FIG. 14); the message digest of the encrypted part of the UPTF message can be much shorter than the encrypted part of the UPTF message. For example, if MD5 (a hash function) is used on the UPTF message, the MD 410 will be 16 bytes and if SHA1 is used the MD 410 is 20 bytes; by contrast, a UPTF message can vary between 100 and 1024 bytes depending on the message type and the amount of padding. The mobile POS application's 109 UPTF message has no padding in this case of using an MD; since there is no way for the STS to know the padding parameters, if the message includes padding the STS 120 will be unable to compute the complete UPTF message and then correctly compute the MD for it. The complete UPTF message comprises of the DID of the mobile POS application 109 (DID of the mobile POS 104) and the timestamp (both unencrypted) and of the aforementioned MD.

[0145] Actions 15-21 concerns the generation of the local communication 210 message by the mobile POS 104 and processing of a local communication 210 based message received by the POS 103 from the mobile POS 104.

[0146] Action number 15. The mobile POS software 109 generates a barcode representation of the message in 11 or 12 or 13. A 2-D type of barcode is used; 2-D barcodes can "encode" up to 3K bytes. The mobile POS application 109 displays the barcode on a barcode screen, for example, display the barcode on a mobile phone POS 104 display.

[0147] Action number 16. The mobile POS software 109 generates an audio signal from the message in 11 or 12 or 13.

[0148] Action number 17. The mobile POS software 109 generates a barcode or an audio signal as a series of tones (similar to the tones in touch-tone phones), from the message in action number 14 (message digest based message - FIG. 14).

[0149] Action number 18. The user of the mobile POS 104 presents the mobile POS 104 display with the displayed barcode image to a barcode reader attached to the POS 103. The merchant's POS 103 might be equipped with (or is) another mobile POS 103 with a camera that takes a picture of the barcode and either does local processing (extract barcode from image) or sends image to STS 120 for server side processing along with the other POS's message(s).

[0150] Action number 19. For example, a POS 103 barcode reader processes the displayed mobile POS 104 barcode by converting the displayed image (barcode) to a series of characters, thus reproducing the UPTF message that was used to generate the barcode in the first place.

[0151] Action number 20. The user of the mobile POS 104 starts the playback of the audio signal as she presents it to a microphone of an audio signal processing device that will process the audio signal at the POS 103 or sends the same for processing to the STS 120.

[0152] Action number 21. For example, the audio signal processing device at the POS 103 processes the audio signal and converts it to a series of characters, thus reproducing the UPTF message that was used to generate the audio signal in the first place.

[0153] Action Number 22 concerns the message generated by the POS 103 to the STS 120. At action number 22, the POS 103 generates its UPTF message for the transaction. The UPTF message does not include the device ID of the mobile phone. This device ID can be inferred by the mobile phone's UPTF message since the POS transmits to the STS its message and the mobile phone's message (hence the two message arrive in the STS together in the same action).

[0154] Action numbers 23-26 concern the reception of the local communication by the POS with reference to FIG. 15.

[0155] Action number 23. The mobile POS 104 user presents the mobile POS's 104 display to a camera that captures the mobile POS's display (as an image); the camera is attached to the POS 103.

[0156] Action number 24. The mobile POS 104 user presents the mobile POS's speaker to a microphone that captures (records) the mobile POS's audio signal (as an audio signal); the microphone is attached to the POS 103.

[0157] Action number 25. The camera of 23 transmits the captured image to the STS 120 alongside with the UPTF message generated by the POS 103.

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[0158] Action number 26. The microphone of 24 transmits the captured audio to the STS 120 alongside the UPTF message generated by the POS 103.

[0159] Action numbers 27-32 concern the processing of the messages by the STS 120 and the replies back from the STS 120 to the POS 103 and mobile POS 104.

[0160] Action number 27. The Secure Transaction Server (STS) receives a UPTF message from the mobile POS software 109 which was transmitted by the POS 103.

[0161] Action number 28. The STS 120 receives a UPTF message from the POS 103, which was transmitted by the POS 103.

[0162] Action number 29. The STS 120 compares the mobile POS 104 and POS 103 messages 402, 404, and processes them according to the SAS protocol.

[0163] Action number 30. The STS 120 determines whether the transaction should be authorized, according to the SAS protocol.

[0164] Action number 31. The STS 120 sends a confirmation UPTF message for the transaction to the POS 103.

[0165] Action number 32. The STS 120 sends a confirmation SMS message for the transaction to the mobile POS 104 of the consumer 102.

[0166] Action numbers 33-34 concern the use of SMS or MMS to transmit messages with reference to FIG. 16.

[0167] Action number 33. The mobile POS application 109 sends a SMS to the STS 120 adding to its content the message of 11 or 12 or 13 or 14. The encrypted part of the message is preferably encoded in HEXadecinal

[0168] Action number 34. The mobile POS application 109 sends a MMS to the STS 120 adding to its content the message of 11 or 12 or 13 or 14. The encrypted part of the message is preferably encoded in HEXadecinal.

[0169] Actions 35-36 concern the use of RF as the local communication medium 210.

[0170] 35. The user of the WW sends a local communication to the POS using a short range RF device such as an RF ID, Bluetooth, UWBV or WiFi. The WW software generates an RF signal from the message in 11 or 12 or 13 or 14.

[0171] 36. The POS will recognize the RF communication and will receive the UPTF message. The POS 103 will determine whether the message is intended for this POS by matching included information in the unencrypted portion 408 of the UPTF SAS message 402, such as transaction ID or POS ID.

[0172] Action numbers 37-42 concern local communication from the POS 103 to the mobile POS 104.

[0173] Action number 37. The POS 103 will display on its monitor a barcode representing information contained in 1, 2, or 3 as local communication 210 to the mobile POS software 109.

[0174] Action number 38. The POS 103 will play on its speaker audio signals representing information contained in 1, 2, or 3 as local communication 210 to the mobile POS software 109.

[0175] Action number 39. The POS 103 will transmit on its RF signals on its local RF transmitter device representing information contained in 1, 2, or 3 for local communication to the mobile POS software 109.

[0176] Action number 40. The camera on the mobile POS 104 and a software module decodes a barcode displayed by the POS 103 for local communication 210 of information contained in 1, 2 or 3 to the mobile POS 104.

[0177] Action number 41. The microphone on the mobile POS 104 and a software module decodes an audio signal from the POS 103 for local communication 210 of information contained in 1, 2 or 3.

[0178] Action number 42. The local RF receiver device on the mobile POS 104 and a software module receives a local RF signal from the POS 103 for local communication 210 of information contained in 1, 2 or 3.

[0179] Another variation is the following. The mobile POS 104 is equipped with a RFID chip (any type of RFID tag; passive, active, or any combinations thereof) or Near Field Communication (NFC) chip. This addition might be simply attached to the mobile device 104, without being integrated to the circuitry of thereof, or it might be part of the circuitry thereof. In the latter case the software 109 of the mobile device 104 can communicate with the RFID or NFC chip. In the former case, the software 109 of the mobile device 104 might not communicate with the RFID or NFC chip; for example the RFID or NFC chip might be issued by the issuer of the mobile POS software 109 and be attached (physically) (e.g., via adhesive or other coupling technology) to the mobile device 104. When the user performs a transaction, the RFID reader at the POS 103 reads the RFID or NFC presence and thus identifies the transacting party. The owner of the mobile POS 104 using the mobile POS software 109 further confirms the transaction, for example, via remote communication with the STS 120. The POS 103 upon reading the RFID or NFC identifier transmits its UPTF message to the STS 120 and the STS 120 waits for the consumer's confirmation and/or authorization UPTF message to arrive from the mobile device 104. In the meantime, the consumer starts the mobile POS application 109, types in a PIN resulting in the mobile POS software 109 transmission of the appropriate UPTF message to the STS 120. Upon STS 120 receipt of this message, the STS 120, according to the UPTF protocol, approves or disapproves the transaction and notifies the transacting parties accordingly. According to an aspect of the embodiments, the STS 120 can authenticably approve the transaction, because the STS 120 has correlated the PIN and the mobile device 120 as identified by the RFID or the NFC. This case requires a wireless transmission of the UPTF message from the mobile device 104 to the STS 120. Alternatively, the mobile POS software 109 may display a barcode or image (as previously discussed) that is processed by the POS 103 (as previously discussed). The advantage of this variation is that it increases the

security of using the RFID or NFC alone for purchasing. Alternatively, if the RFID or NFC, is capable of two-way communication and it is integrated with the circuitry of the mobile POS 104, the transmission of the UPTF message from the mobile POS 104 to the POS 103 is transmitted over the RFID or NFC, upon entering of the PIN (on the mobile device 104) by the consumer 102.

[0180] A method, and apparatus and computer readable medium, thereof, comprises providing a secure transaction server (STS); providing an authentic point of sale (POS) device, according to a first authentication parameter of the STS; providing an authentic mobile purchasing device, according to a second authentication parameter of the STS; providing a short-range communication method between the POS device and the mobile purchasing device; correlating by the STS a personal identification entry (PIE) and the authentic mobile purchasing device; transmitting, by the POS device, a time dependent transformed secure POS authenticable POS purchase action to the STS; inputting (e.g., by a user and/or automatically from a computer readable medium, such as memory, etc.) the PIE to the mobile purchasing device to transmit a time dependent transformed secure user authenticable POS purchase action to the POS device via the short-range communication method; and approving, by the STS, the POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

[0181] An apparatus, comprises means for providing an authentic point of sale (POS) device; means for providing an authentic mobile purchasing device; means for a short-range communication between the authentic POS device and the authentic mobile purchasing device to transmit a time dependent POS purchase action to the authentic POS device; means for receiving the time dependent POS purchase action and for authenticating and verifying the time dependent POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device and the authentic mobile purchasing device. According to an aspect of the embodiments, the means for providing the authentic POS, the authentic purchasing device, and the authenticating and verifying the time dependent POS purchase action is the UPTF SAS protocol.

[0182] According to an aspect of the embodiment, the POS device 103 and the mobile purchasing device 104 become authentic and the transaction messages become authenticable, according to the STS correlation of each device with respective PIEs, time dependency (for example, use of the Time Stamp in generating the key 352 as described herein), and the STS authentication parameter. According to an aspect of the embodiment, the expression "transmitting" refers to communicating or conveying information or knowledge via an image (e.g., a bar code image), audio, or wireless communication connectivity technology, as described herein. So according to an aspect of the embodiments, for example, in case of a bar code image displayed on the display of the mobile device 104 or in case of audio as the short-range communication method, the transmitting a time dependent transformed secure user authenticable POS purchase action to the POS device comprises generating a bar code image or audio that is a representation of a UPTF SAS protocol transaction message view 402 or 404 as a time dependent transformed secure authenticable transaction message, thus providing a time dependent image or audio to prevent reuse of image or audio for replay or fraudulent transactions.

[0183] In view of the above described examples of preferred embodiments, an apparatus 104 suitable for use in implementing the embodiments described herein can be any computing apparatus or machine, such as (in an unlimiting example) a programmable device that can store, retrieve, and process data, allow mobile (wireless or radio) telecommunication with other computing devices and have one or more communicably connected components of computer/computing processors, such as Central Processing Units (CPUs); input unit(s)/device(s) (e.g., microphone for voice command/control, etc., keyboard/keypad, pointing device (e.g., mouse, pointer, stylus), touch screen, camera, scanner, etc.); output unit(s)/device(s) (e.g., computer display screen (including user interface thereof, such as graphical user interface), speaker(s), printer(s), etc.); computer network interface(s), including known communication protocols thereof, (e.g., mobile telephone (voice/data (Internet)) (cellular radio networks, satellite, etc.) network, radio frequency technology, local area network, etc.); and recording media to store information/instructions, such as software (e.g., operating system, wireless wallet software, etc.) and/or data (any known recording media, such as volatile and/or non-volatile memory (Random Access Memory), hard disk, flash memory, magnetic/optical disks, etc.) for execution by a computing apparatus, such as a computer/computing processor and/or electronic circuitry. The embodiments provide methods, apparatuses (computer systems) and/or computer readable media for a wireless computing apparatus/device for physical Point of Sale (POS) transactions. The POS 103 and STS 120 can be any computer.

[0184] The invention can be implemented as a computer program or computer program product, e.g., a computer program tangibly embodied in an information carrier, e.g., in a machine-readable storage device or in a propagated signal, for execution by, or to control the operation of, data processing apparatus, e.g., a programmable processor, a computer, or multiple computers. A computer program can be written in any form of programming language, including compiled or interpreted languages, and it can be deployed in any form, including as a stand-alone program or as a module, component, subroutine, or other unit suitable for use in a data processing environment. A computer program can be deployed to be executed on one computer or on multiple computers at one site or distributed across multiple sites and interconnected by a communication network.

[0185] The many features and advantages of the embodiments described herein are apparent from the detailed

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specification and, thus, it is intended by the appended claims and equivalents to cover all such features and advantages of the embodiments that fall within the true spirit and scope of the embodiments. Further, since modifications and changes might occur to those skilled in the art, it is not desired to limit the embodiments to the exact construction and operation illustrated and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the embodiments.

Claims

1. A method, comprising:

providing a secure transaction server (STS);
providing an authentic point of sale (POS) device, according to a first authentication parameter of the STS;
providing an authentic mobile purchasing device, according to a second authentication parameter of the STS;
providing a short-range communication method between the POS device and the mobile purchasing device;
correlating by the STS a personal identification entry (PIE) and the authentic mobile purchasing device;
transmitting, by the POS device, a time dependent transformed secure POS authenticable POS purchase action to the STS;
inputting, by a user, the PIE to the mobile purchasing device to transmit a time dependent transformed secure user authenticable POS purchase action to the POS device via the short-range communication method; and
approving, by the STS, the POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

2. The method of claim 1, wherein the short-range communication method comprises one or more of an image, audio, or wireless communication connectivity technology, or any combinations thereof.

3. The method of claim 1 or 2, wherein the POS purchase action is a POS identifier or a purchase transaction identifier.

4. The method of any of the preceding claims, wherein the POS purchase action is a single user conformation of a purchase.

5. The method according to any of the preceding claims, further comprising generating the transformed secure user authenticable POS action and the transformed secure POS authenticable POS purchase action to the STS according to Universal Pervasive Transaction Framework Secure Agreement Submission (UPTF SAS) protocol.

6. The method according to claim 5, wherein the POS purchase action further comprises a mobile purchasing device identifier and the method further comprises calculating, by the POS device, a message digest of the mobile purchasing device identifier and the POS identifier, the transaction identifier or the single purchase specification, and transmitting the message digest to the POS device via the short-range communication method.

7. The method of any of the preceding claims, further comprising transmitting, by the POS device via the short-range communication method, the POS purchase action to the mobile purchasing device.

8. The method of any of the preceding claims, wherein the POS purchase action identifies a payment for a good and/or a service.

9. The method of any of the preceding claims, further comprising transmitting, by the mobile POS device, via a short message service, or a multimedia message service, or any combinations thereof, the transformed secure user authenticable POS purchase action to the STS.

10. The method of any of the preceding claims, further comprising transmitting, by the POS device, via a network the transformed secure user authenticable POS purchase action and the transformed secure POS authenticable POS purchase action to the STS for the approving of the POS purchase action.

11. The method of claim 10, wherein the approving comprises verifying a match between the transformed secure user authenticable POS purchase action and the transformed secure POS authenticable POS purchase action.

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12. The method of any of the preceding claims, wherein the approving comprises settling by the STS a payment to the POS for the POS purchase action.

13. The method of claim 11, wherein the approving comprises transmitting by the STS via a short message service, or a multimedia message service, or any combinations thereof, a POS receipt to the mobile purchasing device.

14. The method of any of the preceding claims, wherein the POS device is an authentic mobile POS device, and the method further comprises:

correlating by the STS a POS personal identification entry (PIE) and the mobile POS device;
inputting, by another user, the POS PIE and a POS action, to the mobile POS device to transmit the time dependent transformed secure POS authenticable POS action to the STS; and
approving, by the STS, the POS action for the mobile POS device and POS purchase action for the mobile purchase device, according to the STS correlating of the POS PIE and the authentic mobile POS device and according to the STS correlating of the PIE and the authentic mobile purchasing device.

15. The method of claim 2 or any claim dependent thereon, wherein the image as a short-range communication method comprises any type of barcode system, a camera system, a scanner system, or any combinations thereof at the POS device and/or at the mobile purchasing device.

16. The method of claim 15, wherein the barcode system processes 2-Dimensional barcodes.

17. The method of claim 2 or any claim dependent thereon, wherein the audio as the short-range communication method is any output audio signal or Dual Tone Multi-Frequency tone, or voice, or any combinations thereof, and recognizer (s) thereof, at the POS device and/or at the mobile purchasing device.

18. The method of claim 2 or any claim dependent thereon, wherein the Radio Frequency (RF) as the short-range communication method is any type of wireless communication connectivity technology, including one or more of Radio Frequency Identification (RFID), Bluetooth, WLAN, Near Field Communication (NFC), or any combinations thereof, at the POS device and/or at the mobile purchasing device.

19. The method according to claim 18, wherein the mobile purchasing device comprises the RFID and/or the NFC as integrated with device circuitry or attached to the mobile purchasing device independent of the mobile purchasing device circuitry.

20. The method of any of the preceding claims, wherein the first and second authentication parameters are each a per-message resettable time-dependent generated random number.

21. An apparatus, comprising:

a secure transaction server (STS);
an authentic point of sale (POS) device, according to a first authentication parameter of the STS, the authentic POS communicatively connectable with the STS; and
an authentic mobile purchasing device, according to a second authentication parameter of the STS, and the authentic mobile purchasing device communicatively connectable with the authentic POS device via a short-range communication method,
wherein the authentic POS device transmits a time dependent transformed secure POS authenticable POS purchase action to the STS;
wherein the STS correlates a personal identification entry (PIE) and the authentic mobile purchasing device,
wherein the mobile purchasing device receives the PIE and a POS purchase action to transmit based thereon a time dependent transformed secure user authenticable POS purchase action to the POS device via the short-range communication method between the POS device and the mobile purchasing device, and
wherein the STS approves the POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

22. An apparatus, comprising:

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means for providing an authentic point of sale (POS) device;
means for providing an authentic mobile purchasing device;
means for a short-range communication between the authentic POS device and the authentic mobile purchasing device to transmit a time dependent POS purchase action to the authentic POS device;
means for receiving the time dependent POS purchase action and for authenticating and verifying the time dependent POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device and the authentic mobile purchasing device.

23. The apparatus of claim 21 or 22, wherein the short-range communication method comprises one or more of an image, audio, or wireless communication connectivity technology, or any combinations thereof.

24. An apparatus, comprising:

a secure transaction server (STS);
an authentic point of sale (POS) device, according to a first authentication parameter of the STS, the authentic POS communicatively connectable with the STS; and
an authentic mobile purchasing device, according to a second authentication parameter of the STS, and the authentic mobile purchasing device comprising a radio frequency identification tag attached thereto to communicatively connect with the authentic POS device,
wherein the authentic POS device transmits a time dependent transformed secure POS authenticable POS purchase action to the STS;
wherein the STS correlates a personal identification entry (PIE) and the authentic mobile purchasing device,
wherein the mobile purchasing device uses the PIE and a POS purchase action to transmit based thereon a time dependent transformed secure user authenticable POS purchase action to the STS via mobile phone network, a short message service, or a multimedia message service, or any combinations thereof, and
wherein the STS approves the POS purchase action for the POS device and for the mobile purchasing device, according to the authentic POS device, and according to the authentic mobile purchasing device and the STS correlating of the PIE and the authentic mobile purchasing device.

25. A computer program which when downloaded onto an apparatus provides the apparatus according to any of the preceding apparatus claims.

26. A computer program which when run on hardware carries out the method of any of the preceding method claims.

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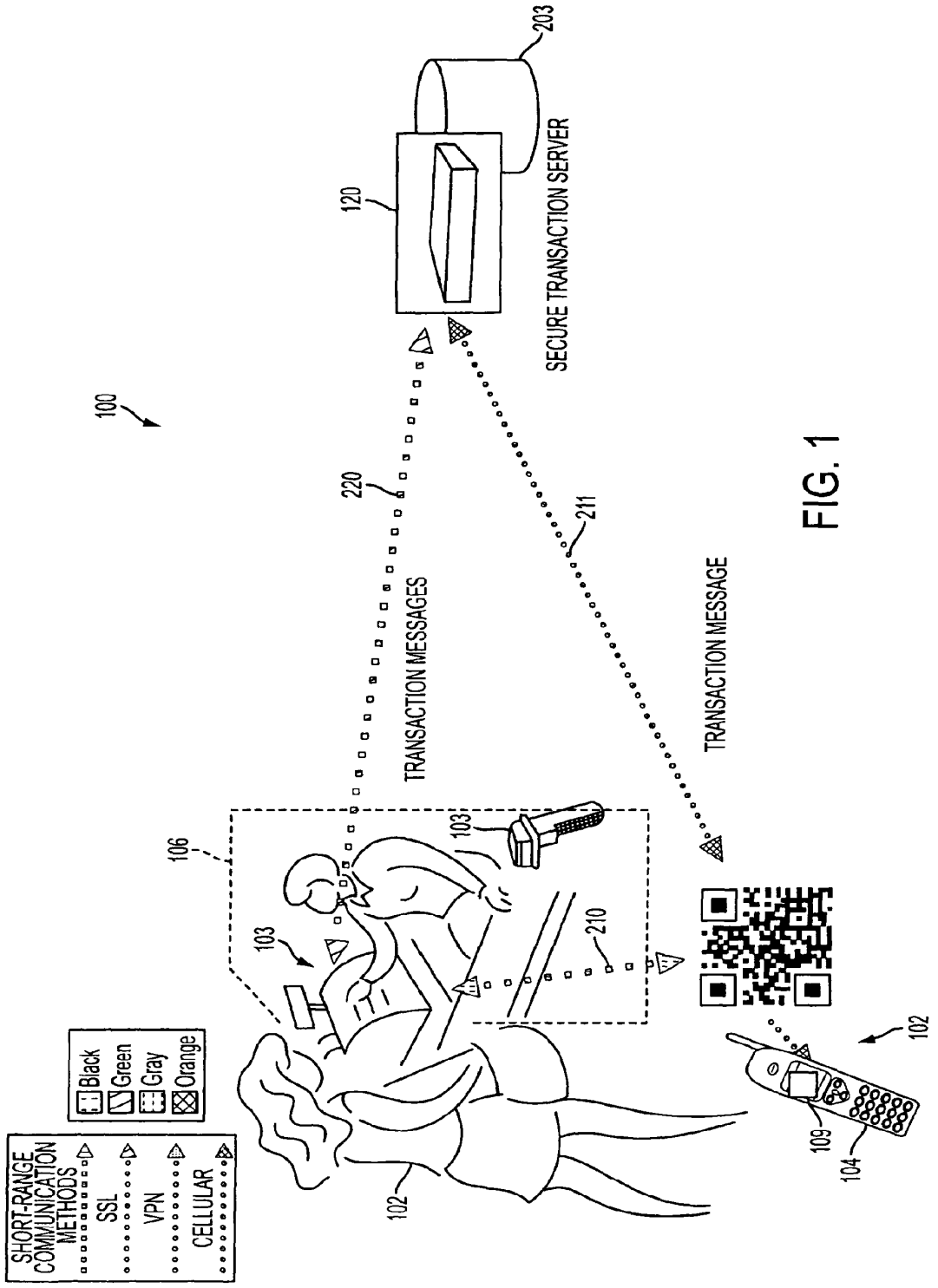
203
SECURE TRANSACTION SERVER
120
100
220
TRANSACTION MESSAGES
211
TRANSACTION MESSAGE
106
103
103
210
102
102
109
104
SHORT-RANGE COMMUNICATION METHODS
SSL
VPN
CELLULAR
Black
Green
Gray
Orange

FIG. 1

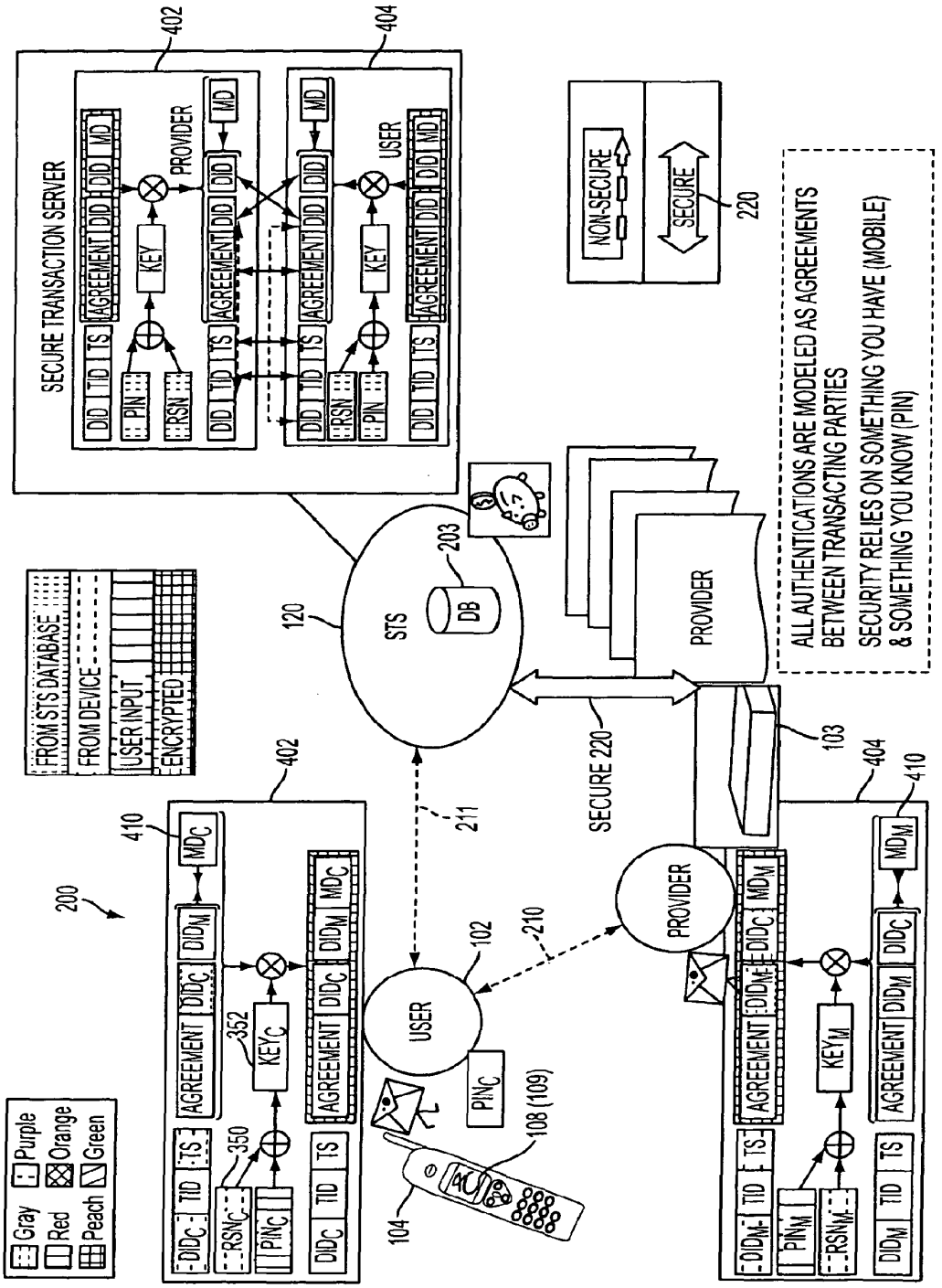

FIG. 2

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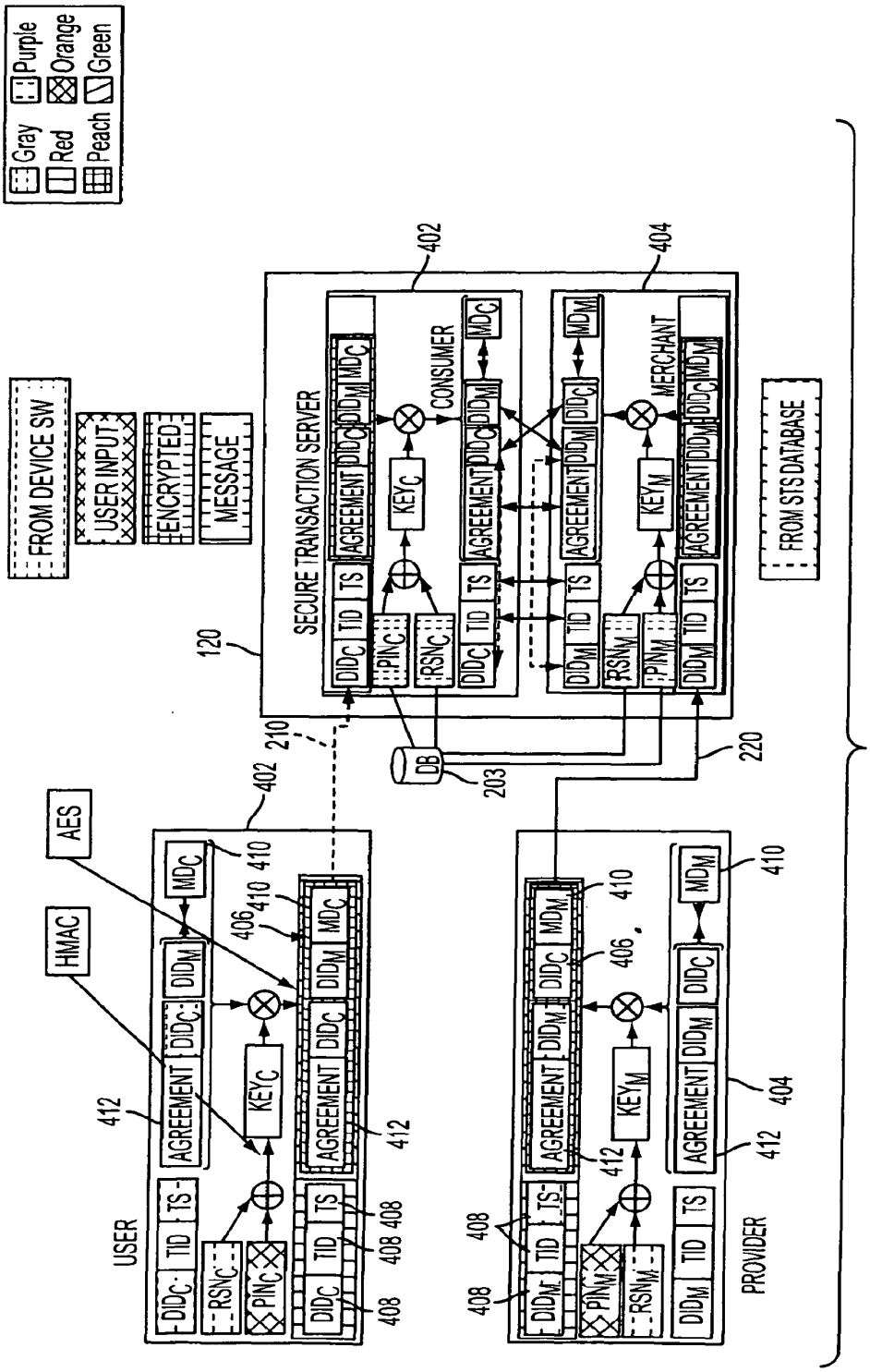
Gray
Purple
Red
Orange
Peach
Green
FROM DEVICE SW
USER INPUT
ENCRYPTED
MESSAGE
FROM STS DATABASE
SECURE TRANSACTION SERVER
CONSUMER
MERCHANT
USER
PROVIDER
AES
HMAC
DB
AGREEMENT
TID
TS
120
203
210
220
402
404
406
408
410
412

FIG. 3

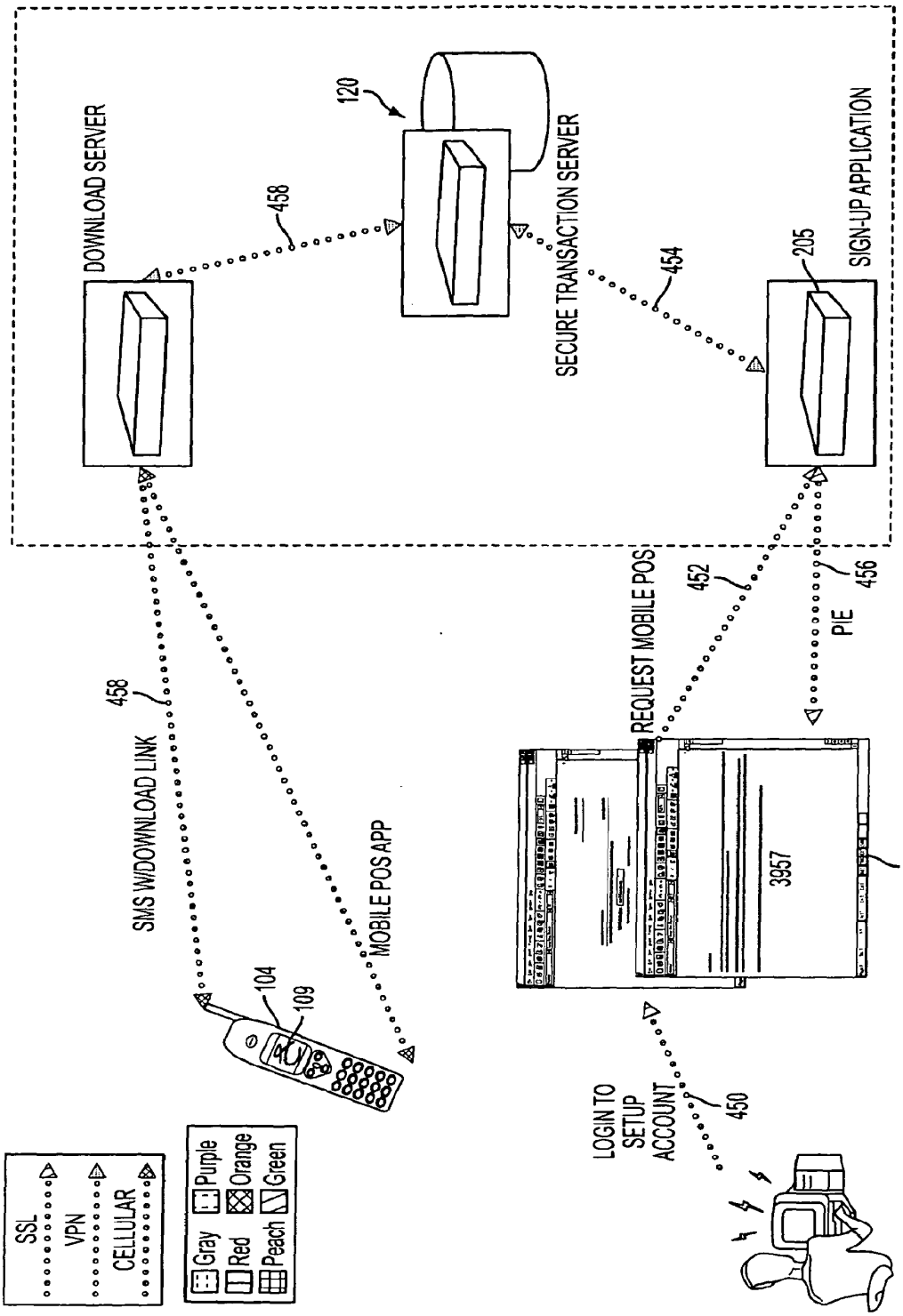

FIG. 4

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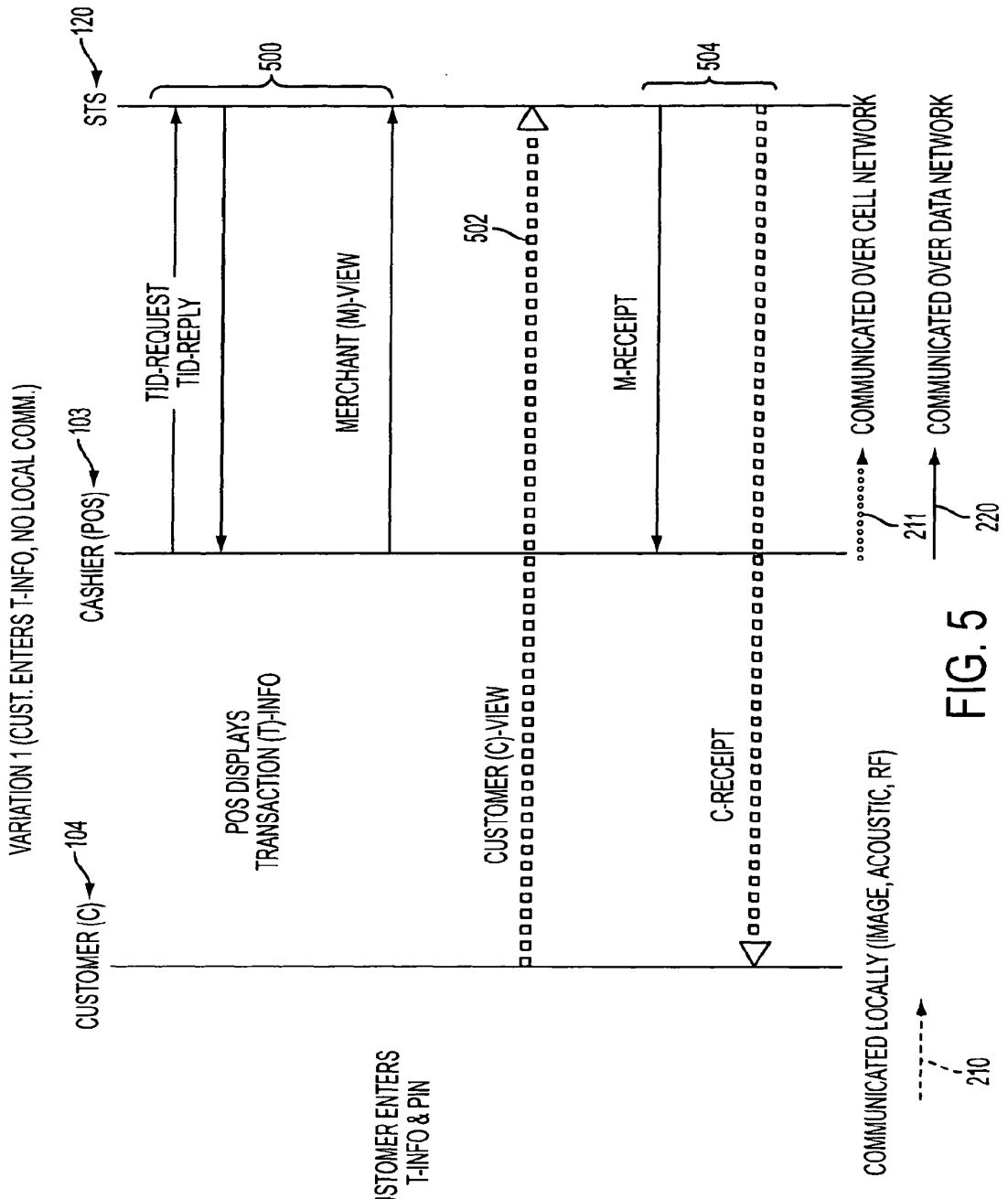

FIG. 5

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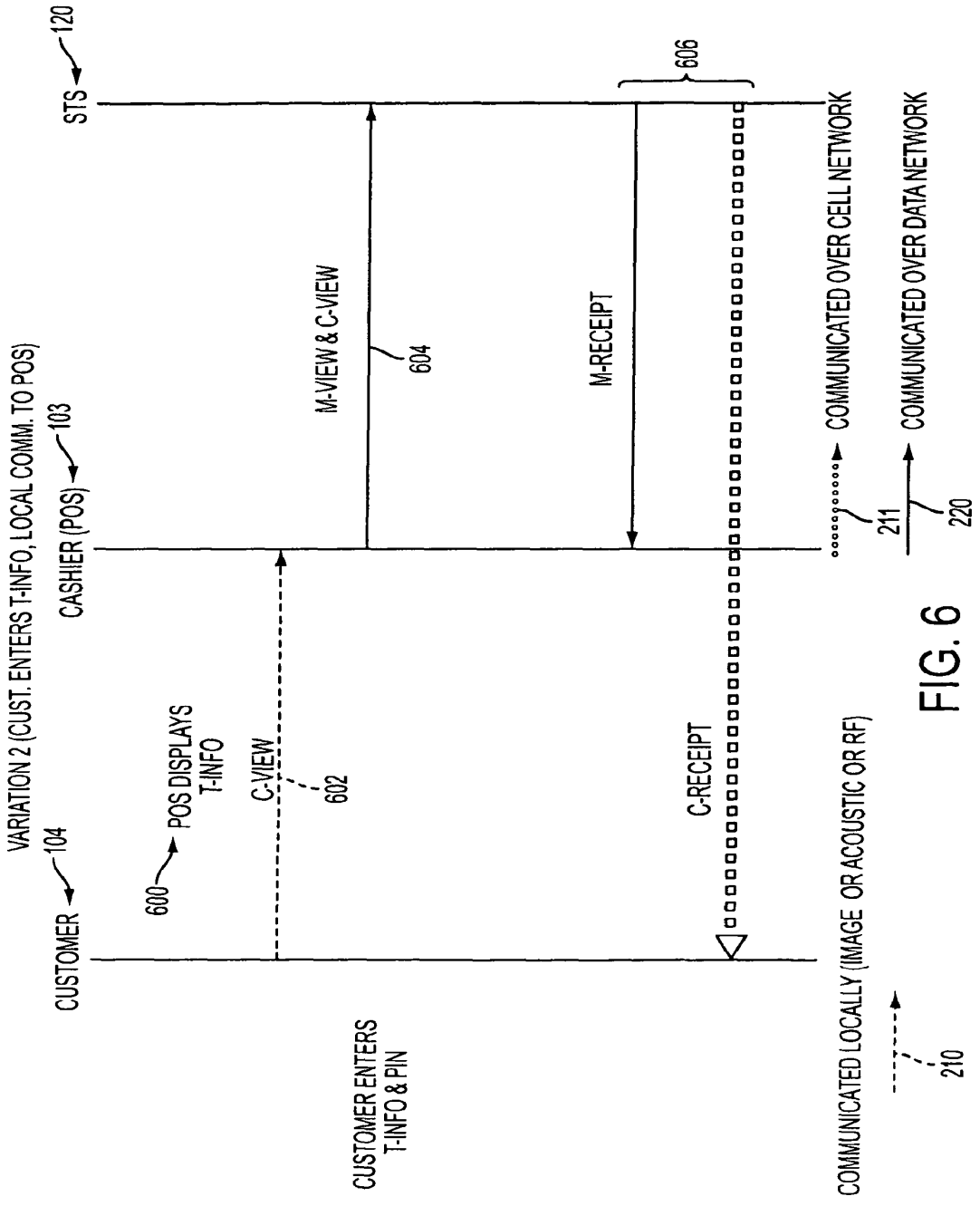

FIG. 6

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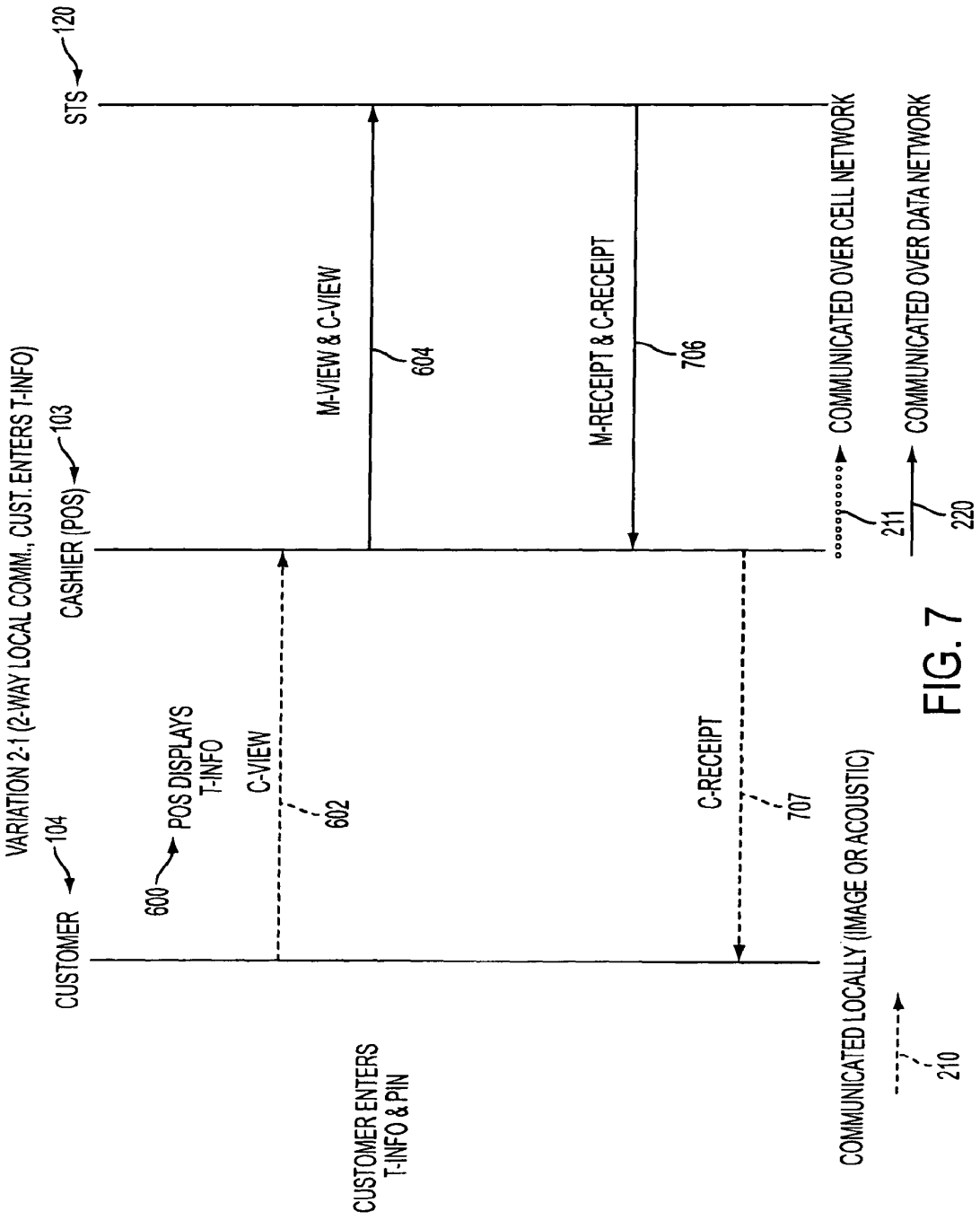

FIG. 7

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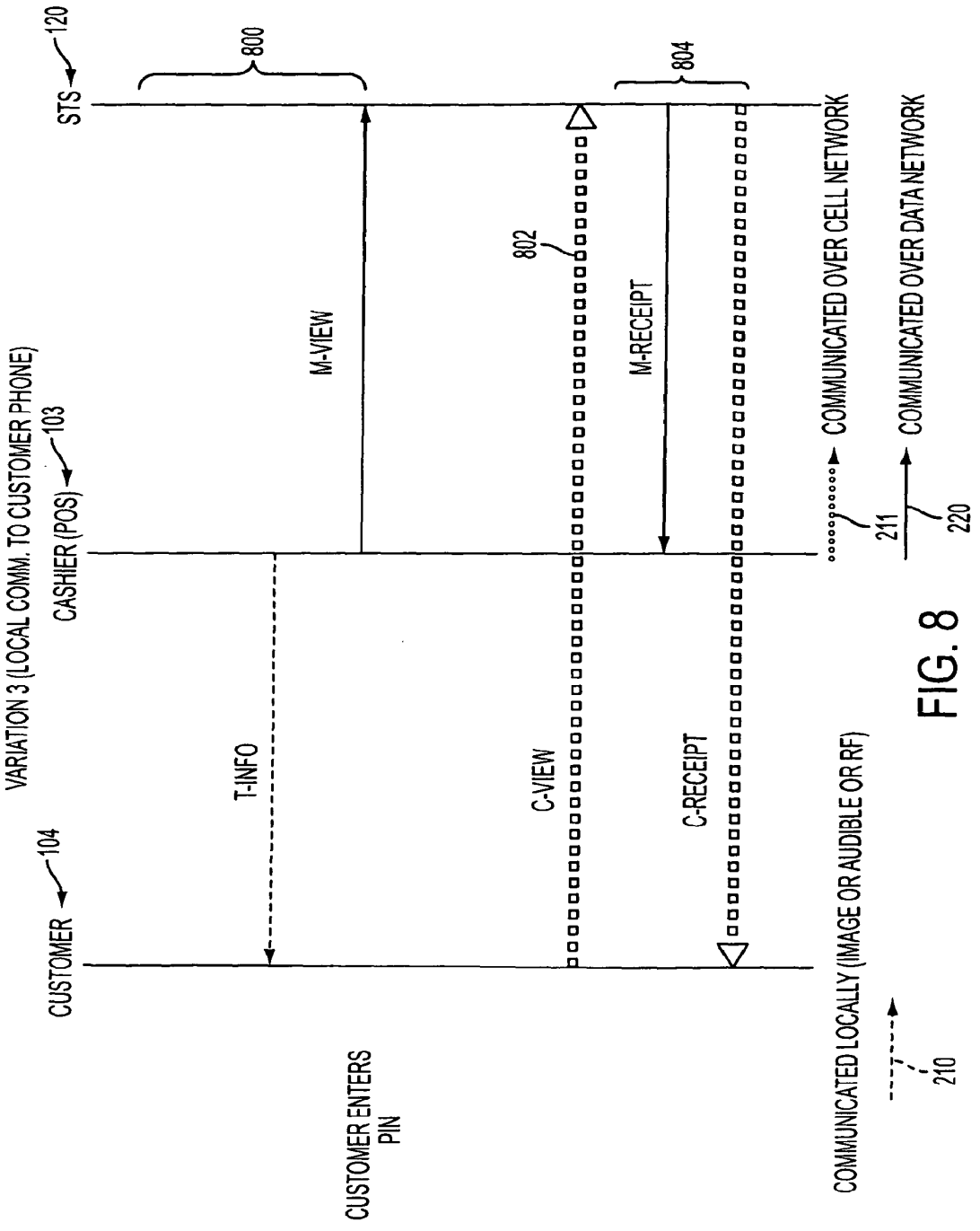

FIG. 8

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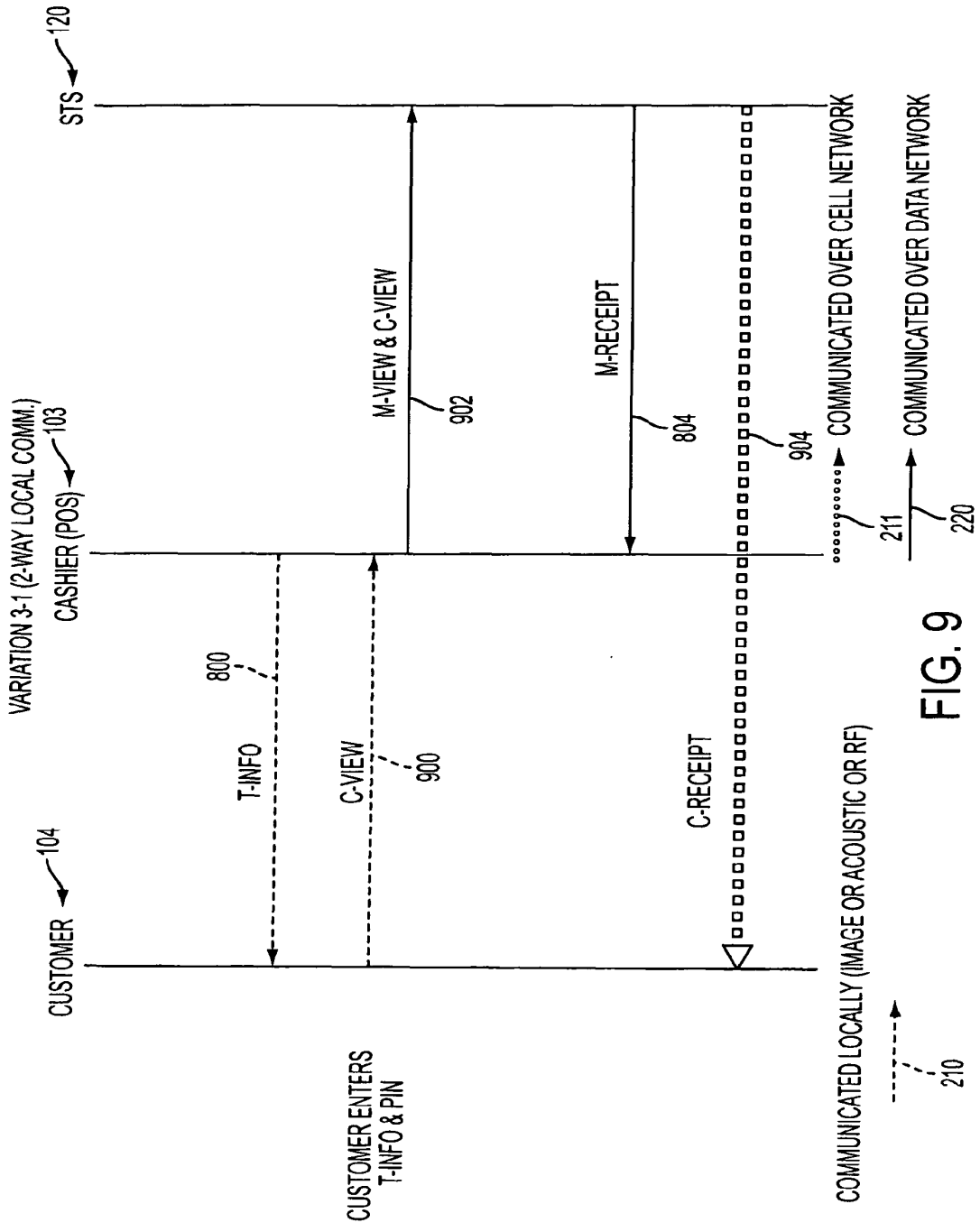

FIG. 9

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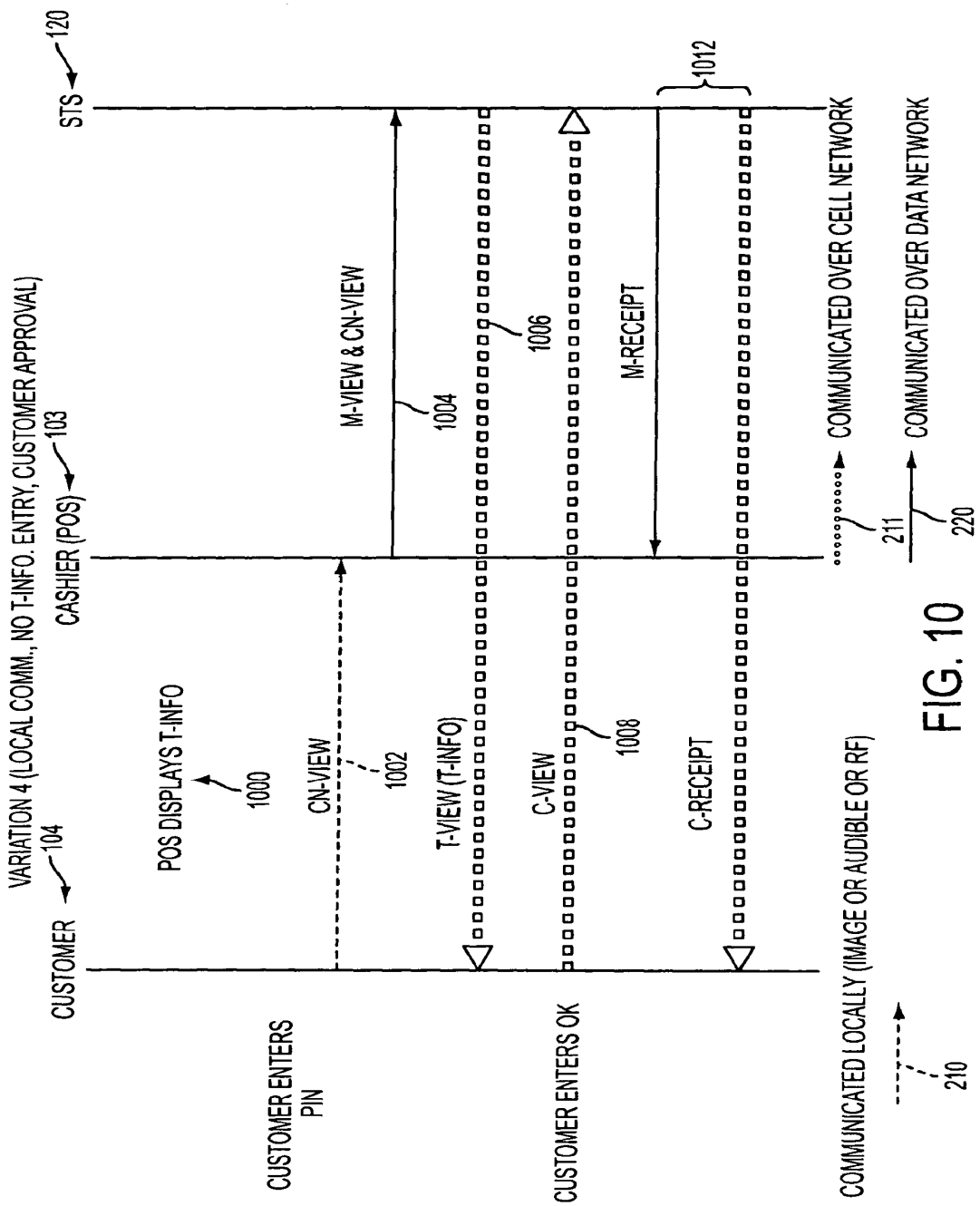
VARIATION 4 (LOCAL COMM., NO T-INFO. ENTRY, CUSTOMER APPROVAL)
CUSTOMER
104
CASHIER (POS)
103
STS
120
POS DISPLAYS T-INFO
1000
CN-VIEW
1002
T-VIEW (T-INFO)
M-VIEW & CN-VIEW
1004
C-VIEW
1006
C-RECEIPT
1008
M-RECEIPT
1012
CUSTOMER ENTERS PIN
CUSTOMER ENTERS OK
COMMUNICATED LOCALLY (IMAGE OR AUDIBLE OR RF)
210
COMMUNICATED OVER CELL NETWORK
211
COMMUNICATED OVER DATA NETWORK
220

FIG. 10

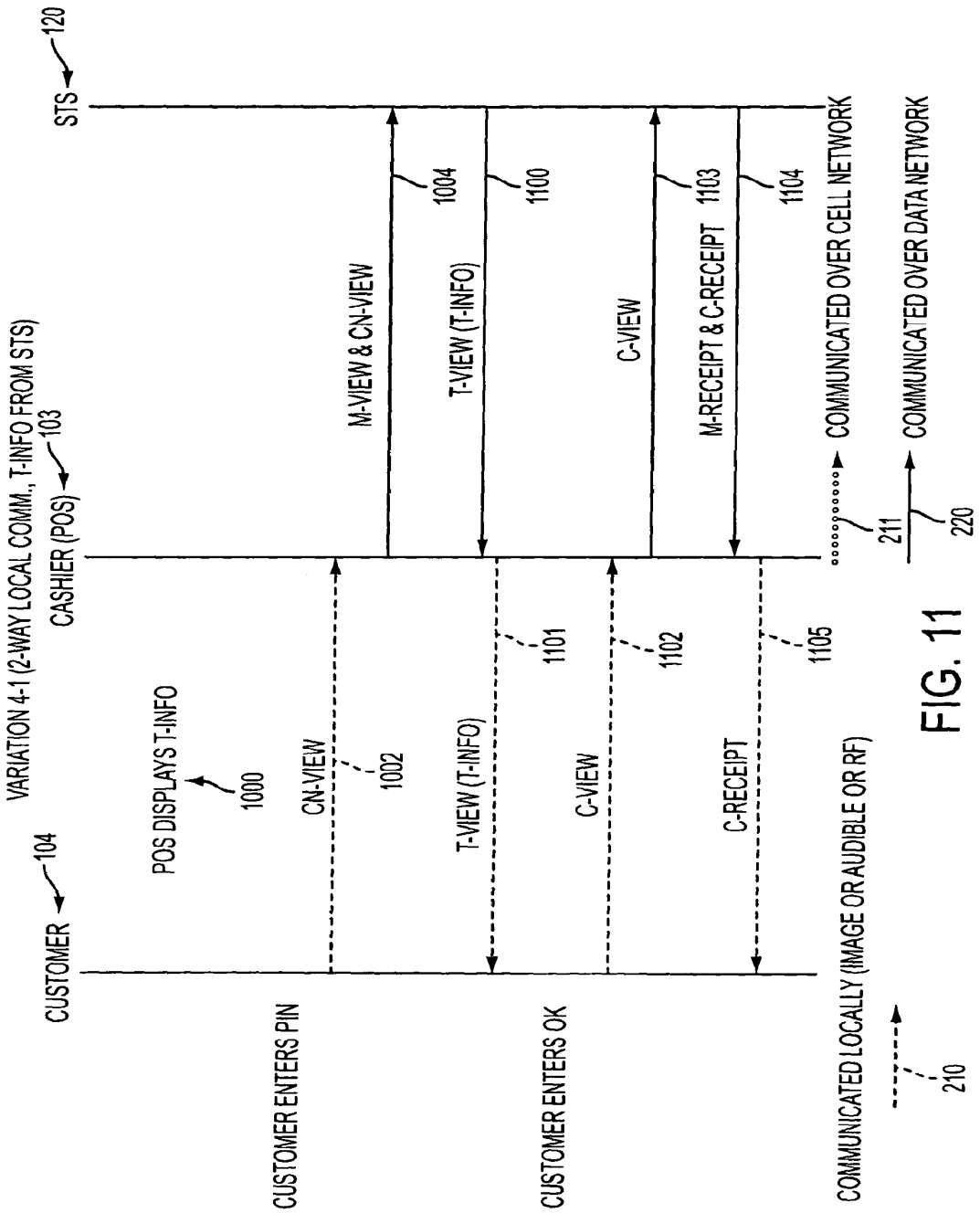

FIG. 11

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FIG. 12

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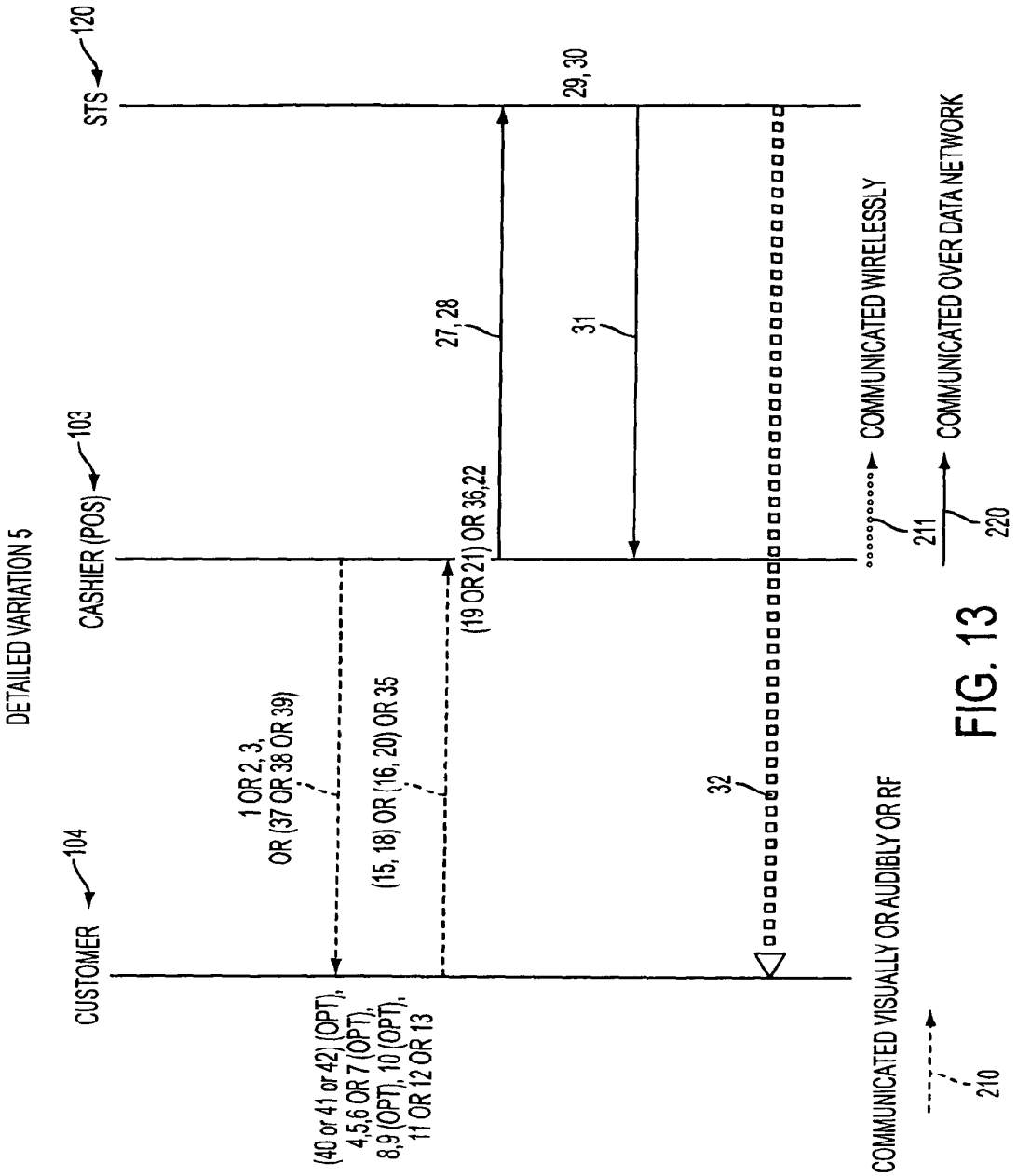

FIG. 13

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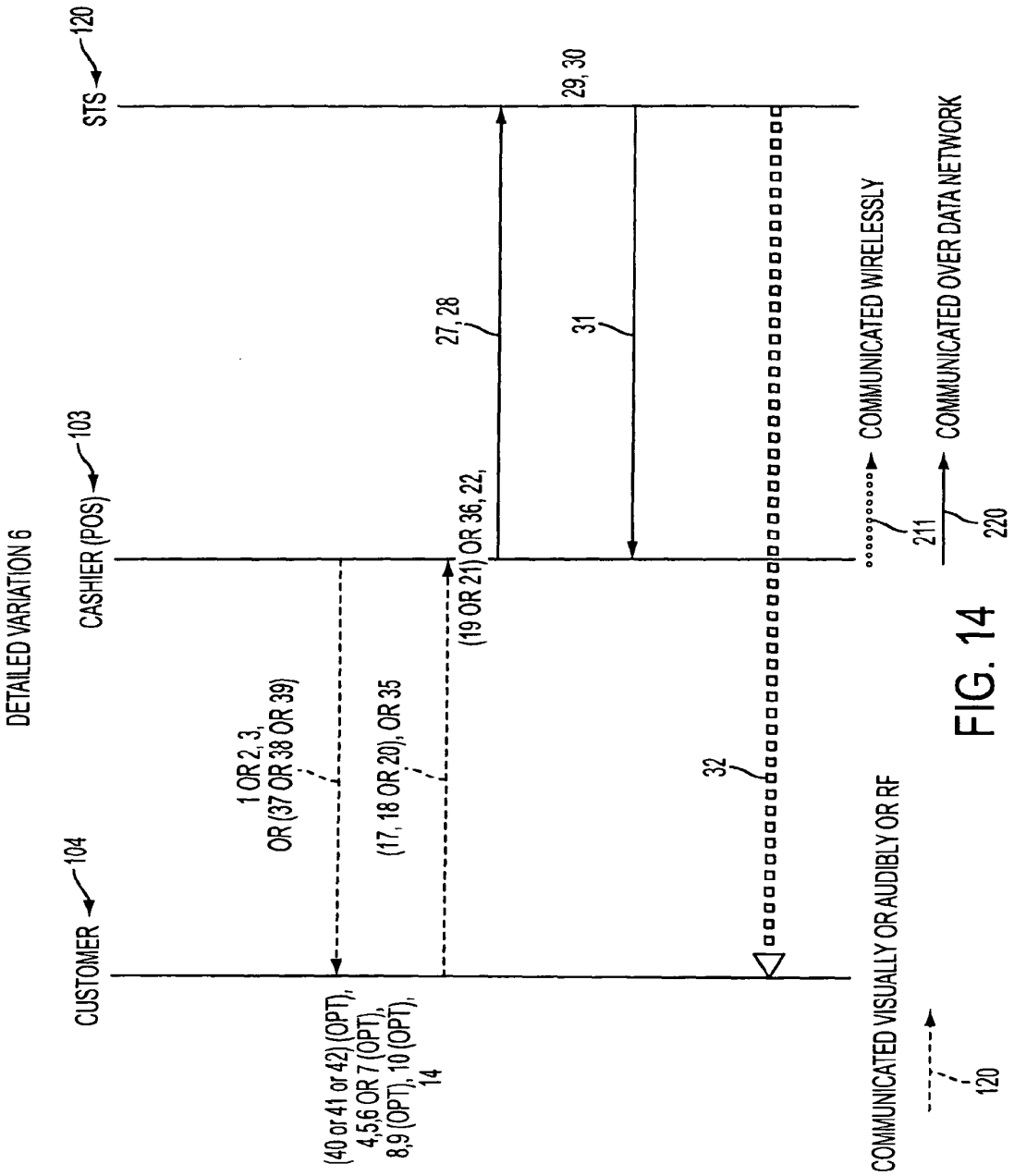
DETAILED VARIATION 6
CUSTOMER
104
CASHIER (POS)
103
STS
120
1 OR 2, 3,
OR (37 OR 38 OR 39)
(40 or 41 or 42) (OPT),
4,5,6 OR 7 (OPT),
8,9 (OPT), 10 (OPT),
14
(17, 18 OR 20), OR 35
(19 OR 21) OR 36, 22,
27, 28
29, 30
31
32
COMMUNICATED VISUALLY OR AUDIBLY OR RF
120
COMMUNICATED WIRELESSLY
211
COMMUNICATED OVER DATA NETWORK
220

FIG. 14

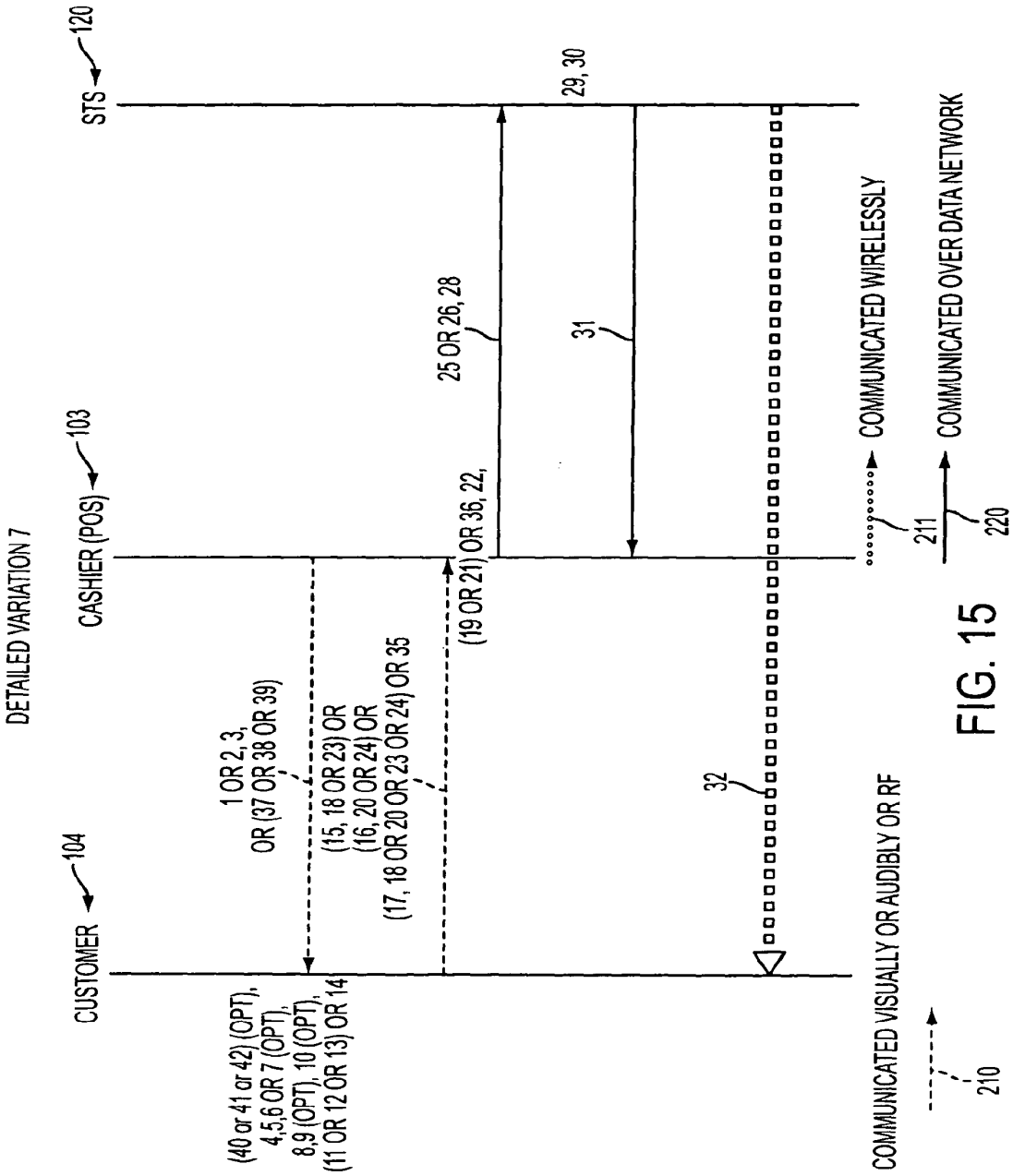

FIG. 15

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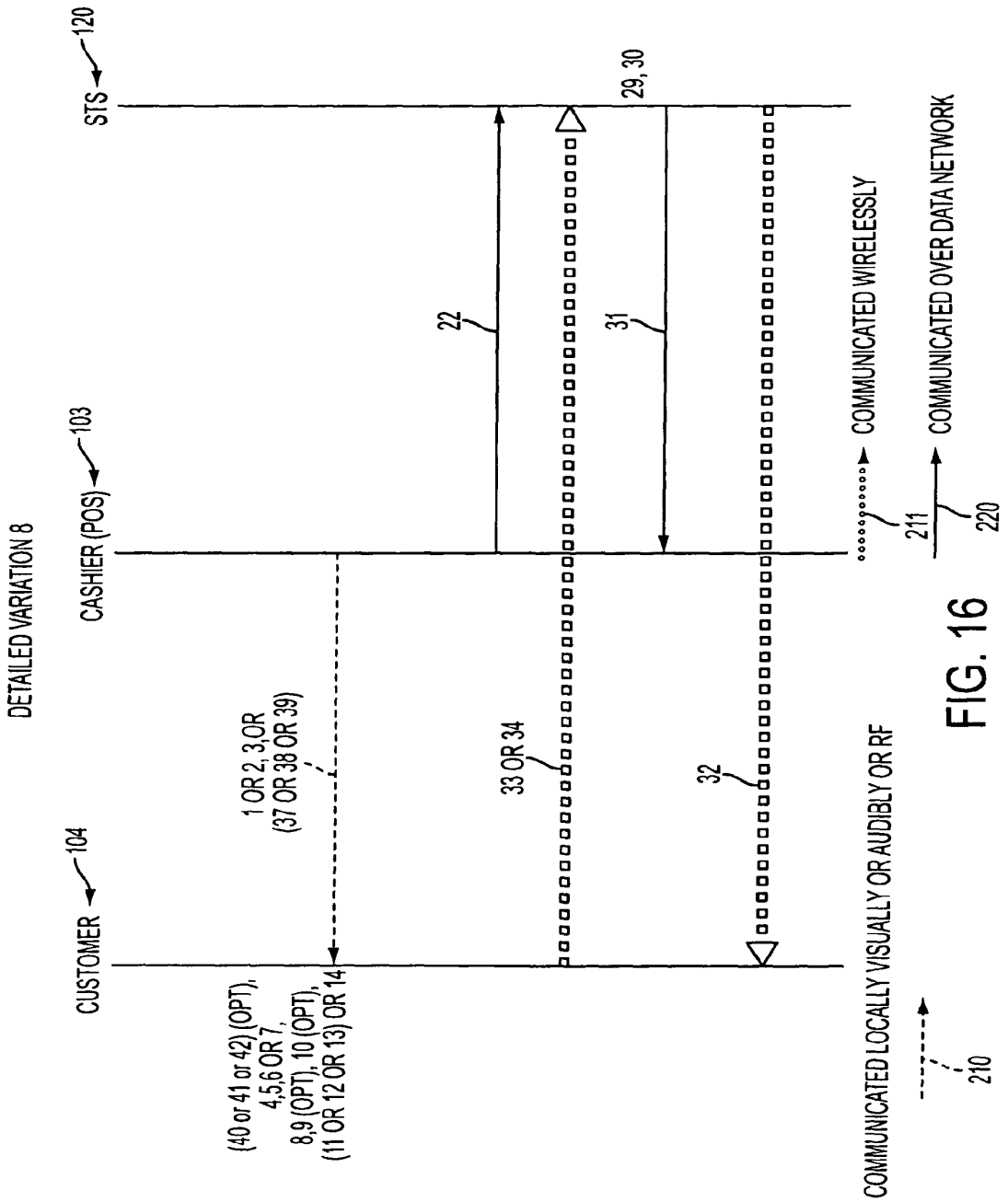

FIG. 16

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 25 3923

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
D,X	EP 1 388 797 A2 (FUJITSU LTD [JP]) 11 February 2004 (2004-02-11) * paragraphs [0035], [0036] * * paragraph [0039] - paragraph [0045] * * paragraph [0124] - paragraph [0152] * * paragraph [0163] - paragraph [0257] * * paragraph [0276] - paragraph [0306] * * paragraph [0359] - paragraph [0365] * * paragraph [0396] - paragraph [0401] * * paragraph [0446] - paragraph [0454] * * paragraph [0477] - paragraph [0488] * * paragraph [0540]; figures 2,14-18,21,24,26,29-32,43 *	1-26	INV. G06Q20/00
X	LABROU Y ET AL: "Wireless wallet" MOBILE AND UBIQUITOUS SYSTEMS: NETWORKING AND SERVICES, 2004. MOBIQUITOUS 2004. THE FIRST ANNUAL INTERNATIONAL CONFERENCE ON BOSTON, MA, USA AUG. 22-26, 2004, PISCATAWAY, NJ, USA,IEEE, 22 August 2004 (2004-08-22), pages 32-41, XP010721016 ISBN: 0-7695-2208-4 * the whole document *	1-26	TECHNICAL FIELDS SEARCHED (IPC) G06Q H04L G07F
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 December 2006	Guivol, Ouri

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
E : earlier patent document, but published on, or after the filing date
D : document cited in the application
L : document cited for other reasons

& : member of the same patent family, corresponding document

EPO FORM 1503 03.82 (P04C01)

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APPLE INC. / Page 313 of 3598

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 06 25 3923

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	WO 98/25371 A (WANG YNJIUN [US]) 11 June 1998 (1998-06-11) * page 2, line 10 - line 16 * * page 4, line 8 - line 21 * * page 6, line 3 - line 23 * * page 15, line 20 - page 16, line 25; figures 1-4 *		
A	EP 1 231 578 A2 (SIEMENS AG [DE]) 14 August 2002 (2002-08-14) * column 7, paragraph 31 - paragraph 33 * * column 7, paragraph 39 - paragraph 42; figures 1,4,5 *	2,4,15, 16,23	
A	GB 2 386 236 A (MARCONI COMM LTD [GB]) 10 September 2003 (2003-09-10) * page 6, line 6 - page 9, line 24 * * page 23, line 8 - page 25, line 12 *	2,17,23	
A	DE 103 10 527 A1 (HOGL CHRISTIAN [DE]) 23 September 2004 (2004-09-23) * the whole document *	1,3,4,8, 21-26	TECHNICAL FIELDS SEARCHED (IPC)

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	8 December 2006	Guivol, Ouri

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
Y : particularly relevant if combined with another document of the same category
A : technological background
O : non-written disclosure
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T : theory or principle underlying the invention
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& : member of the same patent family, corresponding document

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08-12-2006

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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(12) UK Patent Application (19) GB (11) 2 447 051 (13) A

(43) Date of A Publication 03.09.2008

(21) Application No: 0704052.0

(22) Date of Filing: 01.03.2007

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(51) INT CL:
G07F 7/02 (2006.01) ***B62B 3/14*** (2006.01)

(56) Documents Cited:
WO 2005/096237 A1 **WO 2001/061664 A**
US 6032127 A **US 20060289637 A1**
US 20060208072 A1 **US 20020170961 A1**

(58) Field of Search:
Other: **Online: WPI, EPODOC**

(54) Abstract Title: **Automated shopping system using RFID tags**

(57) A conventional retail trolley 6 includes a built in LCD panel 5 to display item amount 4 and price of item 3 to the customer when filling the trolley 6. The items placed in the trolley have RFID tags read by tag readers in the trolley and at an automated the checkout where items 3 are read by the RFID reader and shown on a display. When payment is made a receipt can be printed and a gate 10 is automatically opened allowing customer to exit.

Figure 3

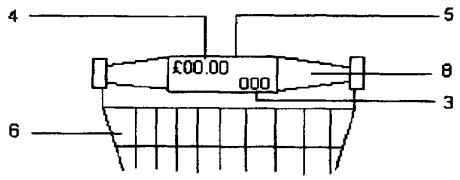

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Figure 1

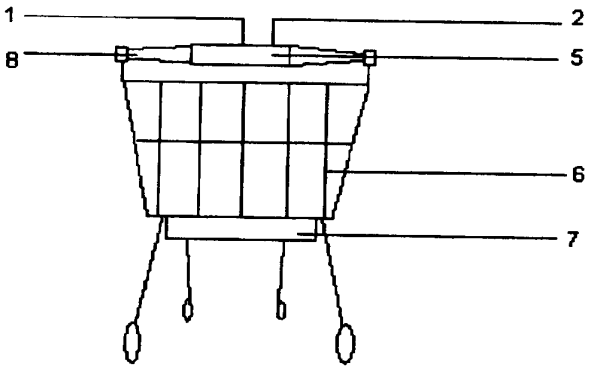


Figure 2

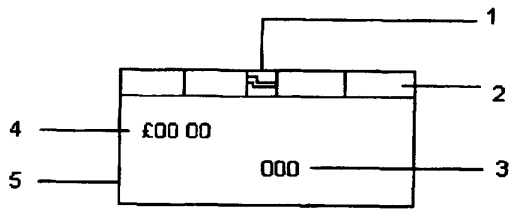


Figure 3

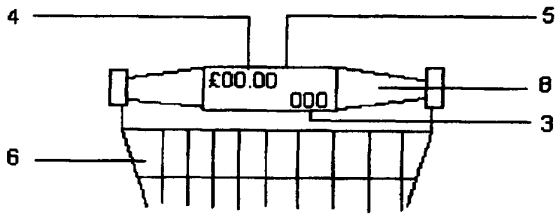
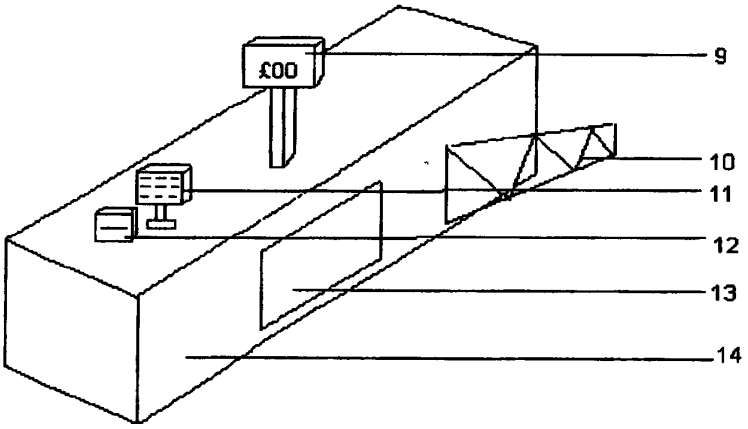


Figure 4



Automated shopping system

This invention relates to a system that uses RFID tags to speed up the shopping and payment process through unmanned checkouts.

When customers use retail outlets they use conventional retail trolleys to collect their goods when they have completed their shop they then commence to the nearest checkout, normally there is a queue, and they have to unload all the goods from the retail trolley onto a conveyor belt to allow the cashier to scan each item, the goods are then packed into bags provided by the retail outlet and re-loaded into the retail trolley, once they have paid they then push the retail trolley to the exit, all of this requires a considerable length of time spent at the checkout.
Our invention solves this problem in the following way, the retail trolley has a built in LCD panel which displays the total amount of items and the price of the last item placed in the retail trolley, built into the display are solar panels to provide the power to run the LCD display so making it maintenance free.

There is an RFID reader built into the LCD display to read the tags on each item as it is placed into the retail trolley, underneath the retail trolley is a container which holds plastic shopping bags when the customer brings the retail trolley into the store a sensor at the entrance releases the catch on the container and the bags are made available, each bag has an RFID tag so as it is taken out of the container it will be read by the reader on the retail trolley and charged (optional) to the total bill at the checkout.
The customer can fill the bags as they walk around the store thus saving time later, the tag reader on the checkout can read the tags through the bags.

At the checkout the customer simply pushes the retail trolley up to the counter, the tag reader built into the counter then reads the total amount of tags in the retail trolley and displays the amount of items and the total price to pay on the counter display, the customer can then place their loyalty points card and debit/credit card into the display, type the pin number in and payment is taken deducting any available points from the total bill, a receipt is printed and the gate is opened allowing the customer to leave the shop, all of this has dramatically speeded up the time spent in the store and alleviates any queues.
The invention will now be described solely by way of example and with reference to the accompanying drawings in which:

Figure 1 shows a conventional retail trolley with LCD panel built into the handle.

Figure 2 shows the LCD panel and its layout with solar strip for power supply and RFID reader.

Figure 3 shows retail trolley with LCD panel built into custom fitted handle.

Figure 4 shows retail checkout with RFID reader and card payment system.

In figure 1 a conventional retail trolley 6 takes an LCD panel 5 built into handle 8, attached to the underside of the retail trolley 6 is a shopping bag dispenser 7 the customer places the bags in the retail trolley 6 and fills them making it easier to unload later, each bag has an RFID tag and can be charged for as it enters the retail trolley 6 the LCD panel 5 is powered by a solar panel 2 and is fitted with an RFID tag reader 1 this reads the tags on the items placed in the retail trolley 6 and displays the amount of items 3 and the value of the last item 4 placed in the retail trolley 6 on the LCD panel 5.

Figure 2 shows the LCD panel 5 with built in solar panels 2 to power the unit the LCD panel 5 displays the number of items 3 in the retail trolley 6 and the item price 4, the information displayed is received from each items RFID tag that is read by the RFID reader 1 which is part of the LCD panel 5.

Figure 3 shows the handle 8 and LCD panel 5 with item price 4 and number of items 3 attached to retail trolley 6 the LCD panel 5 can de fitted to any existing retail trolley 6 and can be incorporated into any handle design.

Figure 4 shows the automated checkout 14 with attached RFID reader panel 13 this reads the tag attached to items in the retail trolley 6 and displays item price 4 and number of items 3 on the display 9 the customer can cross check information displayed on the LCD panel 5 attached to the retail trolley 6 payment is taken via debit/credit card and pin number entered in unit 11 a receipt is printed from printer 12 and on completion of transaction gate 10 is opened and customer can push the retail trolley to exit.

Claims

1. An automated shopping system comprising of LCD panel built into a conventional retail trolley handle which displays price and amount of items in the trolley, this can be cross checked at the automated checkout, there is no need to unload the trolley onto a conveyor belt as the RFID reader reads the tags in the trolley and displays the price and amount of items on the checkout display, payment can be made by entering debit or credit card manually, a receipt is printed when transaction is complete then the gate is opened automatically so customer can exit.
2. An automated shopping system according to claim 2 in which the use of RFID tags on products will be used to supply information to RFID readers placed on the trolley and checkout.

Intellectual Property Office

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Application No:	GB0704052.0	**Examiner:**	Tom Sutherland
Claims searched:	1 and 2	**Date of search:**	13 April 2007

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1 & 2	WO 2005/096237 A1 (PRECISA INSTRUMENTS) Whole document.
X	1 & 2	US 2006/0289637 A1 (BRICE et al) See paragraphs 0070 and 0071.
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X	1 & 2	US 6032127 A (SCHKOLNICK) Whole document. See particularly column 8 line 30 to column 9 line 33.
A	1	WO 01/61664 A (BOTTIGLIENGO) See Fig. 1. An example of an automated checkout with security gates.

Categories:

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category	P	Document published on or after the declared priority date but before the filing date of this invention
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

Field of Search:

Search of GB, EP, WO & US patent documents classified in the following areas of the UKC^{X} :

Worldwide search of patent documents classified in the following areas of the IPC

The following online and other databases have been used in the preparation of this search report

WPI, EPODOC

International Classification:

Sub Class	Sub Group	Valid From
G07F	0007/02	01/01/2006
B62B	0003/14	01/01/2006

(12) UK Patent Application (19) GB (11) 2476989 (13) A

(43) Date of A Publication 20.07.2011

(21) Application No: 1000837.3

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(71) Applicant(s):
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(51) INT CL:
G06F 21/00 (2006.01) ***G06Q 20/00*** (2006.01)
G07F 7/08 (2006.01) ***G07F 7/10*** (2006.01)

(56) Documents Cited:
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US 20080141361 A1 **US 20070262134 A1**
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(58) Field of Search:
INT CL **G06F, G06Q, G07F**
Other: **ONLINE: EPODOC & WPI**

(54) Title of the Invention: **An apparatus and a method for secure authentication**
Abstract Title: **Activation of secure function in mobile computing device using authentication tag**

(57) A mobile computing device 100, preferably a mobile telephone, is brought into proximity with an authentication tag 101 with which the device communicates. Preferably, the authentication tag 101 comprises a passive radio-frequency identification (RFID) tag 107 within the dimensions of a credit card and the device employs near-field communication (NFC) technology. A communication module of the device causes the tag to transmit authentication data 109, possibly a tag-ID and preferably encrypted and stored as an NFC definition (NDEF) record 108, which is validated by the device. If the data is valid the device executes a secure function such as launching a secure application, which may be associated with an application-ID held in second authentication data from the tag, which IDs must match. The secure application may be an account access application, e.g, a mobile "wallet", and may communicate with a remote server to update account details such as virtual bank cards. Activation of the secure function may comprise activation of a virtual bank card for payment via a contactless payment point.

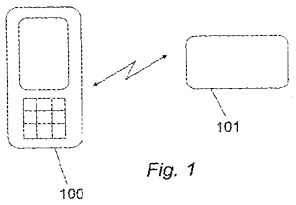

Fig. 1

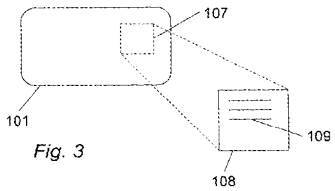

Fig. 3

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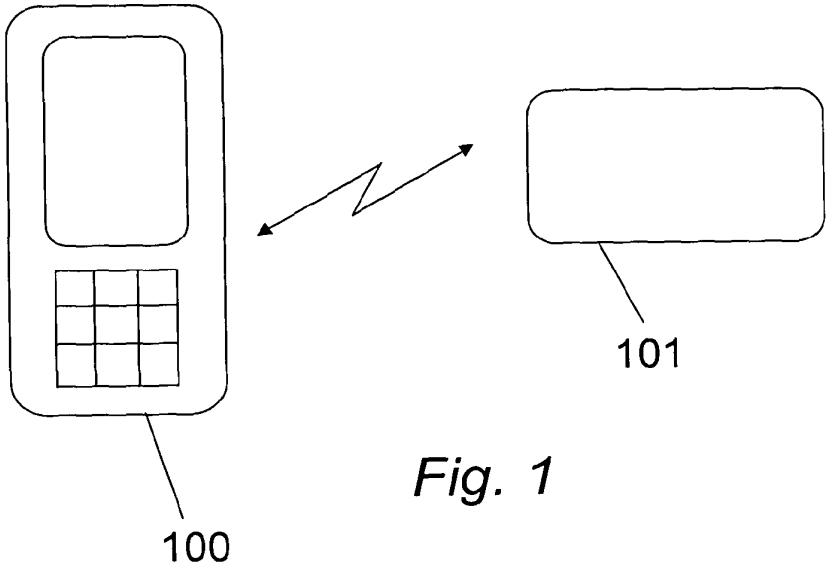

Fig. 1

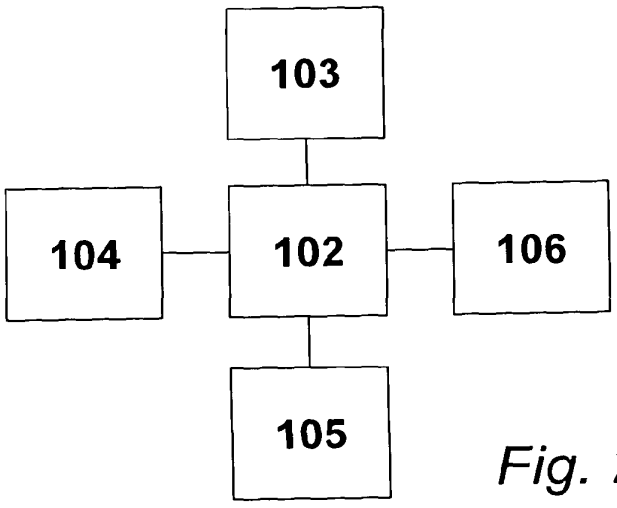

Fig. 2

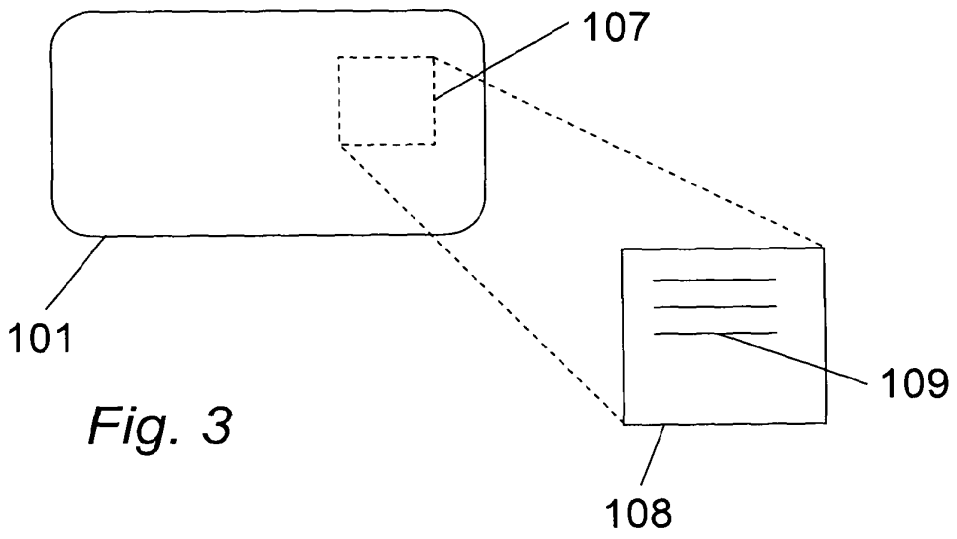
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Fig. 3

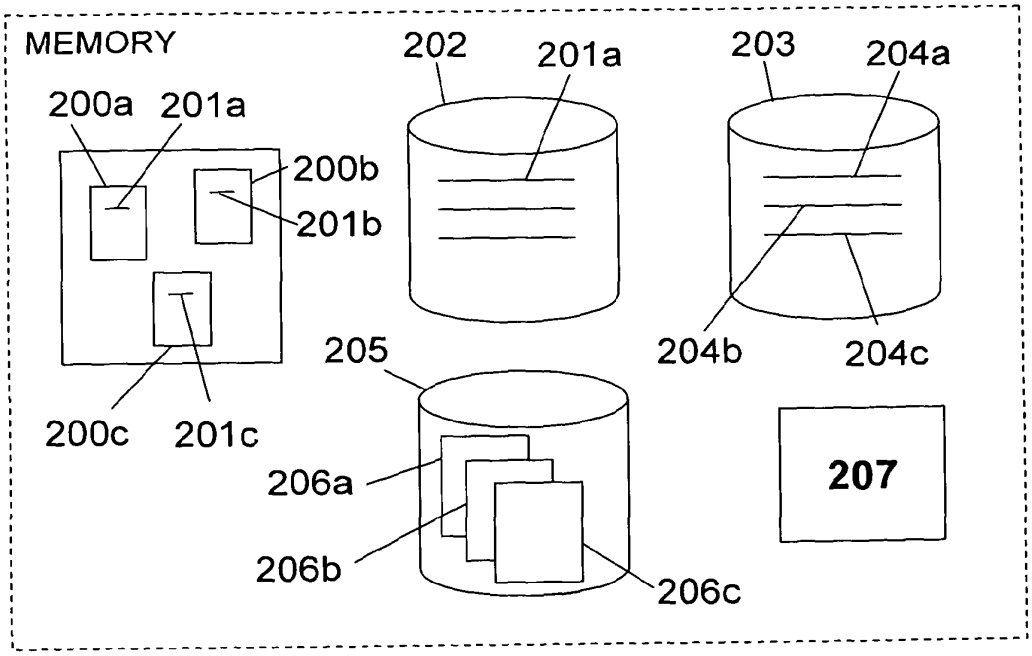
MEMORY
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Fig. 4

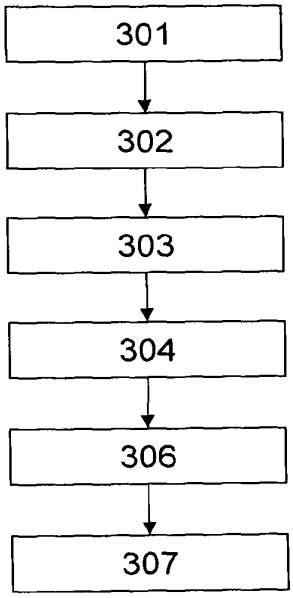

Fig. 5

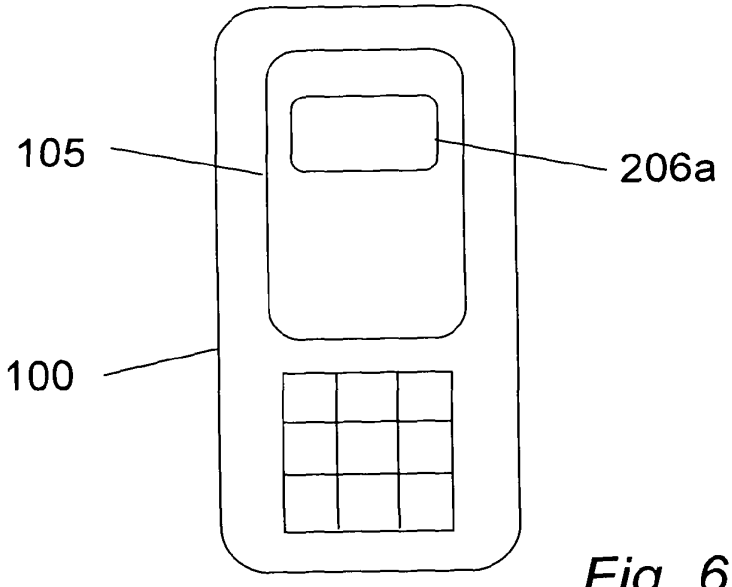

Fig. 6

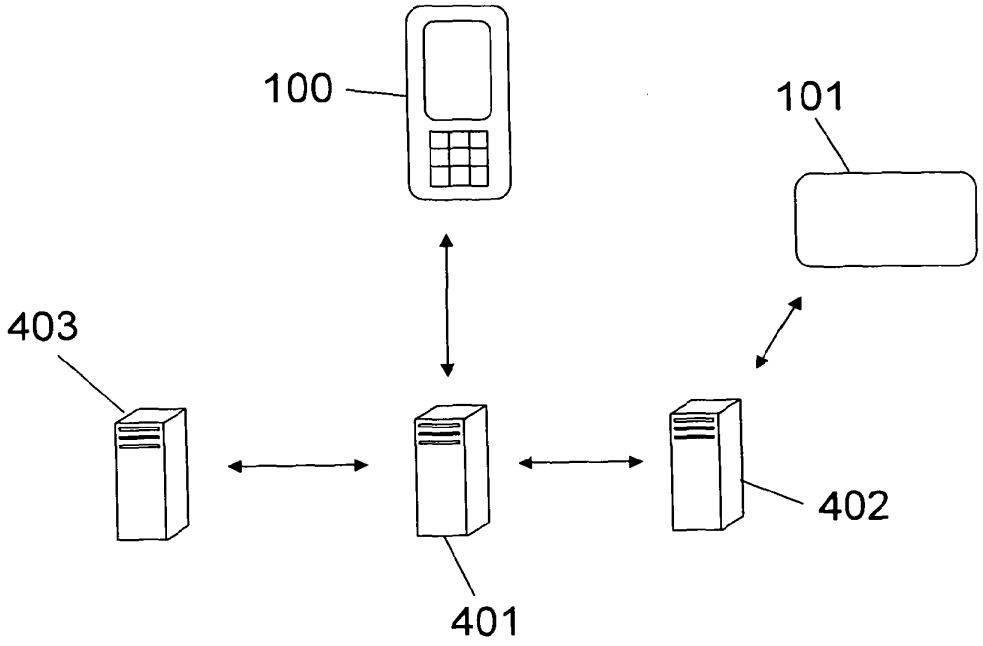

Fig. 7

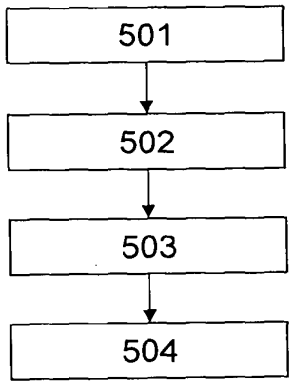

Fig. 8

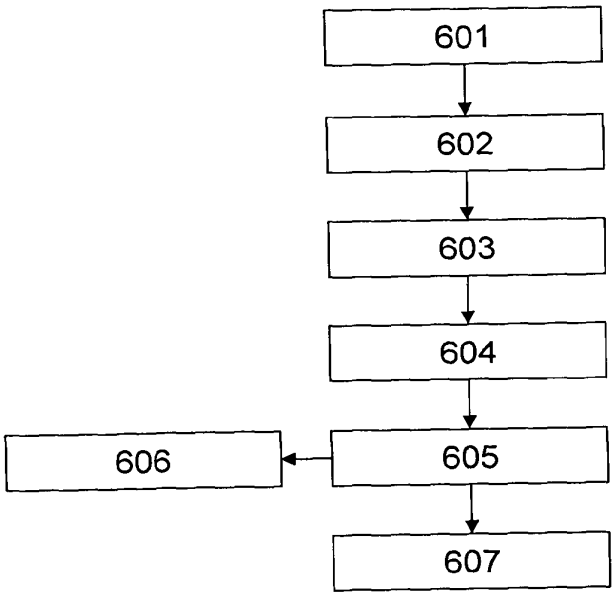

Fig. 9

AN APPARATUS AND A METHOD FOR SECURE AUTHENTICATION

TECHNICAL FIELD

This invention relates to an apparatus for secure authentication. In particular, the present invention relates to a mobile telephone having a function which is activated using near field communication.

BACKGROUND TO THE INVENTION

Contactless payment technology enables mobile telephones to be used for payment for goods and services. A mobile telephone may include contactless technology, such as a near-field communications (NFC) transceiver, which enables the telephone to act as contactless payment card, such as a bank card or credit card. Rather than the payment card being a physical card, the payment card is a virtual card stored on the mobile telephone. The mobile telephone may therefore have several payment cards stored on it, for use with different services.

The mobile telephone includes a mobile wallet application in which the virtual cards are accessed. In order to use a card, the user may log into the application using a secure passcode. The mobile wallet is therefore protected against fraudulent use. If someone steals the mobile telephone, they are unable to use any virtual payment cards as the thief will not typically have the passcode. Alternatively, the device may include no passcode, in which case the virtual money is not protected against fraudulent use.

SUMMARY OF EXAMPLES OF THE INVENTION

An example of the invention provides a mobile computing device comprising a communication module for communicating with an authentication tag, in which the authentication tag is for enabling a secure function; wherein the communication module is arranged to cause the authentication tag to transmit first authentication data which may be received by the communication module; and wherein the device determines if the first authentication data is valid, when it is received by the

communication module, and if the first authentication data is valid, the device executes the secure function.

Examples of the invention provide a device which is easy to use, and allows a user a initiate a secure function without having to use the user interface of the phone. The user does not have remember a password/passcode. The device makes it more difficult for a phone to be used by an unauthorised person. If the device is stolen, the secure function can't be initiated without the authentication tag.

In an example, the first authentication data is a tag ID and the mobile device executes the secure function if the tag ID is stored on the device. This means different tags with different IDs can be used for different secure functions. Alternatively, one tag could be used for several secure functions.

In an example, the device further comprises a tag ID record in which tag IDs are stored, wherein the device determines if a tag ID is valid by checking the tag ID store.

In an example, the device further comprises a secure application, and wherein the secure function is launching of the secure application. In an example, the secure application has an associated application ID, and the authentication tag has second authentication data which is the application ID. In an example, the secure application is launched if the second authentication data matches the application ID of the secure application. This enables the device to work out which secure application the tag is for use with.

In an example, the secure application includes a plurality of options, and the authentication tag may be used to cycle through said options. Therefore, in addition to opening an application, the tag can be used to initiate other functions.

In an example, said secure application is an account access application which includes an account record store, arranged to store user account details, and wherein said secure function is activating a user account. In an example, said secure application is arranged to communicate with a remote server. In an example,

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said user account details may be updated by communication with said remote server. In an example, said authentication tag is used activate the secure application to update said user account details.

In an example, the account access application is a mobile wallet and said user account details are virtual bank cards. In an example, the authentication tag is for activating a virtual bank card for payment. In an example, the mobile wallet includes a plurality of bank cards, and the authentication tag is for cycling through the cards. In an example, the communications module is further arranged to communicate with a contactless payment point using said virtual bank card. One use of the device is to store virtual bank cards on the device. The cards are activated for payment using the authentication tag. Payments can only be made if the correct authentication card is used to activate the card.

In an example, the device further comprises a public key, wherein authentication data stored on the authentication tag is encrypted with a private key, and, in order to read the authentication data, the mobile device uses the public key to decrypt the data. In an example, wherein said tag ID is generated using one-time passcode creation when the communications module communicates with the authentication tag. In an example, wherein said tag ID is generated using challenge-response when the communication module communicates with the authentication tag. These encryption techniques can be used to add further layers of security to the device.

In an example, wherein the secure function may be initiation of a telephone call. The device may be used for various secure functions, apart from a mobile wallet. For example, imitating an emergency call.

In an example, said communications module is a near-field communications module, and said authentication tag is an RFID tag and said data is stored as an NDEF record. In an example, said secure function is initiated by bringing the mobile device into close proximity with the authentication tag. In an example, said authentication tag is located in an authentication card which has the dimensions of a credit card. In an example, the authentication card is arranged to be attached to an item of clothing,

and the secure function is initiated by moving the phone to the card. In an example, the device is a mobile telephone.

In a further example embodiment, the present invention provides a cellular telephone for communicating with a cellular telephone network, comprising a near-field communication module for communicating with RFID tags, wherein the near-filed communication module is arranged to cause any RFID tags brought into proximity with the telephone to transmit a tag ID and an application ID stored on the tags, and wherein the telephone includes a mobile wallet application, having an application ID, the mobile wallet application including at least one virtual bank card, and wherein the telephone further includes a tag ID record, and when the communication module receives the tag ID and application ID, it validates the tag by checking the tag ID is stored in the tag ID record, and if valid, the telephone opens the mobile wallet application and activates at least one virtual bank card.

In a further example embodiment, the present invention provides a method of operating the device described above.

In a further example embodiment, the present invention provides a method comprising: bringing an authentication tag and a mobile computing device into proximity with each other; receiving, at a communication module of the device, first authentication data, transmitted from the authentication tag; determining, on the mobile device, if the first authentication data is valid; and executing a secure function if the first authentication data is valid.

In a further example embodiment, the present invention provides a system comprising: the mobile computing device described above; and an authentication tag; wherein the authentication tag has first authentication data stored thereon.

In a further example embodiment, the present invention provides a computer program to be run by a processor on a mobile computing device, to: determine if first authentication data, received from an authentication tag, is valid; and execute a secure function on the mobile device, if the first authentication data is valid.

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In a further example embodiment, the present invention provides a computer-readable medium comprising instructions, which when executed by a mobile computing device causes the device to: determining if first authentication data, received from an authentication tag, is valid; execute a secure function, if the first authentication data is valid.

This summary provides examples of the invention which are not intended to be limiting on the scope of the invention. The features of the invention described above and recited in the claims may be combined in any suitable manner. The combinations described above and recited in the claims are not intended to limit the scope of the invention.

Features and advantages associated with the examples of the invention will be apparent from the following description of some examples of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Examples of the invention are hereinafter described with reference to the accompanying figures in which:

Figure 1 shows a mobile telephone and an authentication card in an example of the invention;

Figure 2 is a schematic diagram showing some components of the mobile telephone shown in Figure 1;

Figure 3 shows some details of the authentication card of Figure 1;

Figure 4 shows some of the applications and data stored in the memory of the mobile telephone shown in Figure 1;

Figure 5 is a flow chart showing a method of operation of the mobile telephone shown in Figure 1;

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Figure 6 shows the mobile telephone of Figure 1 during use;

Figure 7 shows a system which includes the mobile telephone of Figure 1.

Figure 8 is a flow chart showing a further method of operation of the mobile telephone shown in Figure 1; and

Figure 9 is a flow chart showing a further method of operation of the mobile telephone shown in Figure 1.

DESCRIPTION OF EXAMPLES OF THE INVENTION

In a first example embodiment, the present invention provides a system for secure payment. This is shown in Figure 1. The system includes a mobile telephone 100 which includes a NFC module, which may use RFID technology, for example. The NFC module enables the mobile telephone to communicate with contactless payment points. A mobile wallet is stored on the mobile telephone and includes one or more virtual bank cards. A user is able to pay for goods or services using the virtual cards. In order to make a payment, the user selects the card they wish to use and waves the mobile telephone in front of the contactless payment point. Money is then deducted from the virtual card.

In addition, the user has one or more authentication cards, such as authentication card 101, as shown in Figure 1. The authentication card 101 is used to unlock the mobile wallet to enable a user to make a payment. The authentication card 101 is a plastic, credit card sized card which has an RFID tag embedded therein. In order to make a payment, the user waves the mobile telephone 100 in front of the authentication card 101. The NFC module interrogates the RFID tag, which transmits a unique code back to the mobile telephone 100. This unique code is used to open the mobile wallet and activate a virtual card for payment. If the user loses their mobile phone, no payments can be made. In order to make payments, anyone who obtains the telephone must also have the authentication card.

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The present invention is not limited to for use with a mobile wallet. In other embodiments, the system may be used to launch secure applications, authorise top-up of a mobile phone account, lock/unlock the mobile telephone 100, prove identification and make emergency calls. Other functions are possible with the scope of the present invention.

The present invention is not limited to the features an combinations described in the detailed description. Different features and combinations of features may be possible. In some embodiments, the mobile telephone may be replaced by other computing devices, including PDAa, handheld computers, games consoles, laptops, etc. The following detailed description provides examples of some ways of carrying out the present invention.

As noted above, the mobile telephone 100 is enabled for NFCs using, for example, RFID technology. The authentication card 101 is, for example, a plastic, credit card sized card, containing an RFID tag. The mobile telephone 100 is arranged to interrogate the authentication card 101, and the authentication card is arranged to transmit data, stored on the card, to the mobile telephone. The data sent by the authentication card 101 is used by the mobile telephone 100 to authenticate a user to open a secure application, or to authenticate a user access certain functions associated with a secure application. As noted above, this application may be a mobile wallet, amongst other possibilities.

In order to open a secure application, or in order for a function associated with a secure application to be executed, the user must bring an authentication card, such as card 101, into proximity with the mobile telephone 100. The authentication card 101 has data stored on it which identifies secure application with which it is associated, and a unique code which identifies the card itself. When the authentication card 101 is brought into close proximity with the mobile telephone 100, the telephone interrogates the card 101, and the card transmits the data stored on it to the mobile telephone 100. The mobile telephone 100 then validates the data received from the card 101, and causes the relevant secure application to open or to execute the relevant function. Further details of the mobile telephone 101, authentication card 101 and the method of operation will be described below.

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The mobile telephone 100 will now be described in more detail with reference to Figure 2. The mobile telephone includes a processor 102, memory 103, an input device 104, a display 105, and an NFC module 106. The processor 102 controls the operation of the mobile telephone 100 by executing computer code stored in memory 103. A user can control the mobile telephone 100 using the input device 104 which may be a keypad. The mobile telephone 100 provides feedback to the user via display 105. The NFC module 106 enables the mobile telephone 100 to interact with other NFC devices, such as the authentication cards described above, as well as with NFC payment points. The memory 103 is used to store secure applications for use with authentication cards, such as card 101, amongst various other software elements.

The mobile telephone 100 may include additional components as is known in the art. For example, the mobile phone 100 may include various buses to connect the various components, various types of memory, multiple processors for different functions, and a mobile radio for communication with a mobile phone network. The skilled person will understand the components necessary for the mobile phone 100 to function. Only those components which relate to the present invention are described in detail here.

The authentication card 101 will now be described in more detail in connection with Figure 3. The card 101 is a credit card shaped card which includes a passive RFID tag 107. The tag 107 includes an NFC Data Exchange Format (NDEF) record 108. The record 108 includes data 109 which may be sent to a mobile telephone, such as telephone 100, when the tag 107 is interrogated by such a telephone. The data stored on the tag 107 will be described in more detail below.

The secure applications and the authentication data stored in the mobile phone 100 and the authentication card 101 will now be described in more detail with reference to Figure 4. In this example, several secure applications 200a, 200b and 200c are stored in memory 103. The memory 103 is arranged to store one or more secure applications. Each of the secure applications 200a, 200b, 200c has at least one unique mobile application identifier (MAI) associated with it. In this example, each

secure application has a single MAI. These MAIs are shown in Figure 4 as MAIs 201a, 201b, and 201c. Memory 103 also includes a MAI record 202 which is used to store the MAIs of all secure applications stored in memory. As can be seen in Figure 4, the MAI record 202 includes MAIs 201a, 201b and 201c.

Each authentication card has a unique card ID. When a card is registered with a particular mobile telephone, the card ID is stored in the mobile telephone. The card ID is used as a passcode to open certain secure applications and to unlock certain secure functions. This process will be described in more detail below. The memory 103 also includes a card ID record 203. In the present case, the card ID record 203 includes three card IDs; card ID 204a, 204b and 204c. This is shown in Figure 4.

Each authentication card has data 109 stored on it, as noted above. The data includes the MAI for the secure application or function which the authentication card is for use with. The data 109 also includes the card ID for that authentication card.

The memory 103 also includes a virtual card store 205 which has virtual cards 206a, 206b, 206c stored therein. In this example, the authentication card 101 corresponds to virtual card 206a. Virtual card 206a is a primary bank card of the user. The primary bank card 206a has a cash balance. The cash balance is stored in memory 103 with the virtual card 206a.

The memory 103 also includes a NFC module controller 207 which is for controlling the operation of the NFC module 106. When data is received by the NFC module 106, the NFC module controller 207 is responsible for handling the data. The operation of the NFC module controller will be described in more detail below.

As can be seen above, the mobile phone includes a record of MAIs and a record of card IDs. The user is in possession of various authentication cards, each of which is designed for a different purpose. Each card also has a MAI and a card ID. When the user brings a card near to the mobile phone, the data stored on the card is transmitted to the mobile telephone. The MAI is used to identify the application or function which the card is designed to unlock, and the card ID is used to authenticate the card.

A method of operation of the mobile telephone 100, in accordance with an example embodiment, will now be described in connection with Figure 5.

In this example, secure application 200a is mobile wallet application. As noted above, a mobile wallet is a virtual wallet which stores virtual bank cards, as will be described in more detail below. In this example, authentication card 101 is for authorising a payment to be made by such a virtual bank card. The mobile wallet 200a has MAI 201a. Authentication card 101 has MAI 201a and card ID 204a stored in the NDEF record 108. The authentication card 101 has already been registered with the mobile telephone 100. The card ID 204a is stored in card ID record 203. The process for registration will be described in more detail below.

The mobile telephone 100 is set up so that the NFC module 106 is in an interrogation mode. When in interrogation mode, the NFC module 106 is transmitting an interrogation signal in order to discover RFID tags. When an RFID tag is brought into proximity of the mobile telephone 100, the tag receives the interrogation signal and transmits a response to the NFC module 106.

In the present case, when the user wants to make a payment with the primary bank card, they bring the authentication card 101 into proximity of the mobile telephone 100 (block 301). The authentication card 101 transmits a response to the interrogation signal (block 302). The response includes the card ID 204a and the MAI 201a for the mobile wallet 200a. The NFC module controller 207 cross references the MAI 201a with the MAI record 202 (block 303). As the MAI 201a is in the record 202, the NFC module controller 207 passes the data received from the tag 107 to the mobile wallet application 200a (block 304). The mobile wallet application 200a then validates the data received from the authentication card 101 (block 305). In this case, the mobile wallet application 200a checks the card ID with the card ID record 203 (block 306). In this case, the card ID 204a matches the entry in the card ID record 203. The mobile wallet application 200a then opens and displays the virtual card 206a on the mobile telephone display 105. This is shown in Figure 6.

The mobile wallet application 200a indicates to the user the card balance and the fact that the card is active. If either the card ID 204a or MAI 201a are not validated, the mobile wallet application 205 displays an error message (block 307).

Once a virtual card is active, the user can pay for services by moving the phone into proximity with a contractless payment point. The technology and mechanisms for making contactless payments are known in the art and sill not be described in any detail here.

In a further example embodiment, the present invention provides a system for making an emergency telephone call. In this case, the authentication card 101 is for making an emergency call. The mobile telephone 100 includes a secure application which is for initiating an emergency call. The memory 103 includes the MAI of the emergency application, and the card ID of the authentication card. In order to make an emergency call, the user holds the card against the mobile telephone 100. The user must hold the card against the phone for a minimum time-period; for example five seconds. After five seconds the application launches, the phone vibrates to alert the user, and displays the message, "Request Emergency Assistance: Yes/Cancel?". In order to message the emergency services, the user can press "yes". Alternatively, if they are not in a position to do this, the user can remove the card from the phone, and place it against it again, and the phone will send a message. The message will include the user ID and details of their location. Such a system could be invaluable to those who find themselves in a vulnerable situation, and do not wish to alert anyone to the fact that they are calling the emergency services.

In a further example embodiment, the mobile wallet stored in memory 103 may includes several virtual cards. Tapping the authentication card against the mobile phone 100 causes the phone to cycle through the cards. In this example, the authentication card 101 is not specific to any one card. Instead it is just specific to the mobile wallet. Once the wallet has authenticated the card, it opens. Tapping the card against the phone cycles through the various cards.

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In a further example embodiment, the authentication card can be used to open other secure application on the mobile device. Any application which requires the use of a passcode in order to access it may use this system. For example, social networking applications which require a passcode to access could have an authentication card instead. A single card could enable access to several applications, or different cards could be issued for different applications.

In a further example embodiment, the authentication card could be used to lock or unlock the phone.

In a further example embodiment, the authentication card could be sued to retrieve a PIN. For example, if a user has forgotten or locked a PIN, the authentication card could be used as part of an authentication process. The application provider or network operator could require use of an authentication card in order to retrieve the PIN or unlock it.

In a further example embodiment, the authentication card could be used as mobile phone insurance or a warranty identifier. The authentication card could include an account reference, stored as data, and printed on the card. If the phone is lost, stolen or broken, the card could be used as evidence of ownership. The details could also be used to repatriate the card if lost.

In a further example embodiment, the authentication card could include an application for checking ID. The phone could have the ID record of the owner stored in memory. The system could be used in such a way that the ID is displayed on the phone when an ID authentication card is held next to the phone. This could be used by retailers to check the age of customers. It could also be used by health workers to find details about a patient.

Some of the embodiments mentioned above require the authentication card to be registered. In addition, in most embodiments the card must be issued to the user in a secure manner. There are also circumstances when the user needs to contact service in order to, for example, top-up an account on the mobile phone. In order to

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enable this, in a further example embodiment, the present invention provides a system as shown in Figure 7.

As can be seen in Figure 7, the system includes the mobile telephone 100 and the authentication card 101. The system also includes an administration server 401, a tag issuer 402 and third party services 403. The administration server 401 has several purposes, including registration of secure applications, topping-up of mobile phone credit etc. The mobile telephone 101 communicates with the administration server, as required, using conventional communication techniques. The tag issuer 402 is a third party that provides a particular service. For example, the tag issuer 402 may be a bank that issues a mobile wallet bank card. The tag issuer 402 communicates with the administration server 401 in order to register any tags which are issued to users. The administration server 401 therefore has a record of all authentication cards 101. Third party services 403 may include a service to top-up an account of the mobile telephone 101. The mobile telephone 101 communicates via the administration server 402 in order to top-up the account.

The process of registering an authentication card will now be described with reference to Figure 8. In order to use a particular service, for example a virtual bank card, a user must sign-up to the service and obtain a corresponding authentication card. In the case of a bank card, a user may sign-up to a particular card service on-line, via the bank's website. The bank's website is one of the third party services 403 shown in Figure 7. The bank creates an account for the user and sends an authentication card 101 to the user using the tag issuer 402 (block 501). The bank then registers these details with the administration server 402. When the user receives the card, they go back to the bank website and provide the card ID of the card they have been sent. The user then registers the card with the mobile wallet application 200a on the mobile telephone 100 (block 502). The user does this by entering the card ID 204a of the authentication card and the account number of the bank account. The mobile wallet application 200a then contacts the administration server 402 to verify the details (block 503). If the details are correct, the administration server 402 confirms this to the mobile wallet application 200a (block 504). The authentication card 101 and associated bank card are then ready for use.

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In a further embodiment, the bank card is cash card. In other words, virtual money is stored in the mobile wallet. When this money runs out, the virtual bank card must be topped up. In this embodiment, the present invention provides a mechanism for topping-up a bank card. This will be described in connection with Figure 9.

In order to open the mobile wallet 200a, the user places their authentication card 101 against the mobile phone 100, as described above. In this situation, the virtual bank card 206a is displayed on the mobile telephone 100, and the available balance is shown. The mobile wallet 200a, includes a 'top-up now' option, which the user can select in order to top-up the cash on the virtual card. In this case, the user selects the 'top-up now' option (block 601). The user can the select to top-up by a set amount (for example, £5, £10 or £20), or they can enter specific amount (block 602). The application then prompts the user to tap their authentication card 101, against the phone 100 to confirm the transaction (block 603). The phone then contacts the bank via the administration server 402 to process the top-up request (block 604). The bank checks that the details (card ID etc) are correct and updates the virtual card with the new balance (block 605). If the details are incorrect, and error message is returned (block 606). The bank then updates the user's online bank account to reflect the transfer of funds to the virtual card (block 607). As an option, the bank may require the user to enter an additional passcode, when topping-up an account, to act as an extra layer of security.

In a further embodiment, data stored on the authentication card, including the card ID and any MAIs, may be have a digital signature applied to it. The signature can be made using a private asymmetric key of the trusted third party service. This may be the key of the bank issuing the authentication card. The mobile wallet may include the public key of the bank, which is used to validate the card data.

In a further embodiment, the card ID mentioned above may be replaced by one-time passcode creation. In this case, there is a counter on the authentication card and on the mobile telephone. Each time a user uses an authentication card, a new passcode is created using a cryptographic key. This passocde acts as the new card ID. This mechanism is transparent to the user and provides greater security than the use of a static card ID.

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In a further embodiment, the system may use a challenge-response technique to further improve security. In this case, when a user uses an authentication card, the phone sends a challenge signal to the authentication card. The RFID tag then calculates a response using a cryptographic key, based on the challenge signal, and sends this back to the phone. The phone only allows the user to continue if the response is correct.

The authentication card may come in various form factors. In the examples described above, the card may be a credit card shaped plastic card. This enables the card to be placed in a users wallet. The card may take other shapes that can easily be attached to the users body. For example the card may be incorporated into a belt. In this manner, when a user wishes to make a payment, they can simply wave the mobile telephone phone over the correct portion of the belt. This has particular advantages because the user does not have to locate a card in their wallet to make a payment. Instead, the user intuitively moves their phone to a position on their belt.

An authentication tag may be any suitable sized tag which may store and transmit data to a mobile device. There are no particular limitations on the size, shape or technology used by the tag.

Various modifications, changes, and/or alterations may be made to the above described examples to provide further examples which use the underlying inventive concept, falling within the spirit and/or scope of the invention. Any such further examples are intended to be encompassed by the appended claims.

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Claims

1. A mobile computing device comprising a communication module for communicating with an authentication tag, in which the authentication tag is for enabling a secure function; wherein the communication module is arranged to cause the authentication tag to transmit first authentication data which may be received by the communication module; and wherein the device determines if the first authentication data is valid, when it is received by the communication module, and if the first authentication data is valid, the device executes the secure function.

2. A mobile computing device according to claim 1, wherein the first authentication data is a tag ID and the mobile device executes the secure function if the tag ID is stored on the device.

3. A mobile computing device according to claim 2, further comprising a tag ID record in which tag IDs are stored, wherein the device determines if a tag ID is valid by checking the tag ID store.

4. A mobile computing device according to claims 1, 2 or 3, further comprising a secure application, and wherein the secure function is launching of the secure application.

5. A mobile computing device according to claim 4, wherein the secure application has an associated application ID, and the authentication tag has second authentication data which is the application ID.

6. A mobile computing device according to claim 5, wherein the secure application is launched if the second authentication data matches the application ID of the secure application.

7. A mobile computing device according to claims 4 to 6, wherein the secure application includes a plurality of options, and the authentication tag may be used to cycle through said options.

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8. A mobile computing device according to claims 4 to 7, wherein said secure application is an account access application which includes an account record store, arranged to store user account details, and wherein said secure function is activating a user account.

9. A mobile computing device according to claim 8, wherein said secure application is arranged to communicate with a remote server.

10. A mobile computing device according to claim 9, wherein said user account details may be updated by communication with said remote server.

11. A mobile computing device according to claim 10, wherein said authentication tag is used activate the secure application to update said user account details.

12. A mobile computing device according to claims 8 to 11, wherein the account access application is a mobile wallet and said user account details are virtual bank cards.

13. A mobile computing device according to claim 12, wherein the authentication tag is for activating a virtual bank card for payment.

14. A mobile computing device according to claim 13, wherein the mobile wallet includes a plurality of bank cards, and the authentication tag is for cycling through the cards.

15. A mobile computing device according to claims 12 to 14, wherein the communications module is further arranged to communicate with a contactless payment point using said virtual bank card.

16. A mobile computing device according to any preceding claim, further comprising a public key, wherein authentication data stored on the authentication tag is encrypted with a private key, and, in order to read the authentication data, the mobile device uses the public key to decrypt the data.

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17. A mobile computing device according to any preceding claim, wherein said tag ID is generated using one-time passcode creation when the communications module communicates with the authentication tag.

18. A mobile computing device according to any preceding claim, wherein said tag ID is generated using challenge-response when the communication module communicates with the authentication tag.

19. A mobile computing device according claim 1, wherein the secure function may be initiation of a telephone call.

20. A mobile computing device according to any preceding claim, wherein said communications module is a near-field communications module, and said authentication tag is an RFID tag and said data is stored as an NDEF record.

21. A mobile computing device according to any preceding claim, wherein said secure function is initiated by bringing the mobile device into close proximity with the authentication tag.

22. A mobile computing device according to claim 21, wherein said authentication tag is located in an authentication card which has the dimensions of a credit card.

23. A mobile computing device according to claim 22, wherein the authentication card is arranged to be attached to an item of clothing, and the secure function is initiated by moving the phone to the card.

24. A mobile computing device according to any preceding claim, the device being a mobile telephone.

25. A cellular telephone for communicating with a cellular telephone network, comprising a near-field communication module for communicating with RFID tags, wherein the near-filed communication module is arranged to cause any RFID tags brought into proximity with the telephone to transmit a tag ID and an application ID

stored on the tags, and wherein the telephone includes a mobile wallet application, having an application ID, the mobile wallet application including at least one virtual bank card, and wherein the telephone further includes a tag ID record, and when the communication module receives the tag ID and application ID, it validates the tag by checking the tag ID is stored in the tag ID record, and if valid, the telephone opens the mobile wallet application and activates at least one virtual bank card.

26. A method of operating the device of any of claims 1 to 25.

27. A method comprising:

bringing an authentication tag and a mobile computing device into proximity with each other;

receiving, at a communication module of the device, first authentication data, transmitted from the authentication tag;

determining, on the mobile device, if the first authentication data is valid; and

executing a secure function if the first authentication data is valid.

28. A method according to claim 27, wherein the first authentication data is a tag ID and the method comprises executing the secure function if the tag ID is stored on the device.

29. A method according to claim 28, wherein the device further comprises a tag ID record in which tag IDs are stored, and the method further comprises determining if a tag ID is valid by checking the tag ID store.

30. A method according to claims 27 to 29, further comprising a secure application, and wherein executing the secure function is launching of the secure application.

31. A method according to claim 30, wherein the secure application has an associated application ID, and the authentication tag has second authentication data which is the application ID.

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32. A method according to claim 31, further comprising launching the secure application if the second authentication data matches the application ID of the secure application.

33. A method according to claims 30 to 32, wherein the secure application includes a plurality of options, and the method further comprises using the authentication tag to cycle through said options.

34. A method according to claims 30 to 33, wherein said secure application is an account access application which includes an account record store, arranged to store user account details, and wherein said secure function is activating a user account.

35. A system comprising:
the mobile computing device of any of claims 1 to 25; and
an authentication tag; wherein
the authentication tag has first authentication data stored thereon.

36. The system of claim 35, further comprising an administration server.

37. The system of claim 36, wherein user account details are stored on the mobile device and said authentication card is for activating a user account, and wherein a user account may be updated by communicating with the administration server.

38. A computer program to be run by a processor on a mobile computing device, to:
determine if first authentication data, received from an authentication tag, is valid; and
execute a secure function on the mobile device, if the first authentication data is valid.

39. A computer-readable medium comprising instructions, which when executed by a mobile computing device causes the device to:
determining if first authentication data, received from an authentication tag, is valid;

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execute a secure function, if the first authentication data is valid.

40. A device substantially as herein described and shown in the Figures.

41. A method substantially as herein described and shown in the Figures.

42. A system substantially as herein described and shown in the Figures.

43. A computer program substantially as herein described and shown in the Figures.

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Application No:	GB1000837.3	**Examiner:**	Mr Jonathan Golding
Claims searched:	1, 27, 38, 39	**Date of search:**	17 June 2010

Patents Act 1977: Search Report under Section 17

Documents considered to be relevant:

Category	Relevant to claims	Identity of document and passage or figure of particular relevance
X	1,4,16, 20-22,24,27, 30,35,38, 39 at least	US 2009/0210940 A1 DEAN Particularly paragraphs 8, 12, 13, 16 - 27 and figures 1 and 3.
X	1,4,16, 20-22,24,27, 30,35,38, 39 at least	US 2008/0168542 A1 SATO See particularly figure 1 and the use of a portable memory device for user authentication.
X	1,4,16, 20-22,24,27, 30,35,38, 39 at least	US 2008/0141361 A1 BALFANZ Particularly paragraphs 18 - 20, 23, 25, 29 and figures 1 and 2.
X	1,4,16, 20-22,24,27, 30,35,38, 39 at least	US 2007/0262134 A1 HUMPHREY ET AL Particularly paragraphs 25, 26, 32, 33 and figures 2, 4A and 4B.
X	1,4,16, 20-22,24,27, 30,35,38, 39 at least	US 2007/0118891 A1 BUER Particularly paragraphs 23 - 25 and figure 1.

Categories:

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International Classification:

Subclass	Subgroup	Valid From
G06F	0021/00	01/01/2006
G06Q	0020/00	01/01/2006
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ELECTRONIC SEAL IMPRESSION SYSTEM

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Classification: **- international:** ***B41K1/00; B42D15/10; G06K17/00;*** (IPC1-7): B41K1/00; B42D15/10; G06K17/00

- cooperative:

Application number: JP20010126268 20010424

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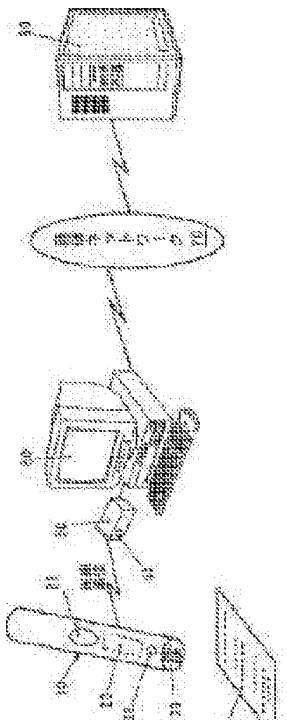
Abstract of JP2002324216 (A)

PROBLEM TO BE SOLVED: To provide an electronic seal impression system to be also used as a conventional seal impression which is equipped with an electronic authenticating function. SOLUTION: This electronic seal impression system is provided with electronic seal impression equipped with a storage means for storing specific ID number information and a short distance radio communicating means for transmitting a radio wave including the stored ID number information (a), information terminal equipment equipped with a means for receiving the radio wave including the ID number information, a means for extracting the ID number information from the received radio wave, and a means for transmitting the extracted ID number information through the communication network (b), and an



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authentication server for preserving the specific ID number information, and for executing the authentication processing to the ID number information transmitted from the information terminal equipment (c).

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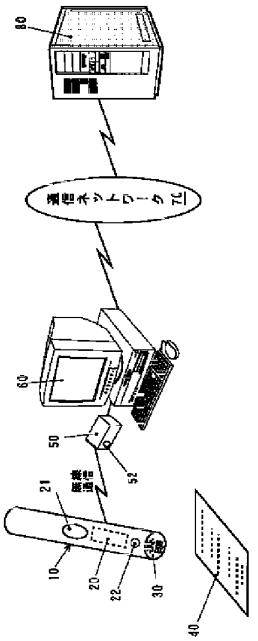
5B058 CA15 CA27 KA02 KA04 KA31
YA20

(54)【発明の名称】　電子印鑑システム

(57)【要約】
【課題】　従来の印鑑との併用を実現すると共に電子的認証機能も具備する電子印鑑システムを提供する。
【解決手段】　電子印鑑システムが、(a)固有のＩＤ番号情報を記憶する記憶手段と、前記記憶されたＩＤ番号情報を含む電波を送信する短距離無線通信手段とを具備する電子印鑑と、(b)前記ＩＤ番号情報を含む電波を受信する手段と、前記受信した電波から前記ＩＤ番号情報を抽出する手段と、前記抽出されたＩＤ番号情報を通信ネットワークを介して伝送する手段とを具備する情報端末装置と、(c)前記固有のＩＤ番号情報を保管しかつ前記情報端末装置から伝送された前記ＩＤ番号情報に対して認証処理を実行する認証サーバとを有する。



【特許請求の範囲】
【請求項１】　(a)固有のＩＤ番号情報を記憶する記憶手段と、前記記憶されたＩＤ番号情報を含む電波を送信する短距離無線通信手段とを具備する電子印鑑と、
(b)前記ＩＤ番号情報を含む電波を受信する手段と、前記受信した電波から前記ＩＤ番号情報を抽出する手段と、前記抽出されたＩＤ番号情報を通信ネットワークを介して伝送する手段とを具備する情報端末装置と、
(c)前記固有のＩＤ番号情報を保管しかつ前記情報端末装置から伝送された前記ＩＤ番号情報に対して認証処理を実行する認証サーバとを有することを特徴とする電子印鑑システム。
【請求項２】　前記電子印鑑が柱状の形態で成型されかつその端面に刻印が形成されていることを特徴とする請求項１に記載の電子印鑑システム。
【請求項３】　前記短距離無線通信手段がスペクトラム拡散通信手段であることを特徴とする請求項１又は２に記載の電子印鑑システム。
【請求項４】　前記ＩＤ番号情報を含む電波の送信が、前記電子印鑑に設けられたサイドスイッチのオン信号に応答して実行されることを特徴とする請求項１～３のいずれかに記載の電子印鑑システム。
【請求項５】　請求項１～４に記載のいずれかの電子印鑑システムにおいて用いられる電子印鑑。
【発明の詳細な説明】
【０００１】
【発明の属する技術分野】本発明は、電子的認証機能を具備する電子印鑑システムに関する。
【０００２】
【従来の技術】従来、我が国では種々の契約、認証、承認等に係る文書に押印するための印鑑（「印判」、「印」、「判」、「印章」とも称される）が広く用いられている。その種類も多様であり、実印、銀行印、認印等、あるいは、社印、代表印、データ印等が用途に応じて使い分けられている。一般的な形態としては、円柱若しくは角柱であってその一方の端面に姓、名前、名称等が印刻されている。これに朱肉若しくはインク等を塗布し、紙面上に転写する。一方、最近のコンピュータ及び通信関連技術の発達に伴い、電子的な署名や認証に対する関心が高まり、また電子商取引等における企業若しくは個人の認証の重要性は増している。例えば、インターネットに接続したりするとき、最初にＩＤ番号とパスワードを入力し、サーバにより認証されるとアクセスが許可されるというログイン手続がある。また、カードにＩＤ番号とパスワードを記憶したＩＣチップを組み込んだＩＣカードが会員証や診察券等に利用されている。
【０００３】
【発明が解決しようとする課題】このように電子的認証システムも普及しつつあるが、従来の印鑑は我が国の慣行として深く浸透しており、公私ともに手続等において利用される場面も多く、将来的に急速に廃れるとは考えられない。また一方で、社会のあらゆる分野においてＩＴ技術の適用が進んでいることも否めず、従来の印鑑利用形態においてもまた、その効率化と共に認証手段としての実効性の確保が要求されていることは確かである。かかる現状に鑑み本発明は、従来の印鑑との併用を実現すると共に電子的認証機能も具備する電子印鑑システムを提供することを目的とする。
【０００４】
【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、以下の構成による電子印鑑システムを提供する。
【０００５】（１）本発明による電子印鑑システムは、(a)固有のＩＤ番号情報を記憶する記憶手段と、前記記憶されたＩＤ番号情報を含む電波を送信する短距離無線通信手段とを具備する電子印鑑と、(b)前記ＩＤ番号情報を含む電波を受信する手段と、前記受信した電波から前記ＩＤ番号情報を抽出する手段と、前記抽出されたＩＤ番号情報を通信ネットワークを介して伝送する手段とを具備する情報端末装置と、(c)前記固有のＩＤ番号情報を保管しかつ前記情報端末装置から伝送された前記ＩＤ番号情報に対して認証処理を実行する認証サーバとを有する。
【０００６】（２）上記（１）の電子印鑑システムにおいて、好適には、前記電子印鑑が柱状の形態で成型されかつその端面に刻印が形成されている。
【０００７】（３）上記（１）又は（２）の電子印鑑システムにおいて、好適には、前記短距離無線通信手段がスペクトラム拡散通信手段である。
【０００８】（４）上記（１）～（３）のいずれかに記載の電子印鑑システムにおいて、好適には、前記ＩＤ番号情報を含む電波の送信が、前記電子印鑑に設けられたサイドスイッチのオン信号に応答して実行される。
【０００９】
【発明の実施の形態】以下、図面を参照しつつ本発明の実施の形態を説明する。
１．電子印鑑システム全体構成
図１は、本発明による電子印鑑システムの全体を極めて概略的に示す構成図である。本発明による電子印鑑システムの主要構成要素は、電子印鑑１０と、情報端末装置６０と、認証サーバ８０である。
【００１０】本発明の電子印鑑１０は、認証用の識別標識として固有にＩＤ番号を有し、そのＩＤ番号を電子印鑑１０の本体内に記憶している。ＩＤ番号は、見かけ上英数字の組合せコードであるが、実際には、例えば３２ビット等の所定のビット数からなるデータである。電子印鑑１０に内蔵される電子印鑑回路２０は、通常、ＩＣチップ等により構成されるが、このＩＤ番号を記憶するための記憶素子を含む。電子印鑑１０は、情報端末装置６０との間でＩＤ番号情報等を無線で伝達するための短

距離無線通信機能を具備する。

【００１１】電子印鑑１０のＩＤ番号の原本データは、認証サーバ８０が保管しており、認証サーバ８０は要求に応じてＩＤ番号の認証を行う。従って、電子印鑑１０を用いて電子的認証を行う場合は、電子印鑑１０に記憶されたＩＤ番号を情報端末装置６０へ伝送し、さらに情報端末装置６０から適宜の通信ネットワーク７０を介して認証サーバ８０へ伝送する。認証サーバ８０は、保管しているＩＤ番号原本データと照合することによりそのＩＤ番号の正当性を調べ、その結果を情報端末装置６０へ回答する。尚、認証サーバ８０は、認証局等の特定の機関に設置された適宜のコンピュータであり、ＩＤ番号は高度のセキュリティをもって厳正に保管されるものとする。

【００１２】情報端末装置６０は適宜のコンピュータであるが、本発明においては特に内蔵若しくは外付けされた短距離無線通信部５０を具備する。短距離無線通信部５０は、電子印鑑１０との間で短距離無線通信を行うための送受信機能を具備する。尚、図示の例では、この情報端末装置６０から直接、外部の通信ネットワーク７０へアクセスする構成となっているが、図１は模式的なものであり、実際には、情報端末装置６０がＬＡＮに接続された個々のコンピュータであり通信サーバを通して通信ネットワーク７０へ接続されるなど多様なシステム構成が考えられる。通信ネットワーク７０も統合的に示したものである。当然ながら通信ネットワーク７０を介した情報伝送を行うには、所定の通信機能を必要とする。

【００１３】本発明の電子印鑑１０の更なる特徴は、図１に示す通り、従来の印鑑と同様の形態（円柱又は角柱等）により成型され、かつ、その端面に実際に刻印３０が形成されていることである。つまり、本発明の電子印鑑１０は、電子的認証に用いられるのみでなく、従来の印鑑と同様に朱肉等をつけて文書４０等に押印するためにも用いることができる。その場合、電子的認証を実行すると同時に押印することができる。電子印鑑の端面に刻印３０を形成しても、短距離無線通信を利用する電子的認証動作には全く影響がない。このように、電子印鑑１０はコードレスであるため、従来の印鑑と同じ感覚で取り扱うことができる。

【００１４】２．電子印鑑と情報端末装置の間の短距離無線通信の構成

図２は、電子印鑑１０に内蔵される電子印鑑回路２０と、情報端末装置６０及びこれに内蔵又は外付けされる短距離無線通信部５０の回路の概略構成図である。実際には１又は複数のＩＣチップから構成されることが好適である。また、情報端末装置６０の信号制御部５４については、情報端末装置６０の中央処理装置（図示せず）自体がその役割を果たしてもよく、あるいは、中央処理装置からの制御により動作する別個の処理装置として信号制御部５４を設けてもよい。

【００１５】電子印鑑回路２０の電波送受信部２３は、適宜の短距離無線伝送方式を利用した電波送受信機能を具備する。電波送受信部２３は、情報端末装置６０の短距離無線通信部５０の電波送受信部５１と組み合わされ、相互間で当該短距離無線伝送方式により、双方向情報伝送を行う。昨今、移動電話機やパソコンその他のポータブル機器の間で情報伝送を行う低コストの短距離無線伝送技術が普及してきており、例えば、Bluetoothのコード名で呼ばれる２．４５ＧＨｚ帯の電波を利用し、１Ｍｂｐｓの速度で全二重通信が可能な短距離無線規格がある。通信距離は１０ｃｍ～１０ｍ程度である。一般的にはスペクトラム拡散通信方式と呼ばれる無線技術の一つである。さらに赤外線通信に比べ消費電力が小さく、送受信チップも小型（０．５平方インチ）であるため本発明の電子印鑑に適している。その他に、家庭内で２．４５ＧＨｚ帯の電波を使い、パソコン、コードレス電話等を相互接続するための規格であるHomeRFも本発明の短距離無線伝送方式に利用することができる。尚、赤外線通信方式も利用できるが、送受信装置同士を対向させるために配置設計を考慮する必要がある。

【００１６】信号制御部２４は、電子印鑑回路２０の中央制御を行い、各部から受け取った信号に基づいて処理を行い適宜命令を送ったり、信号を出力したりする。

【００１７】ＩＤ番号記憶部２５は、当該電子印鑑１０に予め割り当てられた固有のＩＤ番号を記憶する。サイドスイッチ信号発生部２１は、図１に示した電子印鑑１０の側面に設けられたサイドスイッチ２１がオンにされたとき信号を発生する。サイドスイッチ２１のオン信号は、電子印鑑１０のＩＤ番号の認証処理のトリガーとなる。サイドスイッチ２１は、例えばプッシュ式であり、電子印鑑１０を持ったときに指で押しやすい場所に設けられる。表示部２２は、電子印鑑回路２０が認証完了情報を受信したときに特定の表示を行う装置である。例えば、ＬＥＤ等の発光素子や液晶表示素子である。これによりユーザは認証が無事完了したことを認知できる。

【００１８】短距離無線通信部５０の電波送受信部５１は、電子印鑑１０の電波送受信部２３から送信された電波を受信して情報端末装置６０の信号制御部５４へ渡す一方、信号制御部５４からの命令及び情報に基づいて電子印鑑１０へ電波を送信する。

【００１９】情報端末装置６０のネットワーク通信部５５は、ネットワーク通信機能を具備し、信号制御部５４からの命令及び情報に基づいて、外部の通信ネットワークへ情報を伝送しかつ外部から情報を受信して信号制御部５４へ渡す。表示部５２は、情報端末装置６０又は短距離無線通信部５０のいずれに設けてもよいが、上記の電子印鑑１０の表示部２２と同様に、認証完了情報を受信したときに特定の表示を行う装置である。例えば、ＬＥＤ等の発光素子や液晶表示素子である。

【００２０】信号制御部５４は、短距離無線通信部５

０、ネットワーク通信部５５及び表示部５２の中央制御を行い、各部から受け取った信号に基づいて処理を行い適宜命令を送ったり、信号を出力したりする。例えば、電波送受信部５１に対して適宜命令を送ることにより、電子印鑑１０との間の電波の送受信を制御する。また、電子印鑑１０から受信したＩＤ番号情報をネットワーク通信部５５へ送出する。

【００２１】３．電子的認証プロセス

図３は、本発明の電子印鑑による電子的認証プロセスの流れを概略的に示す図であり、左側が電子印鑑における処理プロセスの流れを、右側が情報端末装置及び認証サーバにおける処理プロセスの流れを示している。必要に応じて、図１及び図２を参照する。

【００２２】・ステップ１０１：電子印鑑１０のサイドスイッチ２１をユーザが押すことにより、サイドスイッチ２１のオン信号が信号制御部２４に入力される。

【００２３】・ステップ１０２：サイドスイッチ２１のオン信号に応答して信号制御部２４は、ＩＤ番号記憶部２５に対し、記憶されているＩＤ番号情報の出力を要求する。

【００２４】・ステップ１０３：出力要求に対しＩＤ番号記憶部２５は、信号制御部２４に対してＩＤ番号情報を出力する。こうして信号制御部２４はＩＤ番号情報を取得する。ＩＤ番号情報を含む信号の受け渡し方法は任意である。

【００２５】・ステップ１０４：信号制御部２４は、取得したＩＤ番号情報に基づき、電波送受信部２１に対してＩＤ番号情報を含む電波を送信させる。

【００２６】・ステップ２０１：短距離無線通信部５０の電波送受信部５１は、上記ステップ１０４で送信されたＩＤ番号情報を含む電波を受信する。

【００２７】・ステップ２０２：電波送受信部５１は、ＩＤ番号情報を含む電波からＩＤ番号情報を抽出し、情報端末装置６０の信号制御部５４へＩＤ番号情報を渡す。こうして信号制御部５４がＩＤ番号情報を取得する。

【００２８】・ステップ２０３：信号制御部５４はネットワーク通信部５５へＩＤ番号情報を渡し、ネットワーク通信部５５は、認証要求と共にＩＤ番号情報を適宜通信ネットワークを介して認証サーバ８０へ伝送する。

【００２９】・ステップ２０４：認証サーバ８０は、認証要求及びＩＤ番号情報を受け取ったならば、そのＩＤ番号情報と保管しているＩＤ番号情報とを照合することによりその正当性を承認し、認証結果を情報端末装置６０へ回答する。正当性が承認されない場合もその旨を回答する。

【００３０】・ステップ２０５：情報端末装置６０のネットワーク通信部５５は、認証結果を受信する。正当性が承認された場合、その電子印鑑１０の認証処理は完了する。信号制御部５４は、表示部５２のＬＥＤの点灯等により認証完了をユーザに認知させる。正当性が承認されなかった場合は、例えば、表示部がＬＥＤであればこれを点滅させたり、液晶表示であればその旨を表示したりしてユーザに対して再試行を促す。

【００３１】・ステップ２０６：さらに、短距離無線通信部５０の電波送受信部５１から認証完了情報を含む電波を電子印鑑１０に対して送信するようにしてもよい。

【００３２】・ステップ１０５：電子印鑑１０の電波送受信部２１が認証完了情報を含む電波を受信する。

【００３３】・ステップ１０６：電子印鑑１０の信号制御部２４は、表示部２２のＬＥＤの点灯等により認証完了をユーザに認知させる。正当性が承認されなかった場合は、ＬＥＤを点滅させたりしてユーザに対して再試行を促す。尚、情報端末装置６０の表示部５２と電子印鑑１０の表示部２２は、いずれか一方のみを設けてもよい。

【００３４】

【発明の効果】本発明による電子印鑑システムは、固有のＩＤ番号を記憶した電子印鑑について、当該ＩＤ番号情報を短距離無線伝送手段により電子印鑑から情報端末装置に伝送し、情報端末装置からの認証要求及びＩＤ番号情報に対して認証サーバが認証処理を実行することにより本人であることを認証する。さらに、本発明で用いられる電子印鑑は従来の印鑑と同様に刻印もされており、従来の印鑑利用形態との併用も可能である。また、電子的認証を実行しつつ、文書に押印することもできる。本発明による電子印鑑は、将来的に益々情報の電子化が進む社会における個人認証手段として有用である。また、従来の印鑑から電子的認証への移行期間においても、双方の用途に使用できる電子印鑑は実用性に優れている。さらに、電子印鑑も本人認証手段であることにおいては従来の印鑑と変わりないが、その取り扱いの重要性の認識は既にユーザにおいて確立されており、新たなトラブルを生じるおそれがない点でも有用である。

【図面の簡単な説明】

【図１】本発明による電子印鑑システムの全体を極めて概略的に示す構成図である。

【図２】本発明の電子印鑑及び情報端末装置における本発明に関連する信号処理回路の一例の概略構成図である。

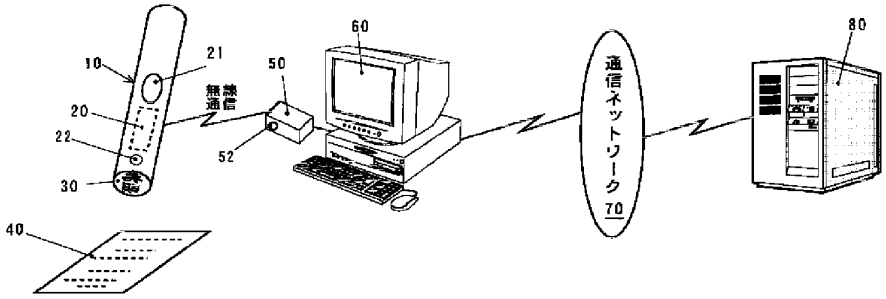
【図３】本発明の電子印鑑による電子的認証プロセスの流れを概略的に示す図であり、左側が電子印鑑における処理プロセスの流れを、右側が情報端末装置及び認証サーバにおける処理プロセスの流れを示している。

【符号の説明】

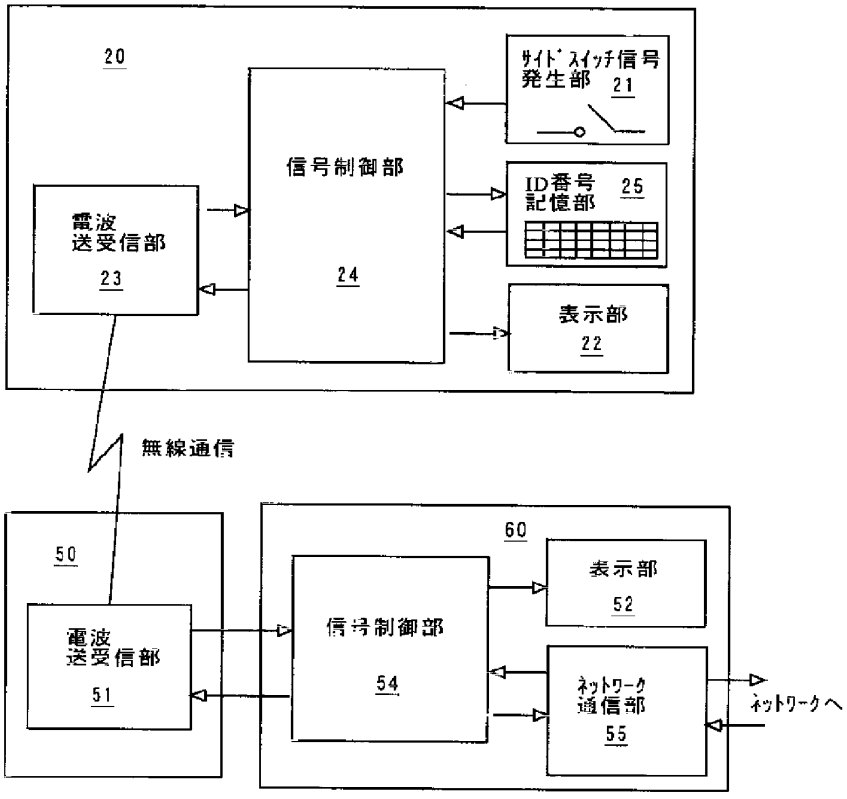
１０　電子印鑑
２０　電子印鑑回路
２１　サイドスイッチ信号発生部
２２　表示部
２３　電波送受信部

２４　信号制御部
２５　ＩＤ番号記憶部
３０　刻印
４０　捺印文書
５０　短距離無線通信部
５１　電波送受信部
５２　表示部
５４　信号制御部
５５　ネットワーク通信部
６０　情報端末装置
７０　通信ネットワーク
８０　認証サーバ

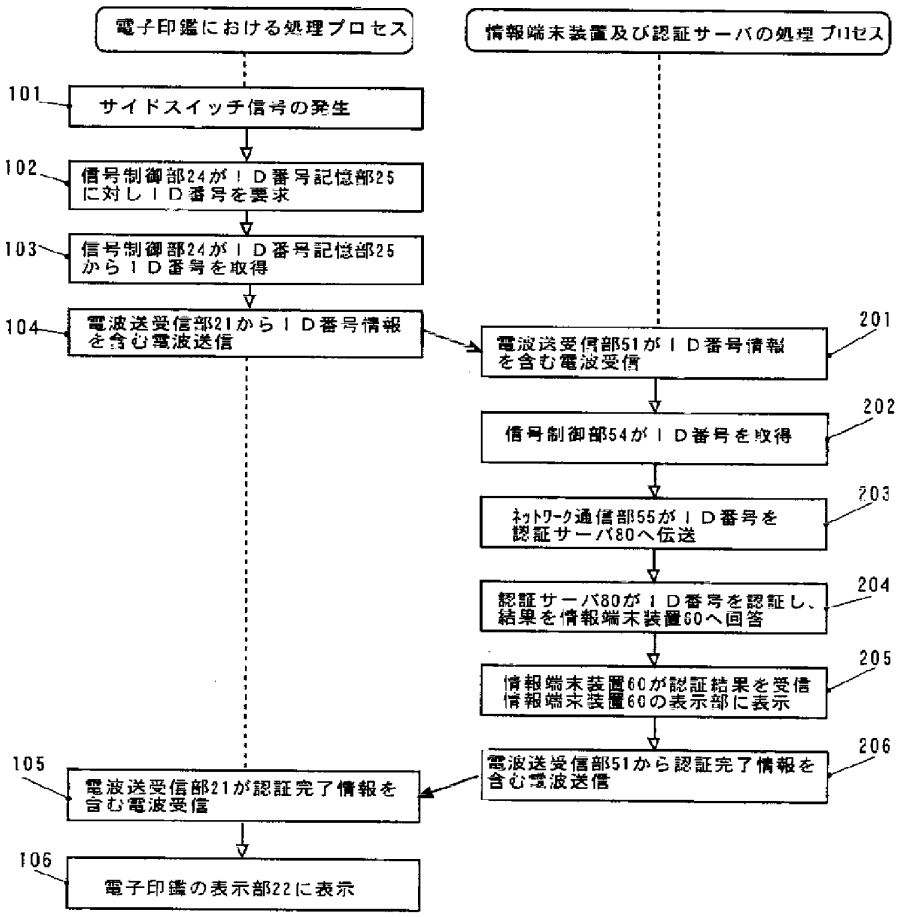
【図１】



【図２】



【図3】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サイドスイッチ信号の発生
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Espacenet

Bibliographic data: JP2005276000 (A) — 2005-10-06

ELECTRONIC SEAL REGISTRATION AUTHENTICATION SYSTEM AND METHOD THEREFOR

Inventor(s): OZAWA TOSHIO; SOBASHIMA YOSHIO ± (OZAWA TOSHIO, ; SOBASHIMA YOSHIO)

Applicant(s): NEXTAGE KK ± (NEXTAGE:KK)

Classification: **- international:** ***G06Q10/00; G06Q10/06; G06Q50/00; G06Q50/10; G06Q50/26;*** (IPC1-7): G06F17/60

- cooperative:

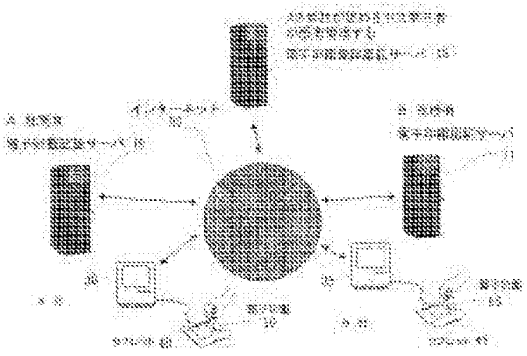
Application number: JP20040090867 20040326

Priority number (s): JP20040090867 20040326

Also published as: JP4443969 (B2)

Abstract of JP2005276000 (A)

PROBLEM TO BE SOLVED: To provide a system which carries out registration authentication of an electronic seal over a plurality of organizations. SOLUTION: An electronic seal registration authentication server has; an electronic seal registration management section which associates seal information of the electronic seal to be used on a tablet at a client computer side with electronic seal ID information; a database section which manages information of a user who uses the client computer, information on an electronic impress document used by this user, and information on an approval flow of the electronic impress documents; and an electronic seal verification section which



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receives the information transmitted to an electronic seal registration authentication server side via a computer network when an impress event occurs and the user impresses the electronic seal on the tablet at the client computer side, after deciding its validity.; The electronic seal registration authentication server is operated by a third party whom a plurality of organizations trust in common. ;COPYRIGHT: (C) 2006,JPO&NCIPI

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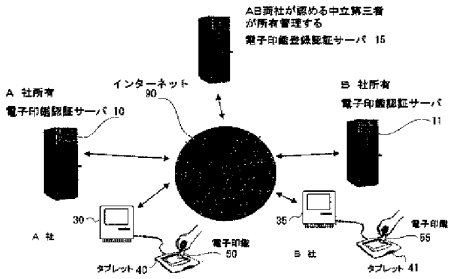
(54)【発明の名称】電子印鑑登録認証システム及び電子印鑑登録認証方法

(57)【要約】
【課題】複数の組織にまたがって電子印鑑の登録認証をするシステムを提供する。
【解決手段】電子印鑑登録認証サーバは、クライアントコンピュータ側のタブレット上で用いる電子印鑑の印影情報を電子印鑑ＩＤ情報と関連付けて登録する電子印鑑登録管理部と、クライアントコンピュータを用いる利用者に関する情報、該利用者が利用する電子押印文書に関する情報、電子押印文書の承認フローに関する情報を管理するデータベース部と、前記利用者が、クライアントコンピュータ側のタブレット上で電子印鑑を押印する押印イベントが生じて、その情報がコンピュータネットワークを介して電子印鑑登録認証サーバ側に送られた際に、その正当性を判断した上で受付ける電子印鑑認証部とを有し、複数の組織が共通で信頼する第三者が運営する。
【選択図】図６９



【特許請求の範囲】
【請求項1】
複数の組織にまたがって存在する複数のクライアントコンピュータと、該クライアントコンピュータにコンピュータネットワークを介して接続された電子印鑑登録認証サーバとを有する電子印鑑登録認証システムであって、
前記電子印鑑登録認証サーバは、
前記クライアントコンピュータ側のタブレット上で用いる電子印鑑の印影情報を電子印鑑ＩＤ情報と関連付けて登録する電子印鑑登録管理部と、
クライアントコンピュータを用いる利用者に関する情報、該利用者が利用する電子押印文書に関する情報、電子押印文書の承認フローに関する情報を管理するデータベース部と、
前記利用者が、クライアントコンピュータ側のタブレット上で電子印鑑を押印する押印イベントが生じて、その情報がコンピュータネットワークを介して電子印鑑登録認証サーバ側に送られた際に、その正当性を判断した上で受付ける電子印鑑認証部とを有し、
前記複数のクライアントコンピュータがまたがって存在する複数の組織が共通に信頼する第三者機関が運営し、正当性を証明する電子印鑑登録認証システム。
【請求項2】
請求項１に記載した電子印鑑登録認証システムであって、
前記電子印鑑認証部がクライアントコンピュータ側から受ける押印イベントに関する情報は、前記電子印鑑ＩＤ情報であることを特徴とする電子印鑑登録認証システム。
【請求項3】
請求項２に記載した電子印鑑登録認証システムであって、
電子印鑑の認証が肯定的に行われた場合に、電子印鑑登録認証サーバ側からクライアントパソコンに向けて、印影情報が送られ、クライアントパソコン側では、それに基づいて印影を表示することを特徴とする電子印鑑認証システム。
【請求項4】
複数の組織にまたがって存在する複数のクライアントコンピュータと、該クライアントコンピュータにコンピュータネットワークを介して接続された電子印鑑登録認証サーバとを有する電子印鑑登録認証システムにおける電子印鑑登録認証方法であって、
あらかじめ利用者の電子印鑑ＩＤ、印影情報、利用者に関する情報、承認フローに関する情報を登録する印鑑登録ステップと、
クライアントコンピュータが電子印鑑登録認証サーバに公開鍵の情報を含む初期情報を要求し、それを取得する初期情報取得ステップと、
クライアントコンピュータ側に接続されたタブレット上で電子印鑑が押されて押印イベントが生じた際に、電子印鑑ＩＤを前記公開鍵で暗号化して電子印鑑登録認証サーバに送る押印イベント通知ステップと、
電子印鑑登録認証サーバ側で押印イベントを受け取った際に、電子印鑑登録認証サーバ側のデータベースの情報と照らし合わせて、押印の正当性を判断する電子押印認証ステップと、
該電子押印認証ステップにて押印が正当であると判断した際に、電子印鑑の印影情報をクライアントコンピュータ側に送る印影情報送付ステップと、
該印影情報送付ステップにて送られた情報に基づいて、クライアントコンピュータ側で電子押印文書の押印欄に印影を表示する印影表示ステップと
を有する電子印鑑登録認証方法。

【発明の詳細な説明】
【技術分野】
【0001】
本発明は、電子印鑑を組織や法人の枠を越えて複数の組織にまたがって認証及び管理するシステム及び方法に関する。
【背景技術】

【0002】
従来から電子文書に印影を表示する電子印鑑システムがある。
【0003】
しかし、いつ誰がどのような権限をもって押印したかという押印行為の認識は全くできなかった。また、電子的な印影は簡単に複製ができるという欠点もあった。
【0004】
特許文献１には、認証用記録媒体に記録されたＩＤとパスワードとを用いて認証するシステムが開示されている。しかし、電子印鑑を用いるものでもないし、印影を用いるものでもない。
特許文献２には、電子印鑑を用いるが、印影を表示するのみで認証する機能はない。r/>
【特許文献1】特開２００１－２８５２８６号公報
【特許文献2】特開２００２－３００１５７号公報
【発明の開示】
【発明が解決しようとする課題】
【0005】
本発明が解決しようとする課題は、複数の組織にまたがって電子印鑑の登録認証をするシステムを提供することにある。
【課題を解決するための手段】
【0006】
本発明に係る電子印鑑登録認証システムは、複数の組織にまたがって存在する複数のクライアントコンピュータと、該クライアントコンピュータにコンピュータネットワークを介して接続された電子印鑑登録認証サーバとを有する電子印鑑登録認証システムであって、前記電子印鑑登録認証サーバは、前記クライアントコンピュータ側のタブレット上で用いる電子印鑑の印影情報を電子印鑑ＩＤ情報と関連付けて登録する電子印鑑登録管理部と、クライアントコンピュータを用いる利用者に関する情報、該利用者が利用する電子押印文書に関する情報、電子押印文書の承認フローに関する情報を管理するデータベース部と、前記利用者が、クライアントコンピュータ側のタブレット上で電子印鑑を押印する押印イベントが生じて、その情報がコンピュータネットワークを介して電子印鑑登録認証サーバ側に送られた際に、その正当性を判断した上で受付ける電子印鑑認証部とを有し、前記複数のクライアントコンピュータがまたがって存在する複数の組織が共通に信頼する第三者機関が運営し、正当性を証明するものである。
【0007】
請求項２に記載した発明は、請求項１に記載した電子印鑑登録認証システムであって、前記電子印鑑認証部がクライアントコンピュータ側から受ける押印イベントに関する情報は、前記電子印鑑ＩＤ情報であることを特徴とするものである。
【0008】
請求項３に記載した発明は、請求項２に記載した電子印鑑登録認証システムであって、電子印鑑の認証が肯定的に行われた場合に、電子印鑑登録認証サーバ側からクライアントパソコンに向けて、印影情報が送られ、クライアントパソコン側では、それに基づいて印影を表示することを特徴とするものである。
【0009】
本発明に係る電子印鑑登録認証方法は、複数の組織にまたがって存在する複数のクライアントコンピュータと、該クライアントコンピュータにコンピュータネットワークを介して接続された電子印鑑登録認証サーバとを有する電子印鑑登録認証システムにおける電子印鑑登録認証方法であって、あらかじめ利用者の電子印鑑ＩＤ、印影情報、利用者に関する情報、承認フローに関する情報を登録する印鑑登録ステップと、クライアントコンピュータが電子印鑑登録認証サーバに公開鍵の情報を含む初期情報を要求し、それを取得する初期情報取得ステップと、クライアントコンピュータ側に接続されたタブレット上で電子印鑑が押されて押印イベントが生じた際に、電子印鑑ＩＤを前記公開鍵で暗号化して電子

印鑑登録認証サーバに送る押印イベント通知ステップと、電子印鑑登録認証サーバ側で押印イベントを受け取った際に、電子印鑑登録認証サーバ側のデータベースの情報と照らし合わせて、押印の正当性を判断する電子押印認証ステップと、該電子押印認証ステップにて押印が正当であると判断した際に、電子印鑑の印影情報をクライアントコンピュータ側に送る印影情報送付ステップと、該印影情報送付ステップにて送られた情報に基づいて、クライアントコンピュータ側で電子押印文書の押印欄に印影を表示する印影表示ステップとを有するものである。

【発明の効果】

【0010】

本発明は、以上により構成されているから、異なる会社間など、複数の組織にまたがって存在する複数のクライアントコンピュータの間で、電子印鑑の登録及び認証が可能となる。この電子印鑑登録認証システムでは、誰が何時押印したのかが認証及び管理できる。また、押印した履歴を保存することができるから、押印者の押印責任を明確にできる。さらに、インターネットなどの通信網を通じて、いつでも何処からでも文書に押印することができる。

【発明を実施するための最良の形態】

【0011】

以下、図面を参照しつつ、本発明を実施するための最良の形態を説明する。図６８は、Ａ社所有の電子印鑑認証サーバを中心とする電子印鑑認証システムと、Ｂ社所有の電子印鑑認証サーバを中心とする電子印鑑認証システムとがそれぞれ独立して存在し、それぞれ社内の電子押印文書の処理に役立っている様子を示している。図６９は、本発明の電子印鑑登録認証サーバを中心とする電子印鑑登録認証システムのハードウェア構成を示す図である。本願においては、会社内などの組織内における電子印鑑認証を行うシステムを単に電子印鑑認証システム、その中心となるサーバを電子印鑑認証サーバと呼ぶ。それに対して、本発明に係る複数の組織にまたがって電子印鑑の登録認証を行うシステムを電子印鑑登録認証システム、その中心となるサーバを電子印鑑登録認証サーバと呼ぶことにする。

電子印鑑認証システムを導入した組織間で、電子印鑑登録認証システムを導入するのがもっとも効果的であるので、図６８までを用いて、電子印鑑認証システム及び電子印鑑認証サーバについて説明し、そのあと、図６９から図８０までを用いて電子印鑑登録認証システムについて説明することとする。尤も、電子印鑑認証システムを導入せずに、電子印鑑登録認証システムのみを導入することも可能である。

図７は、電子印鑑認証システムのハードウェア構成を示す図である。クライアント側の構成は、電子印鑑５０とタブレット４０とパソコン３０とからなる。電子印鑑５０には、チップＩＣと座標指示装置とが組み込まれている。チップＩＣには、その電子印鑑５０のＩＤ番号が記録されている。タブレット４０は、電子印鑑５０の位置を読み取るための装置であり、ＵＳＢケーブルにてパソコン３０と繋がっており、電子印鑑５０の位置及びＩＤ番号をパソコン３０に通知するとともに押印のイベント（タブレット４０の上で電子印鑑５０が押されたという情報）を通知することができるものである。特許文献２に開示されているタブレット４０及び電子印鑑５０を用いることができる。電子印鑑５０をより詳細に説明したのが図９である。電子印鑑５０の内部には特許文献２に開示されているようなタブレット４０とやりとりするのに必要な回路が含まれており、特に内蔵ＩＣチップ５１には個々の電子印鑑を識別可能なＩＤ番号が組み込まれている。このＩＤ番号は印鑑ごとに固有なデータであり同じものは存在しない。押印ボタン５２は押印時にクリックするのに用いられる。押印面５３は現実の紙の上に押印することも可能なものであり、名前が刻印されている。朱肉を付けて押印するか、インク内蔵タイプのものとするかは選択可能である。

【0012】

パソコン３０で取得した電子印鑑５０のＩＤ番号、そして押印のイベントをインターネット９０を介して、電子印鑑認証サーバ１０に送る。電子印鑑認証サーバ１０は、データベース部１００、サーバ設定管理部２００、電子印鑑登録管理部３００及び電子印鑑認証

部４００とを有している。図８は、電子印鑑認証サーバのハードウェア構成を示す図である。データベース部１００はユーザマスタ１１０、アプリケーションマスタ１２０及びエクセル入出力部（図示は省略する。なお「エクセル」は米国マイクロソフト社の商標。）を含む。ユーザマスタ１１０はこのシステムを使用する者の会社名、部署、名前、役職、電話、メールアドレス、有効期限、パスワード（使う場合のみ）などのマスタ情報を登録する部分である。アプリケーションマスタ１２０は押印権限やワークフローに関する情報、回覧順に関する情報などを登録する部分である。ここで「ワークフロー」とは、稟議書や押印申請書などをその組織内の決められた手続に従って回覧、押印する流れのことをいう。エクセル入出力部はクライアントコンピュータとの間の入出力インターフェイスを司る部分である。

【0013】

サーバ設定管理部１７０はサーバにアクセスする権限を有する者のみがアクセスし設定することができる部分である。この電子印鑑認証サーバを複数の会社で共用する場合もあるので階層的に管理者を特定してサーバの設定やデータベースのアクセス許可権限レベルを設定する。電子印鑑認証サーバ１０へのログインも電子印鑑を用いて行うことができる。電子印鑑登録管理部１８０は電子印鑑ＩＤ番号と印影情報を登録して管理する部分である。電子印鑑認証部１９０は電子印鑑認証サーバ１０が受信した電子印鑑ＩＤ番号とサーバに登録されている電子印鑑ＩＤ番号及びマスタ情報と一致しているか否かを照合し、一致していれば認証履歴をサーバへ書き込み、クライアントには押印許可を与え登録印影を送信する。押印許可を得たクライアントは受け取った印影を押印したファイルへ書き込む。ここで認証履歴とは会社コード、ユーザコード、サーバ番号、会社名、ユーザ名、認証種（電子印鑑かＩＤパスワードか、またはその両方のうちのいずれか）、受付日、受付時刻などを含む情報であって必要ならばクライアント側パソコンのＩＰアドレスやＭＡＣアドレスなどを含めることもできる。クライアントとサーバとの通信データは公開鍵を用いた暗号処理を行うことにより改ざんされるリスクを避けることができる。

【0014】

次にある会社組織がこのシステムを導入した場合の電子印鑑認証サーバの動作を説明する。まずユーザの会社のシステム管理者が電子印鑑認証サーバへログインしてログイン画面で電子印鑑を押印して認証を受ける。その会社の利用者全員の電子印鑑のＩＤ番号とそれを使うユーザ情報を登録する。クライアントのパソコンにタブレットを接続し電子印鑑とその印影データを保管したフレキシブルディスクを準備する。管理者権限で電子印鑑認証サーバに接続しログインする（図１）。システム管理者が自分の電子印鑑をすでに登録している場合には自分の電子印鑑を押印欄に押す動作をすることによってログインが可能である。まだ登録してない場合にはＩＤとパスワードでログインすることになる。ログインが完了すればメニュー画面が現れる（図２）。今システム管理者がユーザ情報の登録を行うので図２のメニュー画面の中の「ユーザマスタ」のボタンを選択し、クリックするとユーザマスタの画面が現れる（図３）。ユーザマスタは、会社コード、会社名などの会社情報、ユーザコード、ユーザ名、電話番号、ファクシミリ番号、部署名、役職名、スーパーバイザーか否か、電子メールアドレス、ユーザＩＤとパスワード、有効期間、印影ＩＤ、登録の有無などのユーザの情報を設定、登録、管理などをする。ここでスーパーバイザーとは、会社閲覧権限の有無をいい、この権限を持つユーザのみ他のユーザに対しスーパーバイザー権限と会社閲覧権限を設定することができる。権限ないユーザがログインした場合はこの項目は表示されない。電子印鑑を新しく登録するにはユーザマスタの画面から「電子印鑑登録」のボタンを押して印影登録処理の画面に進む（図４）。

【0015】

印影登録用のパスワードを入力してから登録することにより、印影登録処理がなされる。電子印鑑の中にあるＩＤチップのＩＤと印影情報が対応づけられて登録される。すでに登録済みの印影を削除する際は、図４の印影削除ボタンをクリックする。図２のメニュー画面でアプリケーションマスターのボタンを選択することにより、アプリケーションマスター画面が現れる（図５）。画面上部の会社名の欄でプルダウンボタンをクリックして会

社を選択する。すると、選択した会社に登録されているアプリケーションが表示される。ここでアプリケーションとは、押印申請書、契約書管理、見積書デモ、社内業務、通販システム、テストシステムなどの当該会社で社内文書として通用しているものをいう。右上の欄には選択したアプリケーションに登録されているアプリフェーズが表示される。ここでアプリフェーズとは、係長、課長、総務受付、総務部長など、当該文書を承認する権限を有し押印すべき役職をいう。さらにその下の欄には選択したアプリフェーズに登録されているユーザが表示される。アプリフェーズのひとつひとつの役職に対応する人間がどのユーザなのかをユーザ名、会社名などを特定して表示する。選択されたアプリフェーズのユーザの有効期限を定めることができ、ユーザ名の下に表示される。右下には終了ボタンの隣に修正ボタン及び照会ボタンが設けられている。データを修正する必要があるときは修正ボタンを押して修正モードに変更する。デフォルトでは照会モードになっている。図２に示すメニューには、エクセル入出力ボタンが設けられているが、ユーザマスタの情報やアプリケーションマスタの情報を電子印鑑認証サーバの機能を用いて入力する以外に他のコンピュータでエクセル（米国マイクロソフト社の商標）の入力をしてファイル化したものを取り込むことも可能であり、また逆に電子印鑑認証サーバの機能を用いて入力した情報をエクセル出力して他のコンピュータに出力することも可能である。

【0016】

図６は、電子印鑑認証サーバとクライアントパソコンとの基本プロトコルを示している。初期処理において押印処理を事項するクライアントパソコン側は公開鍵の情報を電子印鑑認証サーバから取得する。クライアントパソコンにＵＳＢケーブルなどで接続されたタブレットなどで電子印鑑を押印すると、クライアントパソコンは電子印鑑内部にあるチップＩＤが有するＩＤ情報を先ほど取得した公開鍵によって暗号化して電子印鑑認証サーバに送る。それを受け取った電子印鑑認証サーバでは、電子印鑑認証処理をユーザマスタやアプリケーションマスタを比較することによって実行する。クライアントパソコン側で押印イベントが発生すると、電子印鑑認証サーバ側ではその情報を取得して印影情報をクライアント側に送る。クライアント側はその印影情報を取得して画面上に押印した印影を表示させる。押印履歴情報についてもクライアント側と電子印鑑認証サーバ側とでやりとりされる。押印履歴情報とは、誰がいつどこでどの文書に押印したかを特定するための情報である。

【0017】

図１０は、クライアントパソコン３０または３５が電子印鑑認証サーバ１０との協働により電子印鑑によるログイン処理を実行する際のフローを示したものである。まず初期処理がなされ、電子印鑑認証サーバから初期情報を取得する（電子印鑑認証サーバ１０はこのとき会社情報及び公開鍵をクライアントパソコンに返す）。クライアントパソコンを用いてユーザの誰かがログインのための押印動作をすると押印イベントが発生し、クライアントパソコンはその押印に用いられた電子印鑑のチップＩＤをタブレットを通じて取得する。初期処理で取得した公開鍵を用いて電子印鑑のチップＩＤを暗号化してファンクションコード及び付帯情報と共に電子印鑑認証サーバ１０に送る。電子印鑑認証サーバ１０は、受け取ったチップＩＤ（公開鍵で暗号化されたもの）とファンクションコードを元に当該ユーザがログイン権限を持っているかどうかを判断する（このログイン権限の正当性の判断は暗号をかけた状態で比較するのが望ましい。ＩＤ番号を盗まれるリスクを回避するためである）。ログイン処理が正常に行われた場合は受付番号、印影情報、押印履歴情報をクライアントパソコンに返す。クライアントパソコンでは、印影情報及び押印履歴情報を取得してログイン画面に印影を表示する。

【0018】

図１１は、クライアントパソコン３０または３５が電子印鑑認証サーバ１０との協働により電子印鑑による押印処理を実行する際のフローを示したものである。まずクライアントパソコン３０または３５に受付番号がセットされているかどうか判断する。されていた場合は、その受付番号をサーバに送る。電子印鑑認証サーバ１０は、受け取った受付番号を元に印影及び押印履歴情報をクライアントパソコン側に渡す。クライアントパソコン３

０または３５は、サーバ側から印影及び押印履歴情報を取得し、押印文書の押印欄に既に押された印影を表示する。押印欄は通常複数あるので、その複数の押印欄のうちまだ受付番号がセットされていないものがあれば、図１０と同様に初期処理がなされ、電子印鑑認証サーバから初期情報を取得する（電子印鑑認証サーバ１０はこのとき会社情報及び公開鍵をクライアントパソコンに返す）。クライアントパソコンを用いてユーザの誰かが押印動作をすると押印イベントが発生し、クライアントパソコンはその押印に用いられた電子印鑑のチップＩＤをタブレットを通じて取得する。初期処理で取得した公開鍵を用いて電子印鑑のチップＩＤを暗号化してファンクションコード及び付帯情報と共に電子印鑑認証サーバ１０に送る。電子印鑑認証サーバ１０は、受け取ったチップＩＤ（公開鍵で暗号化されたもの）とファンクションコードを元に当該ユーザがログイン権限を持っているかどうかを判断する。ログイン処理が正常に行われた場合は受付番号、印影情報、押印履歴情報をクライアントパソコンに返す。クライアントパソコンでは、印影情報及び押印履歴情報を取得して押印文書に印影を表示する。

【0019】

図１２は、認証サーバ管理権限を与えられた管理者がログインする処理を示すものである。図１０に示す一般利用者のログインとフローチャートはほとんど同じであるが、ファンクションコードの内容や、スーパーバイザー機能の違いなどがある。

【0020】

図１３は、クライアントパソコン３０または３５と、電子印鑑認証サーバ１０との協働により、印影登録処理を実行するフローである。図１１に示すフローと似ているが、電子印鑑認証サーバ１０において行われる処理が印鑑ＩＤ及び印影の登録処理である点が異なる。

【0021】

図１４は、クライアントパソコン３０または３５がコンピュータネットワーク（インターネット又はイントラネット）を介して、電子印鑑認証サーバ１０及び文書管理サーバ２０と協働する様子を示した図である。クライアントパソコン３０または３５の内部には、押印文書作成手段６０があり、押印文書作成手段６０はエディタ及びライタを含んでいる。エディタは押印欄をテンプレート上に作成する機能を有する。押印文書作成手段６０は後述するように擬似プリンタをも有しており、一般的なワープロ文書や表計算ソフトの出力を擬似的なプリンタ上に出力してそれをテンプレート（押印欄を有するもの）とライタの機能により合体させて一つのファイル（ここではｂｗｂという拡張子を有するもの）を作り、電子押印文書を作成するものである。

【0022】

電子印鑑により押印することとなる電子押印文書を作成するには、そのユーザは、押印文書作成手段６０がインストールされたクライアントパソコン３０または３５を用いる必要があるが、単に電子押印文書を閲覧し、押印するだけのユーザは押印文書作成手段６０を使わずに押印文書閲覧手段８０を用いればよい。押印文書閲覧手段８０は、文書の中身を修正することはできない。押印欄に押印履歴情報を付け加えたり印影を表示させたりすることができるものである。

【0023】

図１５は、押印文書作成手段６０の有する３つの機能を表示した機能ブロック図である。初期設定、エディタ、ライタの３つの機能はそれぞれコンピュータプログラムによって実現されるものであって、コンピュータのＣＰＵがその時々に応じて他の機器と共に果たす機能を便宜上空間的に示したものである。

【0024】

図１６は、図１４に示した文書管理サーバ２０の有する４つの機能を表示した機能ブロック図である。文書管理データベース２１０は、押印文書を様々な情報と関連付けて管理する部分である。押印状況管理手段２２０は、押印文書に押印すべき社内のワークフローがどこまで進んでいるかを管理する部分である。電子メール配信手段２３０は、次の押印すべき人に押印文書をメールに添付して送る機能を有する部分である。押印文書作成手段

または電子印鑑認証サーバとの中心手段２４０は、インターネット又はイントラネットを介して他のコンピュータと通信する機能を有する部分である。

【0025】

図１７は、クライアントパソコン３０または３５において押印処理を実行する際のフローチャートである。ステップ１７００で始まり、ステップ１７０５において印刷する。この印刷は前述したｂｗｂ文書を作成して画面に表示することを意味する。ステップ１７１０において図示しない電子印鑑認証サーバ１０とのやり取りの結果、ログイン処理がなされ、ログイン権限有りと認められたユーザーであることを前提にステップ１７１５に進む。ステップ１７１５では、この利用者が押印文書のワークフローやアプリフェーズなどの設定変更を希望する場合に、認証サーバからアプリフェーズを取得して（ステップ１７２０）ワークフロー設定画面にて設定変更処理を行う（ステップ１７３０）。そうしてできた押印文書が新規文書となる場合には（ステップ１７４０でＹＥＳ）の場合にはシリアル番号を生成し（ステップ１７４５）、文書管理サーバに情報を送信し、文書番号を取得し（ステップ１７５０）、ｂｗｂファイルにデータを書き込む（ステップ１７６０）。ステップ１７４０で新規文書ではないと判断された場合には、文書管理サーバに情報を送信し（ステップ１７５５）、ｂｗｂファイルにデータを書き込む（ステップ１７６０）。その結果新規文書となった場合または最終押印となった場合には文書管理サーバにｂｗｂファイルを送信して（ステップ１７６５）終了する（ステップ１７７５）。新規文書でもなく最終押印でもない場合は一旦処理が終了するが、次の押印者によりステップ１７００からの処理が繰り返される。

【0026】

図１８は、サーバとクライアントパソコンとの間をインターネットまたはＬＡＮで結ぶ様子を示した図である。左側に文書管理サーバ２０と電子印鑑認証サーバ１０を描いてあり右側にクライアントパソコン３０及び３５を描いている。文書管理サーバ２０は押印文書を管理するサーバであって、文書管理機能のほかその押印文書が複数の人に承認して押印手続をしてもらう必要がある性格上、システム管理機能を持ち電子メールなどの通信を管理する機能を備えている。電子印鑑認証サーバ１０は、電子印鑑の認証、ＩＤパスワードの認証、マスタファイルの管理、文書番号の発行、管理を行うサーバである。この図では２つのサーバを分けて描いてあるが、１つのサーバコンピュータで両者の機能を併せ持つ実施例も可能である。クライアントパソコン３０は、押印文書作成手段６０を有するコンピュータであって、押印文書はこの機能を用いて作成される。クライアントパソコン３５は押印文書閲覧手段８０を有するコンピュータであって、押印文書を書き換える機能は持たないがその押印文書を承認すべき利用者が電子印鑑を用いて押印手続を行うのに用いられるコンピュータである。図１８に示すようにサーバ側とクライアントパソコン側とはデータトランスミットにはウェブサービスやＨＴＴＰプロトコルが用いられ、フレームワーク、ソープ（ＳＯＡＰ）などの通信プロトコルを用いてやりとりされる。

【0027】

図１９は、クライアントパソコン３０で押印文書を作成する際のログイン画面である。押印文書を作成する者が、適切な権限を持っていることを電子印鑑認証サーバに問い合わせてマスタファイルとの照合などにより確認した上で文書作成許可を取得して作業を開始することになる。図２０は、押印文書の初期設定のうち基本設定をする画面を示している。用紙サイズの選択、カバーページの有無、有効期間、帳票形式、パスワードの設定を基本設定として設定する。有効期間とは、この押印文書が最終押印者の承認を得るまでどのくらいの期間を有するかを予測した上で設定される数値であって、その有効期間を過ぎれば、この文書に押印しようとしても押印できなくなる。帳票形式では普通伝票か複写伝票かを選択できる。普通伝票は、例えば請求書が複数枚あって、それに対してまとめて承認を受ける必要がある場合に用いる。複写伝票は、納品書、請求書、領収書などのように中身が同じで伝票の罫線の色とタイトルが違うなどの場合に用いられる。パスワードは、必要な場合に設定される機能であってパスワードを知らない押印者にこの文書を見せないために用いられる。基本設定の内容が決定したらＯＫボタンを押して確定させる。

【0028】
図２１は、押印文書の初期設定のうち、サーバー設定の画面を示したものである。電子印鑑認証サーバのＵＲＬを記述することによりこの押印文書の文書番号の発行、押印された電子印鑑の認証、ＩＤパスワードの認証、マスタファイルの参照をすべきサーバコンピュータの特定がなされる。複数の会社に渡ってスーパーバイズする権限を持つ管理者が見る場合は、会社名はプルダウンボタンをクリックすることによって選択される。通常は１つの会社のみで押印文書のやりとりがなされるのでこのプルダウンボタンをクリックしてもその会社しか選択できない。アプリケーション名ではプルダウンボタンをクリックすることにより押印申請書、請求書、稟議書、事業計画書などその社内で定型的に用いられている社内文書の種類が選択できる。文書管理サーバのＵＲＬを記述することによって当該押印文書を保管すべきサーバコンピュータの特定がなされる。自動連番のチェックボタンをクリックすることにより文書番号の採番が自動的になされる。また押印の同期のチェックボタンをクリックすることにより、他の押印者による押印の事実が瞬時に反映される。ここでＯＫボタンをクリックすることによって設定が確定される。
【0029】
図２２は、押印文書に文書番号が付される様子を示した図である。押印文書が作成される過程においてクライアントパソコン３０と電子印鑑認証サーバ１０とのやり取りにより文書番号の取得がなされ、押印文書の右上などの適切な位置にそれが付される。文書管理サーバ２０においてもこの文書番号を頼りにしてデータベースが構築され、文書の管理がなされる。
【0030】
図２３は、押印文書に押印すべき者が係長、課長、部長の３人である場合、３人がそれぞれ印鑑を押す際にサーバとのやりとりを行って押印権限を、電子印鑑認証サーバ１０において照合し押印文書中の押印履歴情報を書き換えて文書管理サーバ２０に保存することを示す図である。
【0031】
図２４は、押印すべき押印者がクライアントパソコン３５（押印文書閲覧手段８０）を用いて押印手続を行おうとする際の文書管理サーバ２０及び電子印鑑認証サーバ１０とのやり取りを示す図である。ここでは押印文書の初期設定において押印の同期が選択されていないものとする。その場合、押印文書閲覧手段８０は文書管理サーバ２０へ印鑑情報を要求する。この押印文書に他人がした押印文書手続を反映させるためである。文書管理サーバ２０はそこに保存している押印文書において押印されている印鑑ＩＤ及び押印の受付番号をＣＳＶ形式でクライアントパソコン３５に返す。クライアントパソコン３５は当該押印文書に受領コードを書き込み対応する電子印鑑の印影情報を電子印鑑認証サーバ１０に要求する。電子印鑑認証サーバは対応する印影情報をクライアントパソコン３５に渡すと、クライアントパソコン側はそれを取得し押印文書にその印影を書き込む。これにより、クライアントパソコン３５の画面上に押印した印影が表示されるから紙の文書に押印するのと同等の使い勝手をもたらす。
【0032】
図２５は、クライアントパソコン３５を用いて押印しようとする者がアプリケーションの内容に変更を加えようとする場合のフローチャートである。アプリケーションについて設定を変更しようとする内容（会社コード、アプリケーションコード、印鑑名、印鑑ＩＤ）を文書管理サーバ２０に送る。文書管理サーバ２０は、その情報をアプリケーションファイルに書き込む。
【0033】
図２６は、押印文書閲覧手段８０を用いて押印者がまさに押印した場合のフローチャートを示す。当該押印文書がいまだに文書番号を取得していない初めての文書であった場合には、文書管理サーバ２０に対して文書番号を要求する。文書管理サーバ２０は、押印文書データベースに新規レコードを作成し、押印文書閲覧手段に文書番号を返す。押印文書閲覧手段８０はその文書番号を取得し押印文書に文書番号を登録する。押印した文書が初

めての文書でなかった場合は文書閲覧手段８０は押印された情報を文書管理サーバに送信し、文書管理サーバ２０は押印情報を文書データベースのレコードに書き込む。（文書番号の発行は最初の押印者が押印完了した直後になされることを前提にしているが、文書番号発行を最初の押印の際にはせずに、２番目の押印者あるいは３番目の押印者など他の押印のタイミングで実行することもできる。２番目あるいは３番目の押印者が誤字脱字などを発見し電子押印文書をより完全なものにすることが考えられるので、完成度の高い文書になった段階で文書番号を発行することが無駄のない文書管理の面で好ましいからである。）

【0034】

図２７は、図２０と同様に押印文書閲覧手段の初期設定を示す画面であるが、この例では会社コードやアプリケーションコードの設定も可能となっている実施例を示している。

【0035】

図２８は、押印文書作成手段６０において押印文書のテンプレートの初期設定を行う場合にテンプレートとして３ページで構成されるものを作成し、３枚目以降を繰り返しを指定して普通伝票の設定を用いるケースを示した説明図である。押印文書作成手段６０は、後述するようにテキスト作成手段や図形作成手段を有しておりそれを用いて罫線や押印欄などを含むテンプレートを作成する機能を有する。図２８の左上に示す元になる書類はここでは見積書であって１枚目は表紙で２枚目は説明書きで３枚目と４枚目と５枚目が実際の見積書（この見積書には罫線や押印欄などは含まれていない。）である。そしてこの書類は一般的なワープロソフトまたは表計算ソフトで作成されたものとし、その電子ファイルも手元にある。押印文書作成手段６０は、図２８の左下に示すような３ページに渡るテンプレートを電子的に作成するものである。１枚目のテンプレートには押印欄が設けられ、必要ならば３枚目のテンプレートにも押印欄が設けられる。元になる書類をそれを作成するのに用いたプログラムを立ち上げた上で印刷メニューを選択し、プリンターとして現実のプリンターではなく押印文書作成手段６０が有する擬似印刷手段を出力先とすることによりここで作成したテンプレートと元になる文書とを合体させて１つのファイル（押印文書）として保存することが可能になる。こうして保存された押印文書はここではｂｗｂを拡張子とする電子ファイルであって、文書の内容は書き換えることができず押印に関する情報（押印履歴情報）のみを書き換えられるものである。今普通伝票の設定で３枚目以降繰り返しを指定した場合には、図２８の右側に示すように作成された電子押印文書においては３ページ目以降のページがテンプレートの３ページ目以降のデザインを適用して作成される。

【0036】

図２９は、納品先、品名、数量、金額などが入力された１ページだけで構成される文書を元に請求書、納品書、受領書で構成される３枚綴りの請求納品書を作成する場合に複写伝票を選択して３枚複写を指定する場合を説明する図である。この場合、テンプレートは３ページから構成されるが、その各々はほぼ同じデザインを踏襲するものであってタイトルや罫線の色が異なるのみである。この設定で１ページからなる元の書類にテンプレートを適用すると作成される電子押印文書は３枚綴りの請求納品書のそれぞれに納品先、品名、数量、金額が読み込まれた文書として作られる。

【0037】

図３０は、設計図などの元になる文書にカバーページを付ける場合を説明する図である。元になる書類は設計図だけであるが、テンプレートがカバーページとテンプレート１ページで構成され「カバーページ有り」、「普通伝票」、「１枚目以降繰り返し」を指定することにより図３０の右側に示すような電子押印文書が作成される。

【0038】

図３１は、押印文書作成手段６０を起動してテンプレートを作成しようとする際に表示される初期画面である。図３１に示すように図形作成機能やテキスト編集機能などの通常図面を作成するための機能のほか印鑑を押す押印欄を作成する手段やそれに対応してワークフローを設定する手段などが含まれている。新規にテンプレートを作成しようとする際

には図３１に示すように何等まだテンプレートが作られていない真っ白な状態で表示されるが、既成のテンプレートのファイルを開いたときには図３１に示す画面に作成済みのテンプレートが表示される。

【0039】

図３２は、テンプレートを元になる文書と合体させないで単独で保存する場合の保存画面である。ここではテンプレートと名づけられたフォルダに請求納品書という名前で保存される場合を示しており、拡張子はｍｇｔとなっている。このように保存されたテンプレートは社内的に異なる部署でも使われる可能性がある汎用性の高いものである。また長期にわたって使う可能性のあるものである。

【0040】

図３３は、電子押印文書を作る際に元になる文書（ワープロ文書や表計算シート）を作成したプログラムにおいて印刷メニューを選択しプリンタとして現実のプリンタではなく仮想的に作られた擬似プリンタ（ここではＢ２ｗｉｎＢ　Ｄｒｉｖｅｒ／Ｃ）に出力する操作を示す画面である。特にこの図では表計算ソフトの印刷出力画面となっている。この操作により元になる文書の印刷イメージがそれを作成したプログラムから独立した形で電子押印文書作成手段に取り込み可能なものとなる。図３４は、この擬似プリンタのプロパティの設定画面でありここではＡ４の横サイズで出力することを選んでいる。ここでＯＫボタンを押して印刷画面に戻りさらに印刷画面でＯＫボタンを押すと図３５が表示される。図３５は、テンプレートの選択画面である。前述したテンプレートフォルダに保存されているテンプレートが選択可能であり、今「請求納品書」が選択可能となっている。これを選択し選択ボタンをクリックすると、図３６の画面が表示される。図３６は、パスワードの入力画面であり今選択したテンプレートがパスワードを要求するものである場合にこの画面が表示される。正しいパスワードを入力してＯＫボタンを押すことにより元の文書と当該テンプレートの合体がコンピュータ上でなされてｂｗｂを拡張子とする電子押印文書のファイルが作成されることになる。図３７は、そのようにしてできるｂｗｂファイルの保存画面である。図３７においては、ファイル名が請求納品書サンプルイメージとなっている。

【0041】

押印文書作成手段６０は、前述したように図面作成手段やテキスト作成手段や押印欄作成手段を有するものであるがテンプレート（拡張子がｍｇｔ）のファイルを読み込んで編集することができるのみならず、押印文書（拡張子がｂｗｂ）のファイルを読み込んで編集することもできる。その編集成果はテンプレートとしての保存もできるし押印文書としての保存もできる。テンプレートとして保存した場合には、ワープロソフトや表計算ソフトで作成された元の文書とは切り離されてテンプレートとして独立して保存される。まったくゼロからテンプレートを作成しようとする場合は、レイアウトなどを決めるために試行錯誤を必要とするから図３７では作業途中のものであることを示すために「請求納品書サンプルイメージ」としたものである。

【0042】

図３８では、「請求納品書サンプルイメージ」という名前の押印文書（ｂｗｂファイル）を押印文書作成手段６０で開いた画面である。ここでは、まだテンプレートの中身ができていない状態で空のテンプレートであるために罫線も押印欄もない状態である。従ってワープロソフトまたは表計算ソフトで作成した文書イメージがそのまま表示されている。ただし、元の文書を作成したプログラムとは関係なくイメージとして表示されているだけであるから、その内容についての編集はできない。

【0043】

図３８のｂｗｂファイルを一旦閉じて今度は「請求納品書」という名前のテンプレートファイルを編集して完成させるために開く。図３９は、押印文書作成手段６０がテンプレートファイルを開く画面である。図４０は、テンプレートファイルを開いた状態で更にさきほど作った「請求納品書サンプルイメージ」というｂｗｂファイルを開く画面である。押印文書作成手段６０は、このようにテンプレートファイルを開いた状態で更にｂｗｂフ

ァイルを開いて重ね合わせて表示することができる（図４１）。これによりワープロや表計算で作られた元の文書に適切なレイアウトを有するテンプレートの作成が可能になる。

【0044】

図４２は、サンプルイメージを参照しつつ前述の図形作成手段やテキスト作成手段を用いてテンプレートを編集する様子を示した図である。図４３は、押印枠を作成する様子を示した図である。ここでは部長、課長、係長の３つの押印枠が作成されている。レイアウト機能や拡大縮小機能などを用いて全体的なデザインの調整が図られる。テンプレートの１ページ目が完成したら、必要に応じて２ページ目やカバーページなどの作成などもする。図４４は、テンプレートファイルのファイル情報の表示画面である。ファイル名や作成日時、更新日時は自動的に入力される。管理の都合上必要ならばタイトルやコメント欄にそのテンプレートを識別する情報や説明する内容などを入れることができる。図４５は、完成させたテンプレートファイルのプレビュー表示画面である。出来上がりを確認した上で必要ならば印刷もできる。出来上がりを確認して問題なければ完成したテンプレートを保存する。このとき特にサンプルイメージを気にすることなくテンプレートの保存を実行すればテンプレートのみがサンプルイメージと切り離されて保存される。

【0045】

図４６は、押印文書作成手段６０の有する印鑑メニューを説明する図である。押印枠は３つないし５つほど連ねて設けることが通常なされる。そこで３連、４連、５連などのメニューが準備されており例えば３連のメニューを選んで押印すべきスペースの左上に一旦マウスカーソルを落として押印すべきスペースの右下までドラッグすることによって自動的に３つの押印枠が作成される。それぞれの押印枠の中央には「押印」という文字が表示される。この押印という文字の表示は、その位置に押印者が押印すべきことを意味する。一旦作った上で再調整も可能である。

【0046】

図４７は、押印枠の設定画面（印鑑ダイアログボックス）である。本発明においては押印枠は単に印鑑を押印するだけでなく、押印履歴情報（押印日時、場所などに関する情報）やワークフロー（回覧や押印の順番）の情報をも有するものである。押印枠を選択した上でプロパティを選択するかまたは押印枠をダブルクリックすることにより印鑑ダイアログボックスが表示される。「全体タブ」では作成する押印枠全体について押印者名の文字のフォント、押印枠の線の色、押印枠の線種を指定する。印鑑タブは、押印枠の数と同じだけ準備され、ここでは３連なので、印鑑１、印鑑２、印鑑３の３つのタブが準備されている。図４８は、印鑑タブの設定画面である。押印者名、押印欄に表示するキャプション等の設定である。ここで押印欄のキャプションとは、押印枠の中に表示する文字であって、例えばその押印者がワークフロー上押印できる場合に「押印」と表示し、承認ルートの前の順序の押印者がまだ押印していないためこの押印欄に押印できない場合に「未承認」と表示することをいいその表示する文字列をこの印鑑タブ設定画面で設定できる。従って、図４８で表示されている「押印」の部分に「印を押してください」とし、「未承認」のところに「まだ押せません」とすると電子押印文書の押印枠にその通りに表示されることになる。ワークフローの設定もこの画面でできる。ルートＡ、ルートＢなどの設定をするがそれについては別の図面を参照しつつ後述することにする。

【0047】

図４９は、印鑑ダイアログボックスの印鑑タブでのワークフローの指定をする部分図である。図４９に示すようにプルダウンボタンによりＡからＺのアルファベットを選択する欄と数値を入力する欄の２つで構成される。アルファベットの指定は承認ルートのグループの指定であり、社内の部署の違いなどによりＡグループ、Ｂグループ、Ｃグループなどに分かれる。数値の指定は同一の承認ルートグループ内での承認順位をゼロから始まる数値で指定する。同じ承認ルートグループ内では、承認順位で指定した順序で承認が行われる。承認順位が前の人が押印しなければ後の順位の人は押印できない。複数の承認ルートグループが存在する場合は、それらの承認ルートグループは並行して動作する。つまりＡＢＣ３つのグループが存在する場合、それぞれの承認ルートで別々に承認が行われる。

【0048】
図５０は、複数の押印者の誰から押印してもよく押印順序を指定しない場合の承認ルートグループ及び承認順位を示す図である。ここでは承認ルートグループはすべてＡに属し承認順位はすべてゼロとなっている。それに対応して押印枠には５つとも全部押印という文字が表示されている。押印可に対するキャプションが「押印」の文字表示と指定しているからである。図５１は、複数の押印者間で押印順序を指定する場合の承認ルートグループ及び承認順位を示す図である。係長、課長、部長の順に押印順序を指定するので承認順位が部長が２、課長が１、係長が０となっている。係長が押印しなければ課長は押印できない、課長が押印しなければ部長は押印できない。押印枠に表示される文字はまだ誰も押印していない状態では係長の押印枠のみが「押印」となっており、他の枠では「未承認」と表示される。承認ルートグループはすべて同じＡグループとなっている。次に図５２及び図５３を参照しつつ複数の承認ルートを設ける場合について説明する。営業の部署に１課と２課があり、営業部長、１課課長、２課課長、１課係長、２課係長、１課担当者、２課担当者がいるものとする。１課と２課で並行して承認を行いたい場合に図５３に示すように１課の承認ルートグループをＡグループ、２課の承認ルートグループをＢグループとし、承認順位は担当者を０、係長を１、課長を２、部長を３とし、部長の承認ルートグループは便宜上Ａとする。これにより、営業１課、営業２課それぞれ同時に並行して担当者、係長、課長の順に承認が行われ、１課、２課の課長が両方とも承認した後に営業部長の承認が行われる。初期段階では押印枠の中には１課担当者及び２課担当者のみ「押印」と表示され、他の押印枠には「未承認」と表示される。
【0049】
図５４は、押印枠を一旦作成した後にその大きさの変更をする予想を示した図である。マウスによるクリックで押印枠を選択した状態ではその周辺の四隅と辺の中ほどにマウスで掴むことができるハンドル（小さい四角形）が表示される。それをドラッグすることにより大きさの調整が可能である。
【0050】
図５５は、レイアウトの調整の画面である。作成した図形のうち調整したい図形あるいはテキスト、押印枠をクリックすることによって選択し、変更対象とすることができる。外見でなく属性の変更をしたい場合は、プロパティを選択することによって色や幅、文字のピッチなどの変更も可能である。図５６は、図形の属性を変更するためのプロパティ画面である。変更内容すべて入力してから適用ボタンを押して保存することにより、テンプレートが完成する。出来上がったテンプレートは適切な名前を付けてテンプレートフォルダに保存する。
【0051】
図５７は、新たな押印文書の作成をするために元となる文書を表計算ソフトにより作成した画面を示す。元となる文書が完成したらその表計算ソフト上で印刷メニューを選択する。図５８は、表計算ソフトの印刷メニュー画面である。プリンタの選択をプルダウンボタンをクリックすることにより行い、あらかじめインストールされた擬似プリンタ（電子押印文書作成手段が用意した仮想的なプリンタドライバ）を選択する。プリンタ選択欄の隣にあるプロパティボタンをクリックするとその擬似プリンタのプロパティ画面が表示される（図５９）。紙のサイズ、縦か横かの設定をする。プロパティの設定が完了したら、ＯＫボタンを押して、印刷メニューに戻り、そこでＯＫをクリックするとテンプレート選択画面が現れる（図６０）。テンプレートフォルダに保存されているテンプレートが帳票名の欄に表示されているのでその中から必要な帳票を選んで選択ボタンをクリックする。選んだテンプレートにパスワードが設定されている場合は図６１に示すパスワード入力画面が現れ、正しいパスワードを入力してＯＫボタンをクリックすると元の文書とテンプレートとを合体する処理がなされる。こうしてできた電子押印文書に名前を付けて保存する（図６２）。ファイル名はテンプレート名の後に年月日、時刻を追加したものが自動生成される。必要があればこのファイル名を変えることができる。このファイルの拡張子はｂｗｂとなっている。

【0052】
図６３は、出来上がった電子押印文書（ｂｗｂファイル）の押印欄の表示を示している。この例では係長の押印がされないと課長、部長の押印ができない設定であるので、部長と課長の欄は「未承認」と表示され、係長の欄は押印されることが期待されていることを示すために「押印」の文字及び「ＩＤ」「ＰＡＳＳ」の表示がなされている。このｂｗｂファイルを閉じると図６４のようなアイコンで表示される。係長が押印手続きをした後は、押印欄が図６５のように表示される。係長の押印欄には印影が表示され、課長の欄には「押印」の文字及び「ＩＤ」「ＰＡＳＳ」の表示がなされている。部長は課長の押印がなされなければ押印できないので「未承認」と表示がされている。
【0053】
以上、押印文書作成手段６０を実際に使用する手順を追って説明してきたが、以下、電子押印文書作成手段６０の機能ブロック図を参照しつつ説明する。図６６は、押印文書作成手段６０の機能ブロック図である。押印文書作成手段６０は、テンプレート作成手段６１０、テンプレート保存手段６１７、擬似印刷手段６１６、電子印鑑認証サーバまたは文書管理サーバとの通信手段６５０、ワークフロー設定手段６１５を有する。テンプレート作成手段６１０は、罫線やタイトルや押印枠を作成する手段であって、テキスト作成手段６１１、図形作成手段６１２、押印欄作成手段６１３、レイアウト調整手段６１４などを有する。テキスト作成手段６１１は、文書のタイトルなどのテキストを入力、編集する手段である。図形作成手段６１２は多角形、円、楕円、直線などの作図機能を有するものであり、罫線などの作成もできる。押印欄作成手段６１３は、単に図形としての押印枠を作成するのみならず、ワークフロー設定手段６１５と協働して承認ルート、押印順序などを設定し、その情報を管理するための押印枠のプロパティ情報をも作成する。ワークフロー設定手段６１５は、押印権限や押印順序の設定にあたって必要に応じて電子印鑑認証サーバ又は文書管理サーバとの通信手段６５０を介してサーバー側の情報（ユーザマスタ、アプリケーションマスタ）を参照してワークフローに関する情報を生成する。レイアウト調整手段６１４は、テキスト、図形、押印枠などの図形のレイアウトを調整する手段である。
【0054】
テンプレート保存手段６１７は押印文書作成手段６０で作成したテンプレート（罫線、押印枠などを含むもの）を元の文書とは切り離した独立の電子ファイルとして保存する手段である。前述したようにテンプレートはここではｔｍｇファイル（拡張子がｔｍｇのファイル）として保存される。ワープロソフトや表計算ソフトで作成された電子データにこのテンプレートを重ね合わせることによって押印文書が作成され、ここではｂｗｂファイル（拡張子がｂｗｂのファイル）として保存される。その重ね合わせの処理において重要な役割を果たすのが擬似印刷手段６１６である。擬似印刷手段６１６はプリンタドライバとしてコンピュータにインストールされるプログラムである。仮想的なプリンタであり、現実に紙に印刷するプリンタではない。表計算ソフトまたはワープロソフトを起動して必要な文書を読み込んだ状態で印刷メニューに入り、プリンタとしてこの擬似印刷手段６１６を選択し印刷を実行するとこの押印文書作成手段６０が起動し、テンプレートの選択を促す。そこで押印文書作成者がテンプレートを選択すると押印文書作成手段６０は元の文書とテンプレートとを合体する処理をする。そして電子印鑑認証サーバまたは文書管理サーバとの通信手段６５０を介して当該文書が保存される。
【0055】
こうして保存された押印文書は、押印枠のプロパティとしてワークフローに関する情報を持っているので、文書管理サーバ２０はそのワークフローに従って押印すべきユーザに対して電子メールにファイルを添付するなどの手段により押印を促す処理をする。その後、前述したようにクライアントパソコン側と電子印鑑認証サーバ１０と文書管理サーバ２０との協働により押印手続きが進んでいくことになる。
【0056】
図６７は、押印文書表示手段８２０の構成を示す機能ブロック図である。押印者のうち

自らは押印文書を作成せず、押印手続きをするのみの者が用いるクライアントパソコンには押印文書作成手段６０をインストールする必要は無い。文書を閲覧し押印手続きを処理する手段である押印文書閲覧手段８０がインストールされればよい。押印文書閲覧手段８０は押印文書表示手段８２０と押印イベント取得手段８３０、印影表示手段８４０、電子印鑑認証サーバとの通信手段８５０を有する。押印文書表示手段８２０は押印を必要とする文書を表示する手段である。押印イベント取得手段８３０はクライアントパソコン３５に繋がるタブレット上で電子印鑑を押すイベントを取得する手段である。印影表示手段８４０は電子印鑑認証サーバ１０が持っている印影情報を取得し、それに基づいてクライアントパソコン側の押印文書に印影を表示する手段である。電子印鑑認証サーバとの通信手段８５０は電子印鑑ＩＤを公開鍵を用いて暗号化してやり取りしたり押印履歴情報や印影情報のやり取りをクライアントパソコンとサーバ側との間で実行する手段である。

【0057】

以上述べた押印手続きでは、押印者は押印文書を閲覧してそれを承認するか否かの二者択一であることを前提としたがクライアントパソコン３５にはタブレットが繋がっており、タブレットから手書き線を入力することも可能なので、手書きコメントを追加した上で承認するという業務フローとする実施例も可能である。

【0058】

また、前述した押印手続きでは文書作成者が作成した押印枠の中にのみ押印することを前提としたが押印枠以外の自由な場所に何度でも押印して訂正印として使用する他の実施例も考えられる。

【0059】

以上電子印鑑認証サーバを中心とする電子印鑑認証システム、すなわち会社などの単独の組織内で用いるのに適した電子印鑑認証について説明してきたが、それを前提としてここから複数の組織にまたがって機能する電子印鑑登録認証サーバ及び電子印鑑登録認証システムについて説明する。図６９は、本発明に係る電子印鑑登録認証システムのハードウェア構成図である。ここでＡ社とＢ社は、それぞれ社内の押印文書を処理するために電子印鑑認証サーバ１０、１１を所有しておりパソコン３０、３５、タブレット４０、４１、電子印鑑５０、５５を用いてそれぞれの会社の従業員が電子押印をすることができるようになっている。Ａ社の従業員の電子印鑑は電子印鑑認証サーバ１０に登録されており、押印の際にその正当性を認証する。またＢ社の従業員の電子印鑑は電子印鑑認証サーバ１１に登録され押印の正当性を認証する。ここでＡ社とＢ社の代表者同士が契約を結ぼうとするときに双方とも自らの電子印鑑を他社のサーバに登録することはセキュリティ的観点から避けたいところである。そこで、Ａ、Ｂ両者が信頼する中立的第三者が所有管理するサーバにそれぞれの代表社印を登録することが望まれる。それが電子印鑑登録認証サーバ１５である。

【0060】

このように第三者が所有管理する電子印鑑認証サーバを電子印鑑登録認証サーバと呼ぶことにする。電子印鑑登録認証サーバの運営主体は地方自治体などの公的機関であってもよいし、中立な立場にある法人であってもよい。図７８は、電子印鑑登録認証サーバ１５の機能ブロック図である。上に説明した電子印鑑認証サーバとほぼ同様の働きをするものであるが、コンピュータ上に表示される表示画面を追いながらその働きを解説する。図７０は、電子印鑑登録認証サーバ１５にログインした際に表示されるメニュー画面である。図７０に表示されているようにユーザマスタ、アプリケーションマスタ、認証サーバ設定、エクセル入力、エクセル出力（エクセルは米国マイクロソフト社の商標）、ログインユーザ登録、再ログインなどのメニューが表示されているほか、終了ボタン及びログインした人の会社名、個人名そしてログインに用いた電子印鑑の印影が表示されている。ユーザマスタのメニューに入ると図７１に表示されているユーザマスタ画面が表示される。このユーザマスタ画面を用いて電子印鑑登録認証サーバ１５の管理会社がＡ社、Ｂ社などの会社の情報、登録する従業員の情報などを入力した後にそれぞれの会社のユーザが電子印鑑を登録する。Ａ社、Ｂ社としては所定の手続き例えば電子メールやファックス（図７４）

などにより管理会社に連絡して会社名、住所、電話、担当者等ユーザマスタに必要な情報を送って登録してもらう。

【0061】

ユーザマスタへの登録が完了すると、Ａ社、Ｂ社の各ユーザはログイン情報を入手し使用する電子印鑑の登録を行う。図７５は、ログイン画面である。押印箇所に印鑑を押して電子印鑑のＩＣチップにあるＩＤ番号を送ることによってログインがなされる。ログインすると図７２が表示される。図７２は、印影登録処理の表示画面である。電子印鑑を登録するユーザは、図７２の画面でパスワードを入力してから押印することにより印影登録をする。ここで押印とはタブレット上で電子印鑑（図７７）を所定の位置において電子印鑑の押印ボタンを押すことを言う。そして印影登録とは、印影情報を電子印鑑のＩＤ番号などとの関連付けにおいて登録することを言う。印影登録の後、アプリケーションとアプリフェーズを登録する。図７３は、アプリケーションマスタ画面である。電子印鑑登録認証サーバ１５の管理会社がアプリケーションマスタ画面で押印すべき対象である電子文書の表題などを登録する。例えば、会社を越えて用いられる契約書や見積書などが表題として考えられる。これで使用準備は完了した。

【0062】

押印すべき書類である契約書などは先に述べた押印文書作成手段を用いて作成できる。会社を越えて用いる押印文書のテンプレートは、電子印鑑登録認証サーバに登録しておくのが望ましい。Ａ社、Ｂ社両方とも同一のひな型を用いるためである。押印文書作成手段の初期設定において認証サーバの設定を選択し電子印鑑登録認証サーバのＵＲＬを入力後テンプレートを作成することによってＡ社、Ｂ社共通のテンプレートの登録が電子印鑑登録認証サーバにできる。図７６は、押印文書作成手段の初期設定における認証サーバ設定の処理を示す画面である。契約書などの押印文書を作成するとき、当該テンプレートを使用して押印欄を作成し登録した電子印鑑で押印する。押印した文書は電子メールなどで相手方に送信する。管理会社は要求に応じて押印された電子印鑑が確かに電子印鑑登録認証サーバに登録されていることを証明する証明書を発行する。図７９は、電子印鑑登録認証サーバを管理する管理会社によって発行される電子印鑑登録証明書である。当該証明書には押印認証履歴（会社名、アプリケーション名、日付、時刻、印影）と管理会社名などの情報を記載する。紙に印刷し配送してもいいしメールなどで送信してもいい。要求に応じて発行する以外に押印イベントがあった際に常に相手側へ電子印鑑登録の証明書が自動的にメールなどで送信されるように設定してもよい。また、この証明書を電子透かしとして印影データに埋め込むこととする実施例も可能である。電子印鑑登録認証サーバの管理会社は押印回数に応じた対価を受けることもできるし、証明書を発行する費用を徴収することとしてもよい。

【0063】

図８０は、電子印鑑登録認証サーバに管理者としてログインできるユーザを登録する画面である。ユーザコード、ユーザ名、部署名、有効期間、登録日、更新日など登録事項としている。

【産業上の利用可能性】

【0064】

複数の組織にまたがって押印される契約書などに本発明による電子印鑑登録認証システムで電子印鑑を押印し認証を受けると、中立の第三者が認証する契約書が電子的に作成される。そしてその押印の押印日時などの押印履歴も保存されるので、誰が何時押印したのか契約書などに明示できる。押印した履歴を保存明示できることから押印行為に対する押印者の押印責任を明確にすることができる。電子印鑑は紛失すればすぐに気付くことができるので、紛失中に押印された場合であってもすぐに認証履歴を調べることで悪用されたかどうかの調査が迅速にできる。本発明で使用する電子印鑑は、日常使用している印鑑の中にＩＣチップを埋め込むだけで製造できるものだから認印、銀行印、実印などの作成ができ、日常と同様な使い勝手で紙文書と同様な使い分けができる。また押印責任の明確化の上では紙文書による管理以上の効果が期待できる。完全なペーパレス化の実現が可能と

なる。

【図面の簡単な説明】

【0065】

【図1】管理者権限で電子印鑑認証システムにログインする際のログイン画面である。

【図2】電子印鑑認証システムのメニュー画面である。

【図3】ユーザマスタの画面である。

【図4】印影登録処理の画面である。

【図5】アプリケーションマスタの画面である。

【図6】電子印鑑認証サーバとクライアントパソコンとの基本プロトコルを示す図である。

【図7】電子印鑑認証システムのハードウェア構成を示す図である。

【図8】電子印鑑認証サーバのハードウェア構成を示す図である。

【図9】電子印鑑５０を詳細に説明した図である。

【図10】クライアントパソコンが電子印鑑認証サーバとの協働により電子印鑑によるログイン処理を実行する際のフローを示す図である。

【図11】クライアントパソコンが電子印鑑認証サーバとの協働により電子印鑑による押印処理を実行する際のフローを示す図である。

【図12】認証サーバ管理権限を与えられた管理者がログインする処理を示す図である。

【図13】クライアントパソコンと、電子印鑑認証サーバとの協働により、印影登録処理を実行するフローチャートである。

【図14】クライアントパソコンがコンピュータネットワーク（インターネット又はイントラネット）を介して、電子印鑑認証サーバ及び文書管理サーバと協働する様子を示した図である。

【図15】押印文書作成手段の有する３つの機能を表示した機能ブロック図である。

【図16】文書管理サーバの有する４つの機能を表示した機能ブロック図である。

【図17】クライアントパソコンにおいて押印処理を実行する際のフローチャートである。

【図18】サーバとクライアントパソコンとの間をインターネットまたはＬＡＮで結ぶ様子を示した図である。

【図19】クライアントパソコンで押印文書を作成する際のログイン画面である。

【図20】押印文書の初期設定のうち基本設定をする画面を示している図である。

【図21】押印文書の初期設定のうち、サーバー設定の画面を示した図である。

【図22】押印文書に文書番号が付される様子を示した図である。

【図23】押印文書に押印すべき者が係長、課長、部長の３人である場合、３人がそれぞれ印鑑を押す際にサーバとのやりとりを行って押印権限を、電子印鑑認証サーバにおいて照合し押印文書中の押印履歴情報を書き換えて文書管理サーバに保存することを示す図である。

【図24】押印すべき押印者がクライアントパソコンを用いて押印手続を行おうとする際の文書管理サーバ及び電子印鑑認証サーバとのやり取りを示す図である。

【図25】クライアントパソコンを用いて押印しようとする者がアプリケーションの内容に変更を加えようとする場合のフローチャートである。

【図26】押印文書閲覧手段を用いて押印者がまさに押印した場合のフローチャートである。

【図27】押印文書閲覧手段の初期設定を示す図である。

【図28】押印文書作成手段において押印文書のテンプレートの初期設定を行う場合にテンプレートとして３ページで構成されるものを作成し、３枚目以降を繰り返しを指定して普通伝票の設定を用いるケースを示した説明図である。

【図29】納品先、品名、数量、金額などが入力された１ページだけで構成される文書を元に請求書、納品書、受領書で構成される３枚綴りの請求納品書を作成する場合に複写伝票を選択して３枚複写を指定する場合を説明する図である。

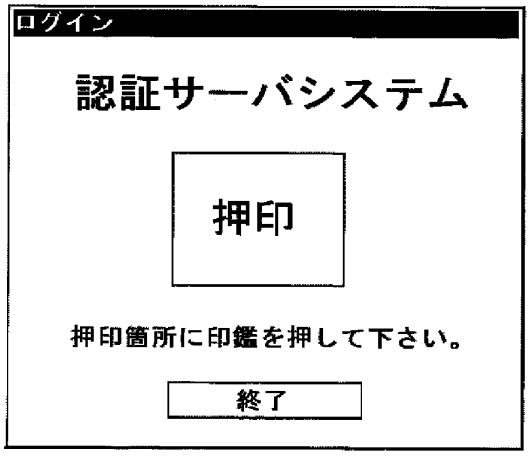
【図30】設計図などの元になる文書にカバーページを付ける場合を説明する図である。

【図31】押印文書作成手段６０を起動してテンプレートを作成しようとする際に表示される初期画面である。
【図32】テンプレートを元になる文書と合体させないで単独で保存する場合の保存画面である。
【図33】電子押印文書を作る際に元になる文書を作成したプログラムにおいて印刷メニューを選択しプリンタとして現実のプリンタではなく仮想的に作られた擬似プリンタに出力する操作を示す画面である。
【図34】擬似プリンタのプロパティの設定画面である。
【図35】テンプレートの選択画面である。
【図36】パスワードの入力画面である。
【図37】ｂｗｂファイルの保存画面である。
【図38】「請求納品書サンプルイメージ」という名前の押印文書を押印文書作成手段で開いた画面である。
【図39】押印文書作成手段がテンプレートファイルを開く画面である。
【図40】テンプレートファイルを開いた状態で更にさきほど作った「請求納品書サンプルイメージ」というｂｗｂファイルを開く画面である。
【図41】テンプレートファイルを開いた状態で更にｂｗｂファイルを開いて重ね合わせて表示した図である。
【図42】サンプルイメージを参照しつつ前述の図形作成手段やテキスト作成手段を用いてテンプレートを編集する様子を示した図である。
【図43】押印枠を作成する様子を示した図である。
【図44】テンプレートファイルのファイル情報の表示画面である。
【図45】完成させたテンプレートファイルのプレビュー表示画面である。
【図46】押印文書作成手段の有する印鑑メニューを説明する図である。
【図47】押印枠の設定画面である。
【図48】印鑑タブの設定画面である。
【図49】印鑑ダイアログボックスの印鑑タブでのワークフローの指定をする部分図である。
【図50】複数の押印者の誰から押印してもよく押印順序を指定しない場合の承認ルートグループ及び承認順位を示す図である。
【図51】複数の押印者間で押印順序を指定する場合の承認ルートグループ及び承認順位を示す図である。
【図52】複数の承認ルートを設ける場合の押印枠を示す図である。
【図53】複数の承認ルートを設ける場合の承認ルートグループ及び承認順位を示す図である。
【図54】押印枠を一旦作成した後にその大きさの変更をする予想を示した図である。
【図55】レイアウトの調整の画面である。
【図56】図形の属性を変更するためのプロパティ画面である。
【図57】新たな押印文書の作成をするために元となる文書を表計算ソフトにより作成した画面である。
【図58】表計算ソフトの印刷メニュー画面である。
【図59】擬似プリンタのプロパティ画面である。
【図60】テンプレート選択画面である。
【図61】パスワード入力画面である。
【図62】電子押印文書の保存画面である。
【図63】出来上がった電子押印文書の押印欄を示す図である。
【図64】ｂｗｂファイルのアイコンを示す図である。
【図65】係長が押印手続きをした後の押印欄を示す図である。
【図66】押印文書作成手段６０の機能ブロック図である。
【図67】押印文書表示手段８２０の構成を示す機能ブロック図である。

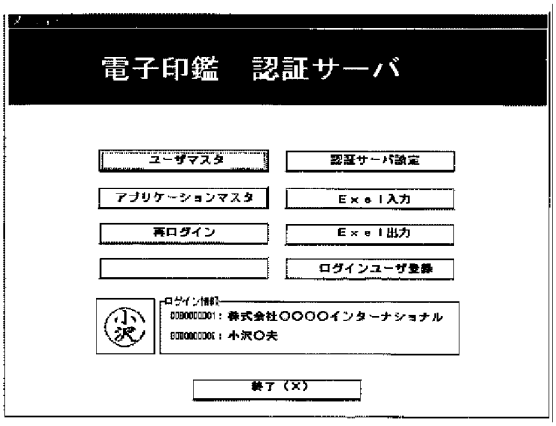
【図68】Ａ社所有の電子印鑑認証サーバを中心とする電子印鑑認証システムと、Ｂ社所有の電子印鑑認証サーバを中心とする電子印鑑認証システムとがそれぞれ独立して存在し、それぞれ社内の電子押印文書の処理に役立っている様子を示している。
【図69】本発明に係る電子印鑑登録認証システムのハードウェア構成図である。
【図70】電子印鑑登録認証サーバ１５にログインした際に表示されるメニュー画面である。
【図71】ユーザマスタ画面のハードコピーである。
【図72】印影登録処理の表示画面である。
【図73】アプリケーションマスタ画面である。
【図74】ユーザマスタに登録する情報を管理会社に送るための書式シートである。
【図75】ログイン画面である。
【図76】押印文書作成手段の初期設定における認証サーバ設定の処理を示す画面である。。
【図77】電子印鑑の構成を示す図である。
【図78】電子印鑑登録認証サーバ１５の機能ブロック図である。
【図79】電子印鑑登録証明書の一例である。
【図80】電子印鑑登録認証サーバに管理者としてログインできるユーザを登録する画面である。。
【符号の説明】
【0066】
１０，１１　電子印鑑認証サーバ
１５　電子印鑑登録認証サーバ
２０　文書管理サーバ
３０，３５　パソコン
４０，４１　タブレット
５０，５５　電子印鑑
５１　内蔵ＩＣチップ
５２　押印ボタン
５３　押印面
６０　押印文書作成手段
８０　押印文書閲覧手段
９０　インターネット
１００　データベース部
１１０　ユーザマスタ
１２０　アプリケーションマスタ
１７０　サーバ設定管理部
１８０　電子印鑑登録管理部
１９０　電子印鑑認証部
２１０　文書管理データベース
２２０　押印状況管理手段
２３０　電子メール配信手段
２４０　押印文書作成手段または電子印鑑認証サーバとの通信手段
６１０　テンプレート作成手段
６１１　テキスト作成手段
６１２　図形作成手段
６１３　押印欄作成手段
６１４　レイアウト調整手段
６１５　ワークフロー設定手段
６１６　擬似印刷手段
６１７　テンプレート保存手段

８２０　押印文書表示手段
８３０　押印イベント取得手段
８４０　印影表示手段
８５０　電子印鑑認証サーバとの通信手段

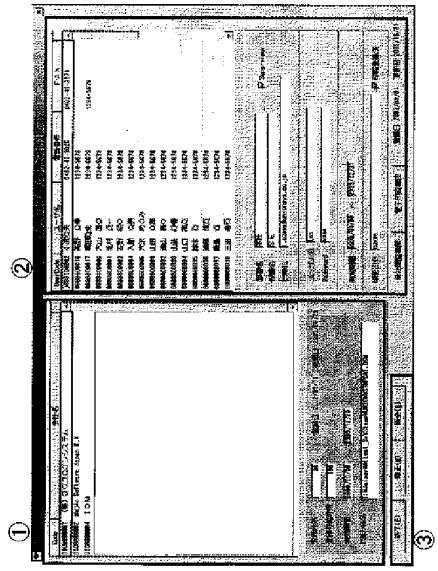
【図1】



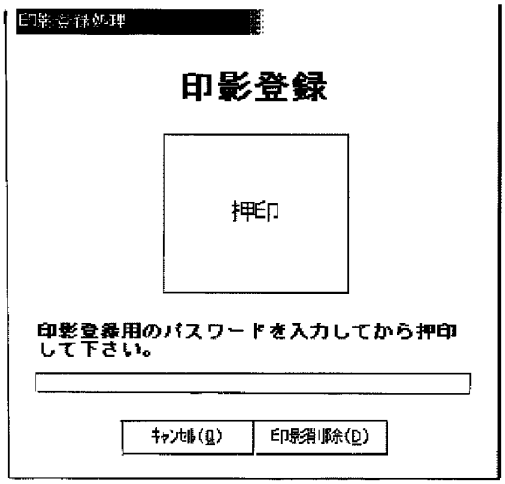
【図2】



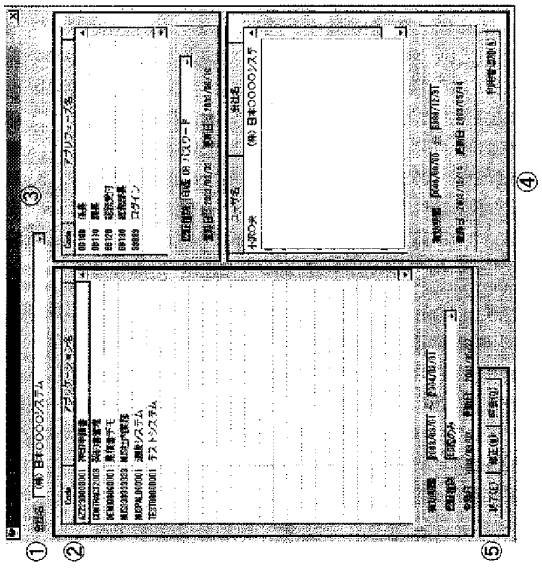
【図3】


①
②
③

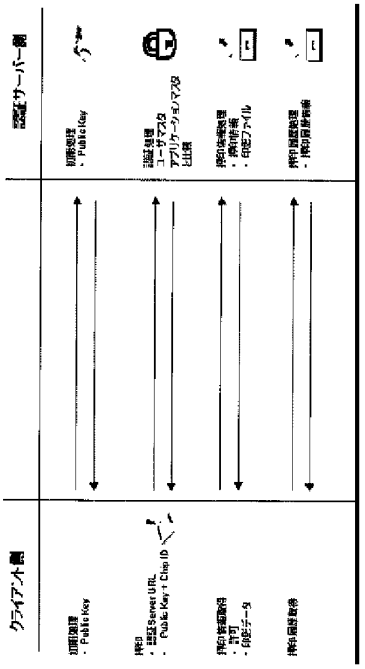
【図4】


印影登録
押印
印影登録用のパスワードを入力してから押印して下さい。
キャンセル(C)
印影削除(D)

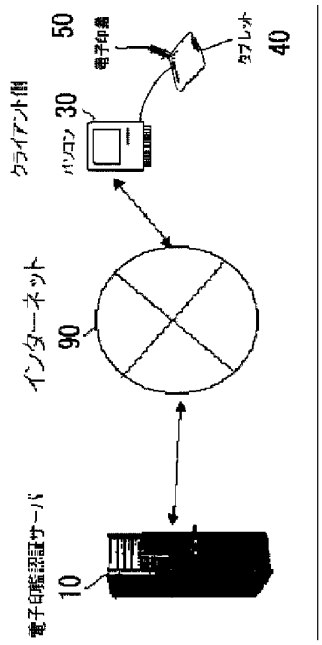
【図5】


①
②
③
④
⑤

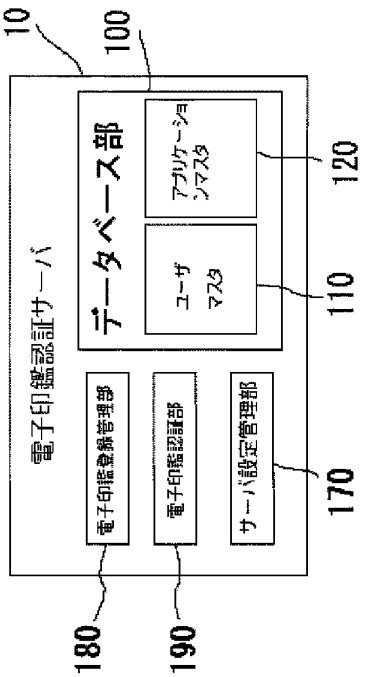
【図6】


認証サーバー側
クライアント側

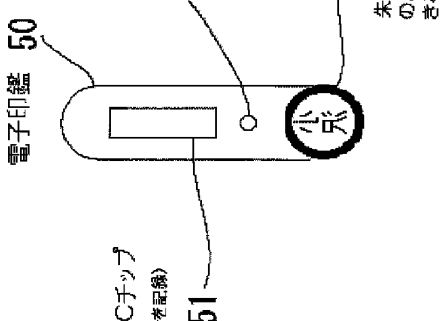
【図7】


電子印鑑認証サーバ
10
インターネット
90
クライアント側
パソコン
30
電子印鑑
50
タブレット
40

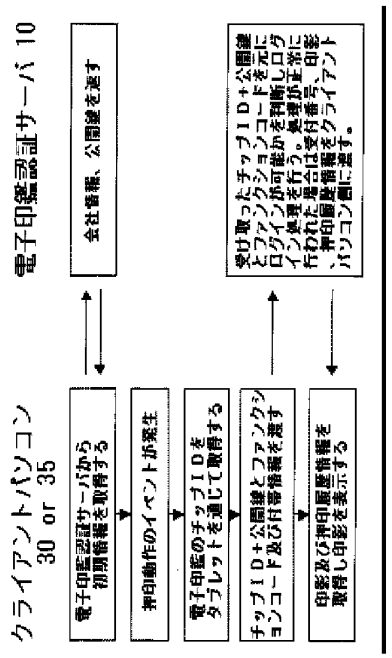
【図8】


10
電子印鑑認証サーバ
100
データベース部
ユーザマスタ
アプリケーションマスタ
110
120
電子印鑑登録管理部
電子印鑑認証部
サーバ設定管理部
170
180
190

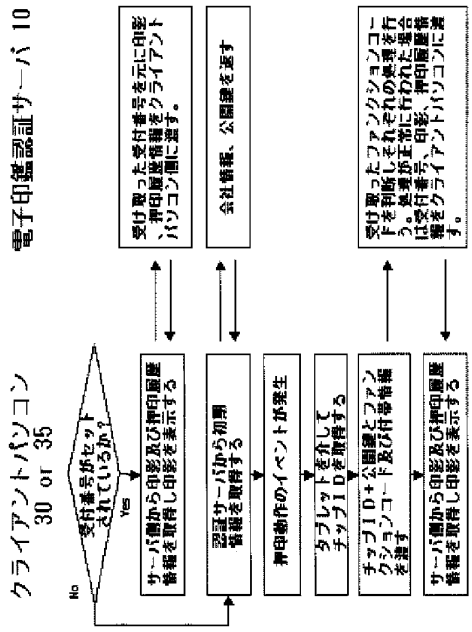
【図9】


電子印鑑
50
内蔵ICチップ
(ID番号等記録)
51
52
押印ボタン
電子印鑑として
押印する時にク
リックする。
53
押印面
朱肉を付け、通常の印鑑
のように紙への押印もで
きる。

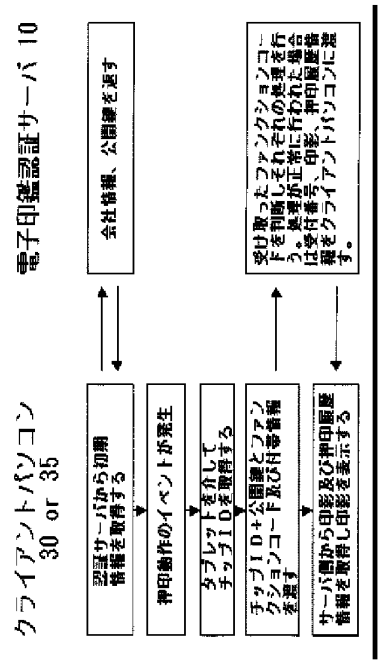
【図10】


クライアントパソコン
30 or 35
電子印鑑認証サーバ 10
電子印鑑認証サーバから
初期情報を取得する
会社番号、公開鍵を渡す
押印動作のイベント発生
電子印鑑のチップIDを
タブレットを通じて取得する
チップID+公開鍵とファンクションコード及び付帯情報を渡す
受け取ったチップID+公開鍵とファンクションコードを元にログイン処理を行う。処理が正常に行われた場合は受付番号、印影、押印履歴情報をクライアントパソコン側に渡す。
印影及び押印履歴情報を
取得し印影を表示する

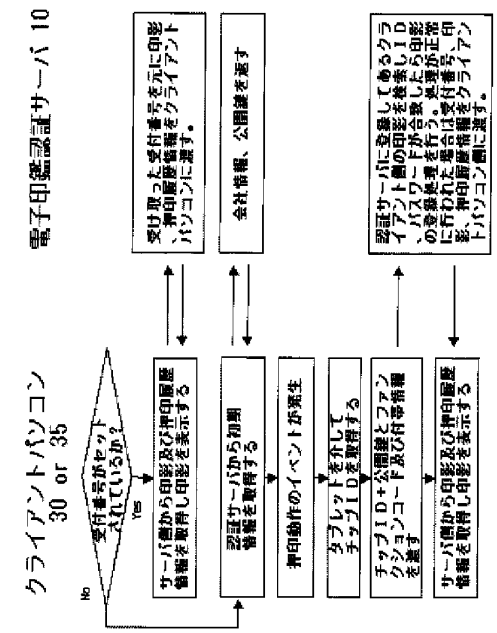
【図11】



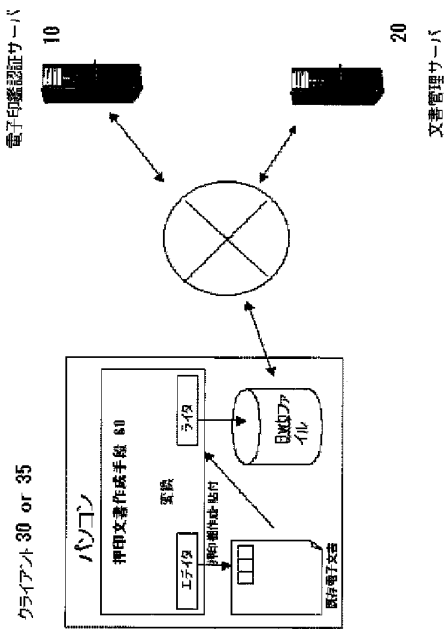
【図12】



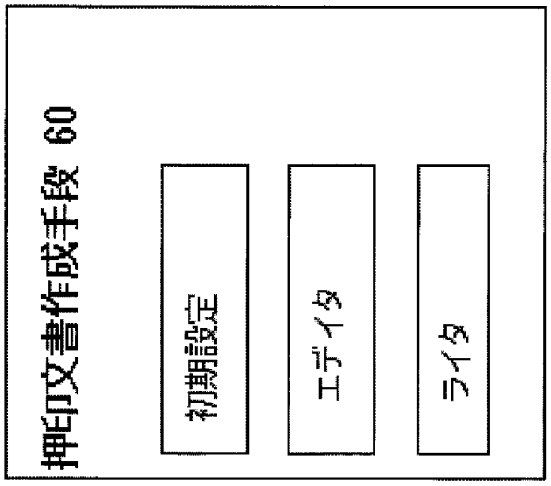
【図13】



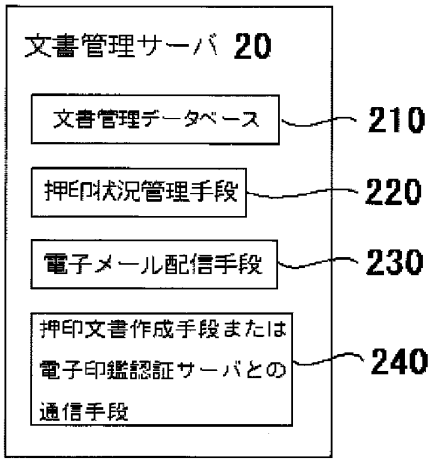
【図14】



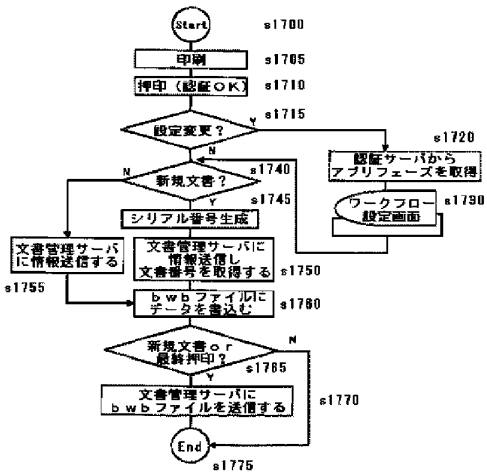
【図15】



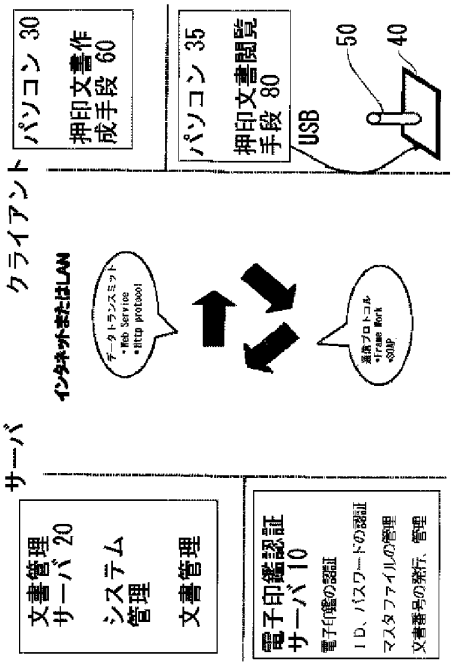
【図16】



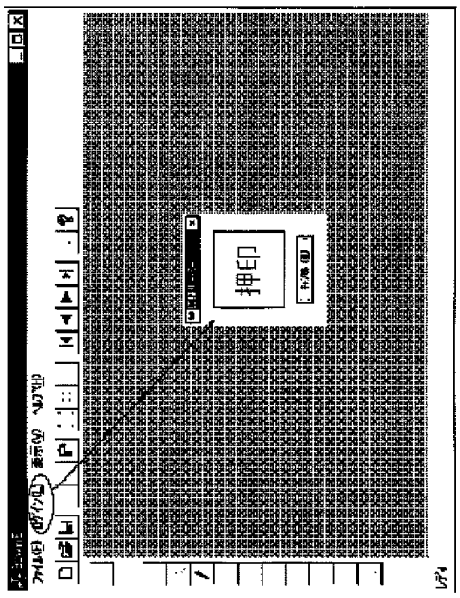
【図17】



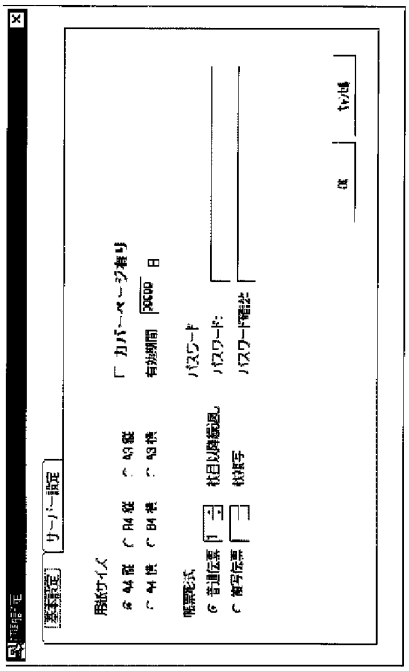
【図18】



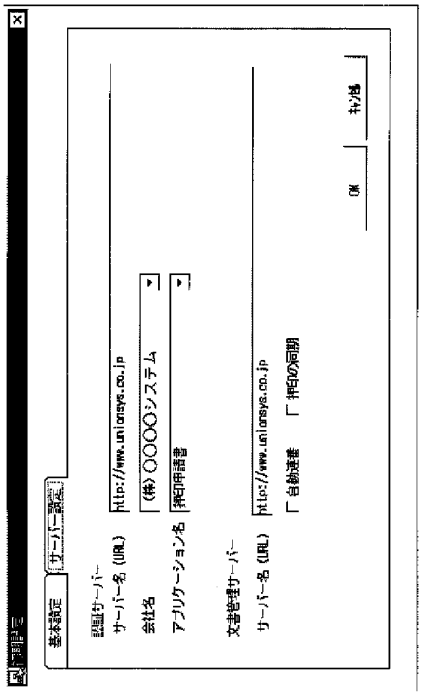
【図19】



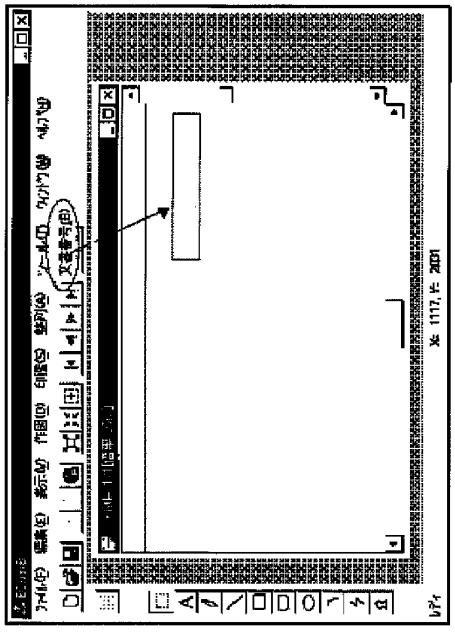
【図20】



【図21】



【図22】



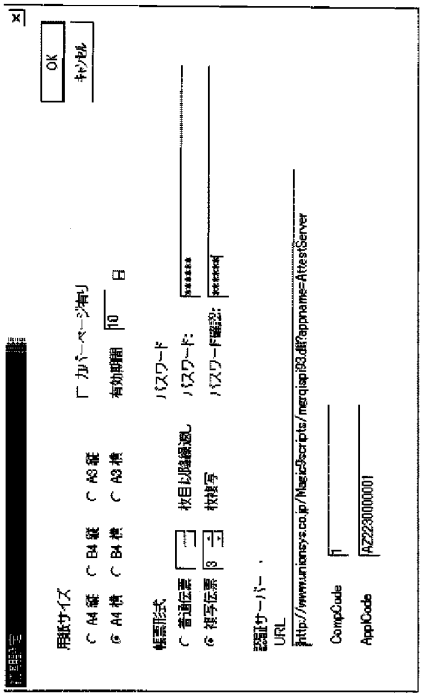
【図23】

【図24】

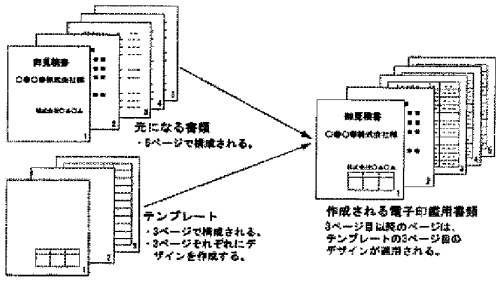
【図25】

【図26】

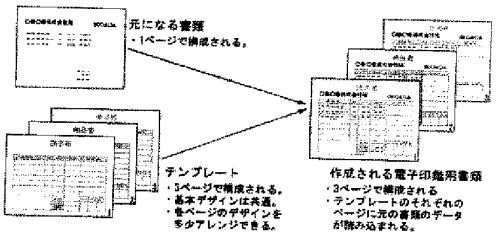
【図27】



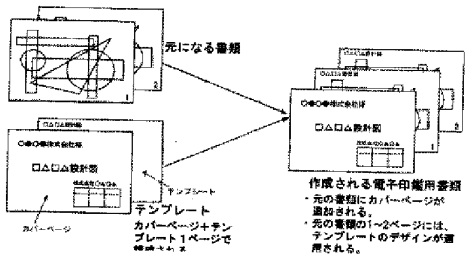
【図28】



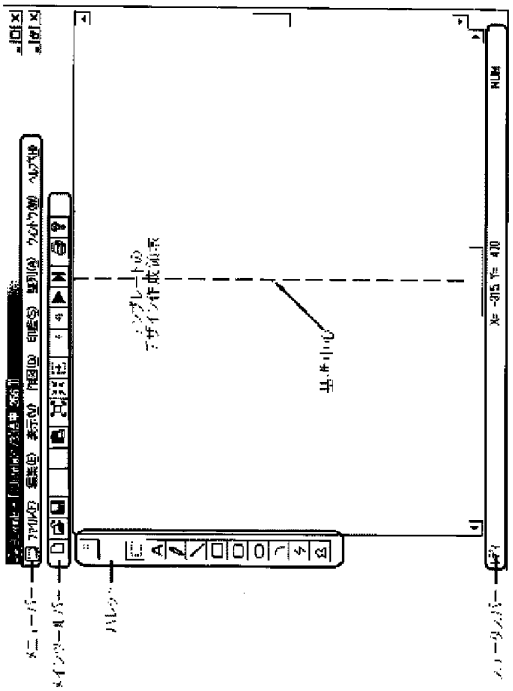
【図29】



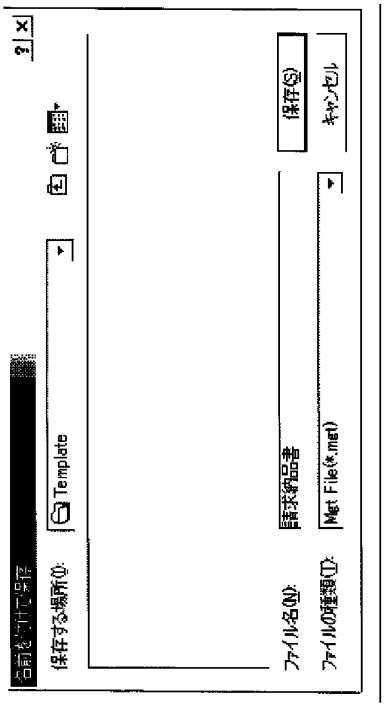
【図30】



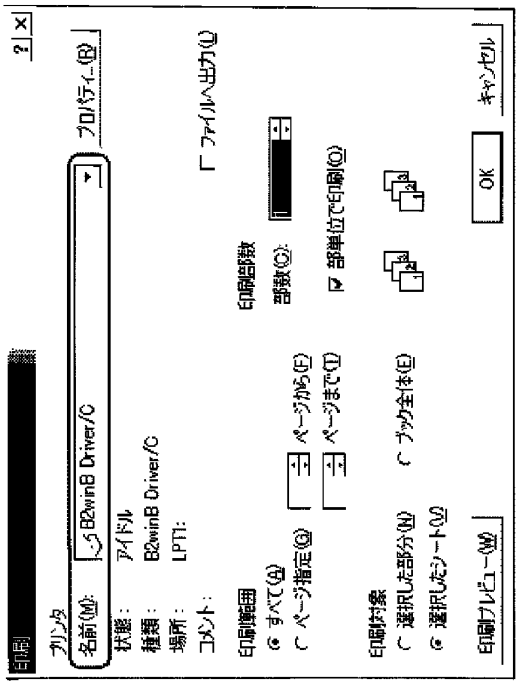
【図31】



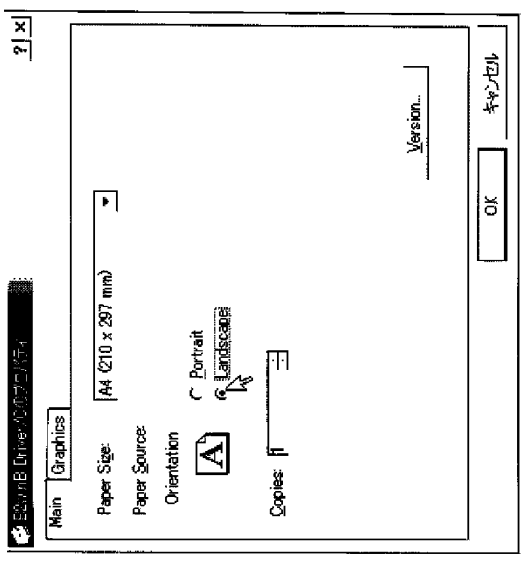
【図32】



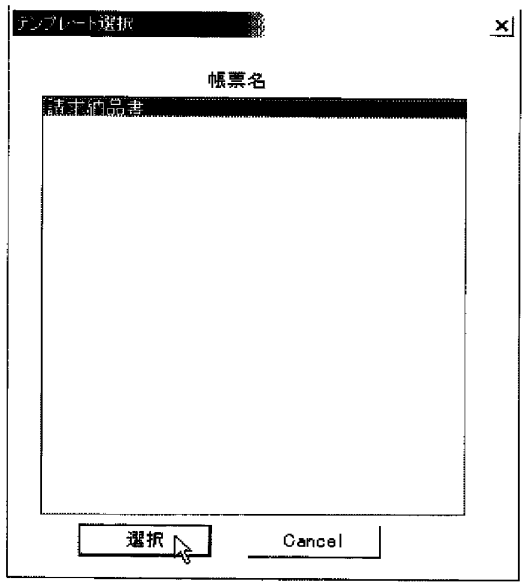
【図33】



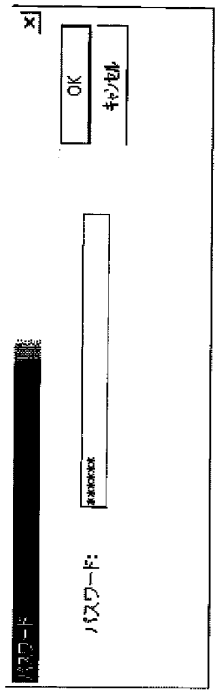
【図34】



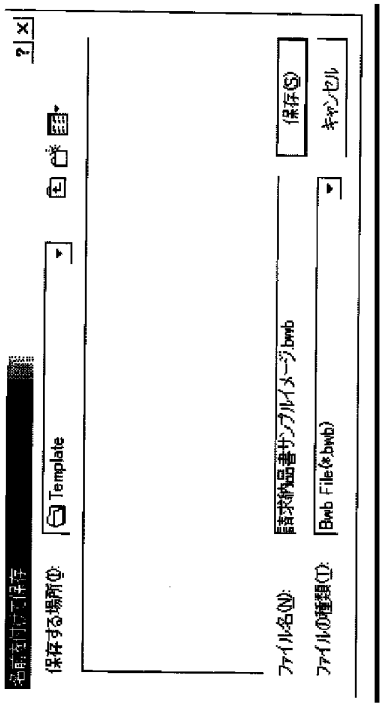
【図35】



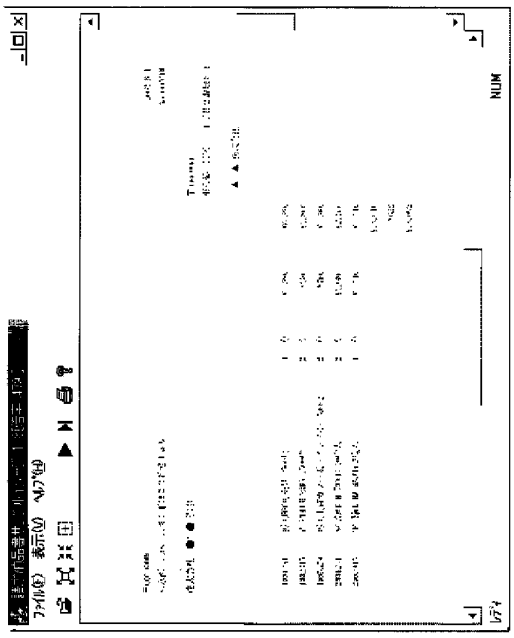
【図36】



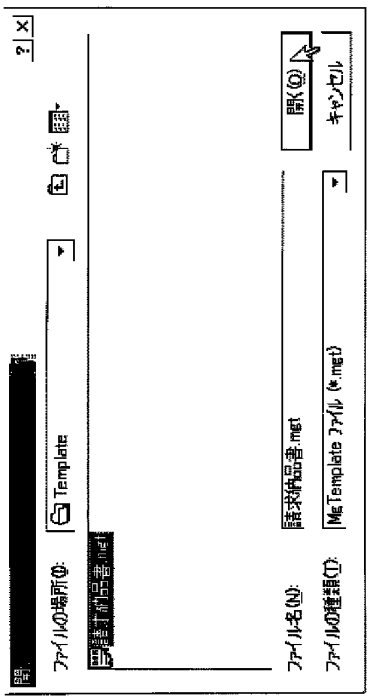
【図37】



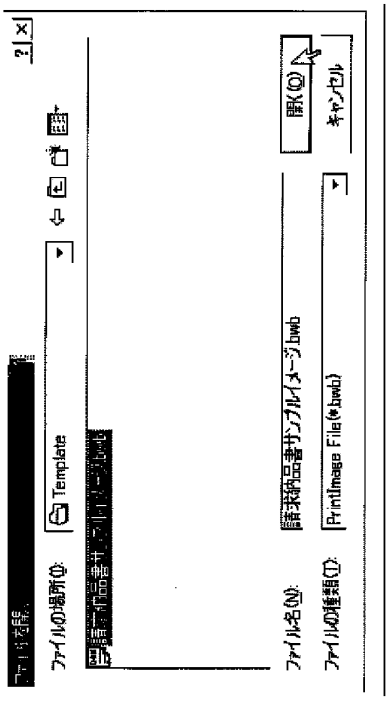
【図38】



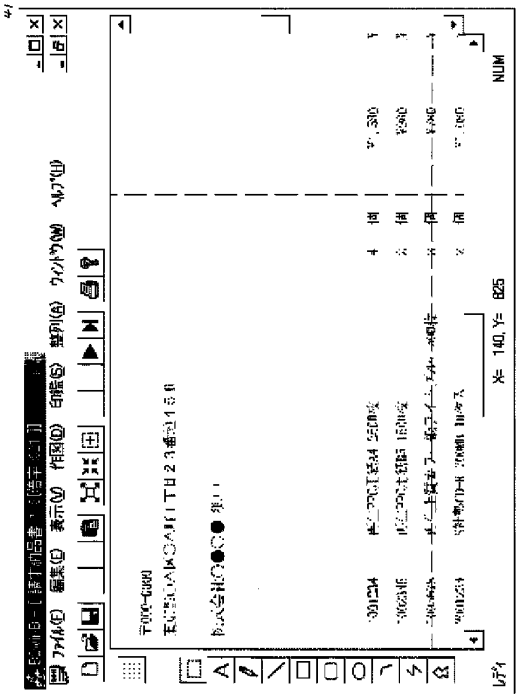
【図39】



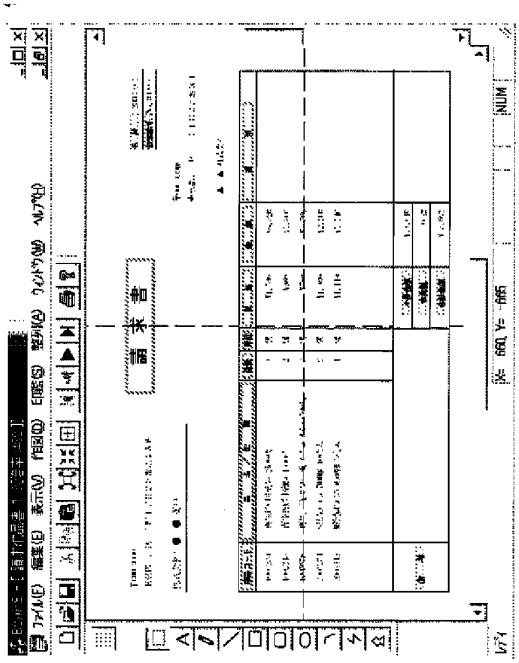
【図40】



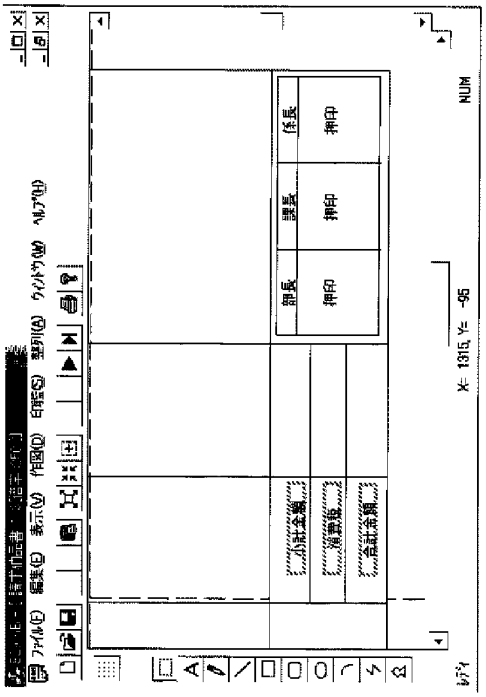
【図41】



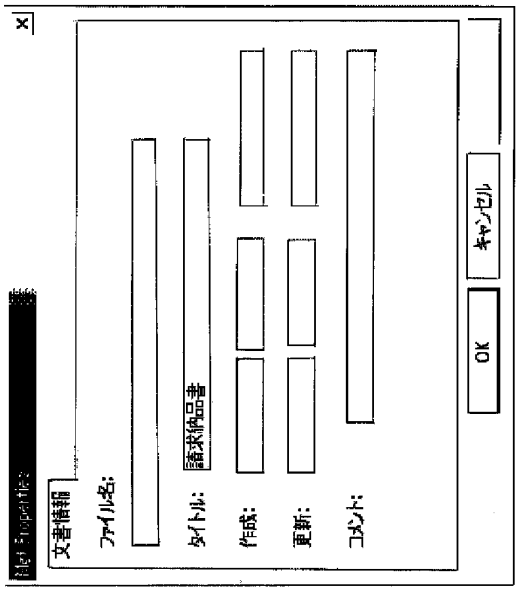
【図42】



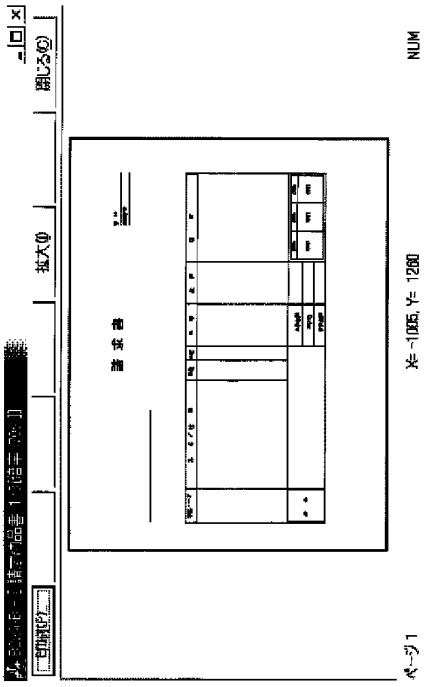
【図43】



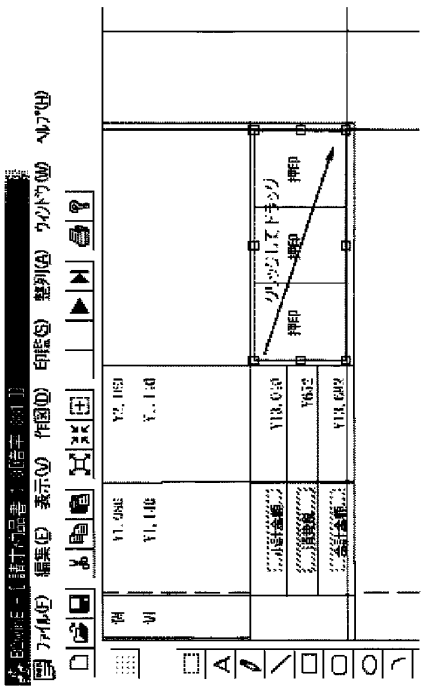
【図44】



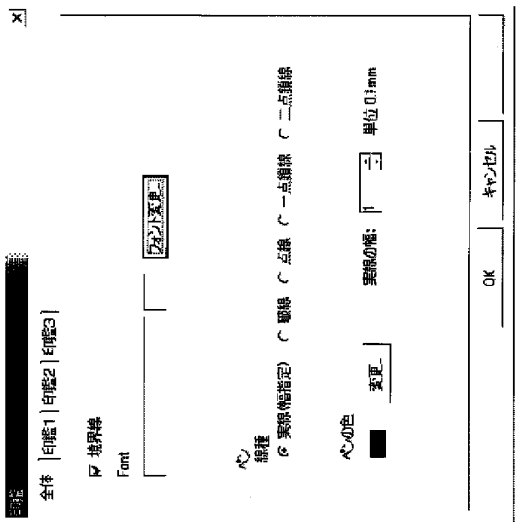
【図45】



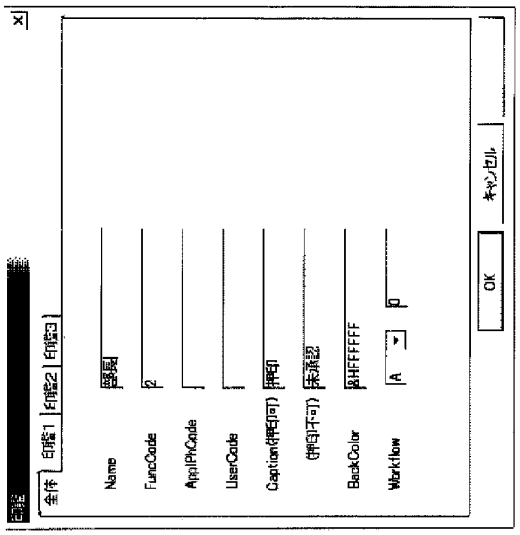
【図46】



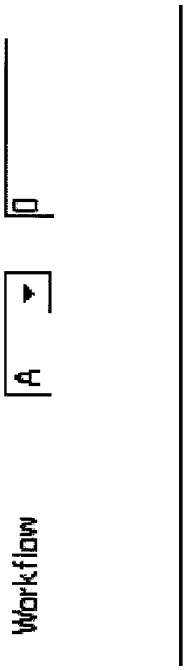
【図47】



【図48】



【図49】



【図50】

山田	佐藤	田中	鈴木	秋山
押印	押印	押印	押印	押印

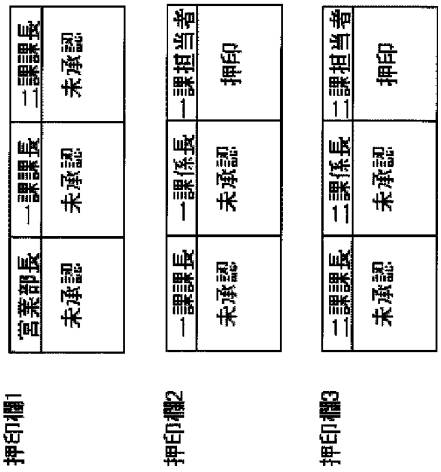
タブ	印鑑1	印鑑2	印鑑3	印鑑4	印鑑5
Name	山田	佐藤	田中	鈴木	秋山
承認ルートグループ	A	A	A	A	A
承認順位	0	0	0	0	0

【図51】

部長	課長	係長
未承認	未承認	押印

タブ	印鑑1	印鑑2	印鑑3
Name	部長	課長	係長
承認ルートグループ	A	A	A
承認順位	2	1	0

【図52】



【図53】

・押印欄1の設定

タブ	印鑑1	印鑑2	印鑑3
Name	営業部長	一課課長	二課課長
承認ルートグループ	A	A	B
承認順位	3	2	2

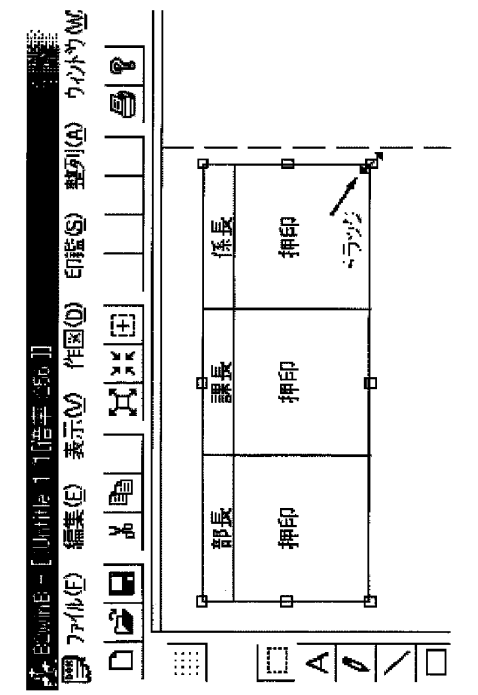
・押印欄2の設定

タブ	印鑑1	印鑑2	印鑑3
Name	一課課長	一課係長	一課担当者
承認ルートグループ	A	A	A
承認順位	2	1	0

・押印欄3の設定

タブ	印鑑1	印鑑2	印鑑3
Name	二課課長	二課係長	二課担当者
承認ルートグループ	B	B	B
承認順位	2	1	0

【図54】



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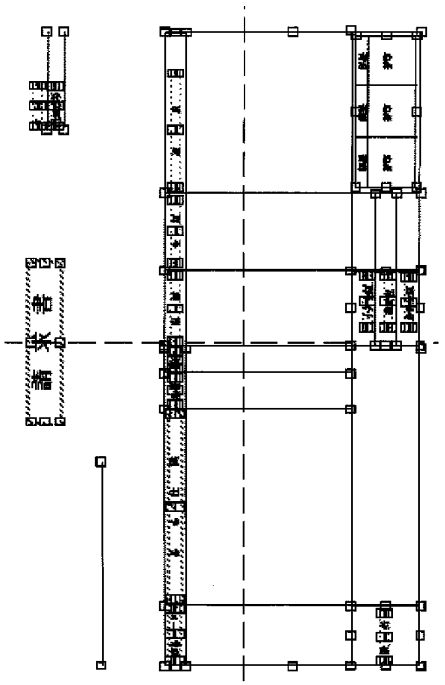

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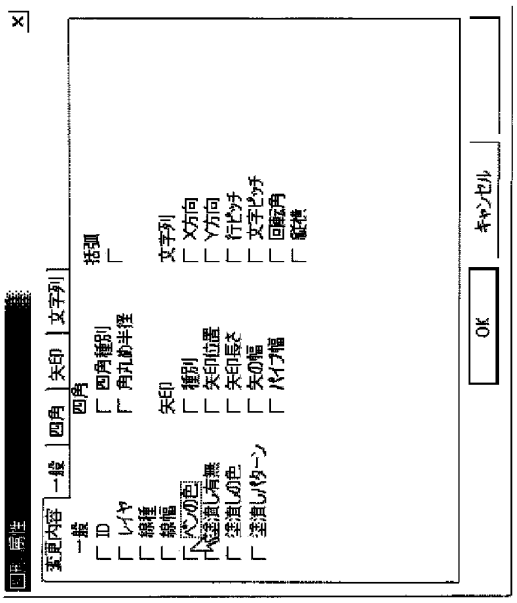

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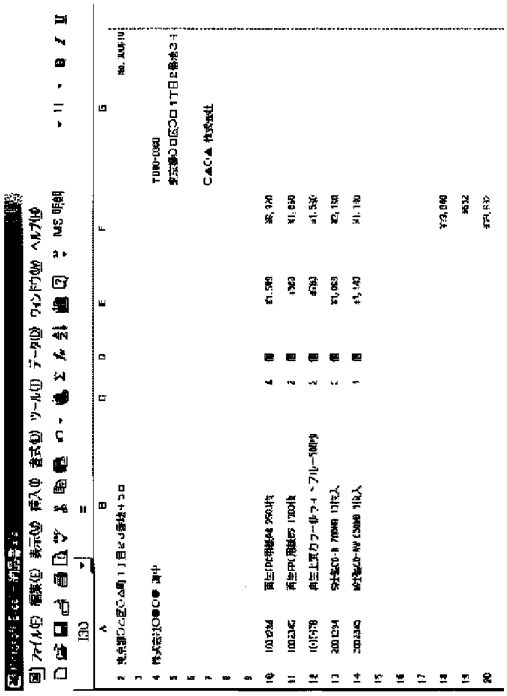

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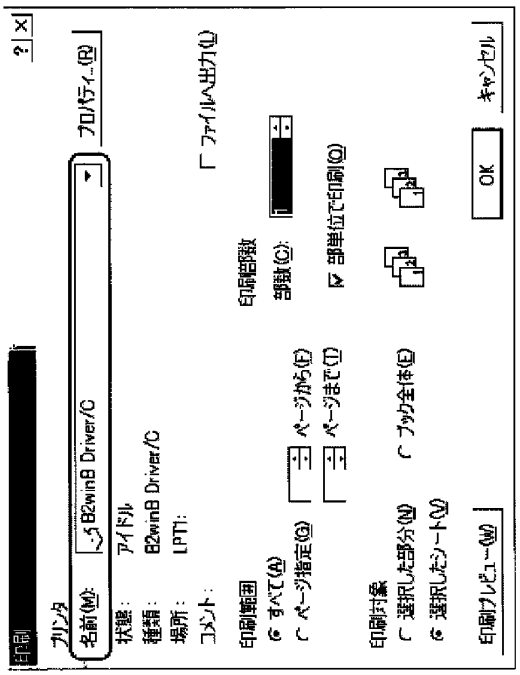

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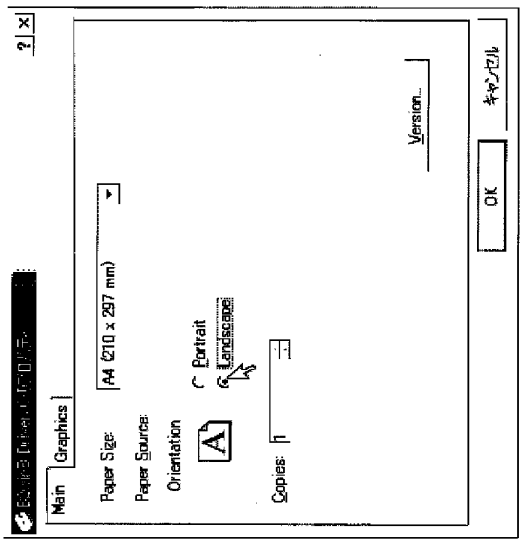

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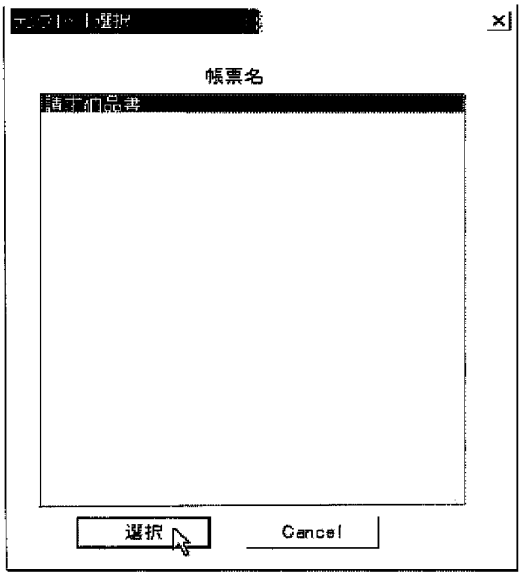

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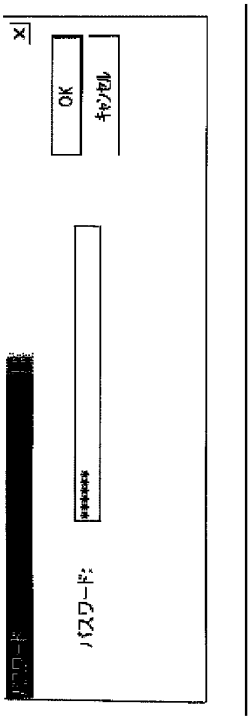

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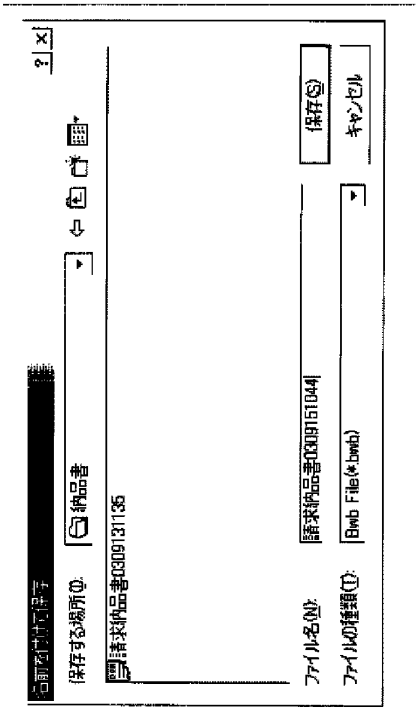

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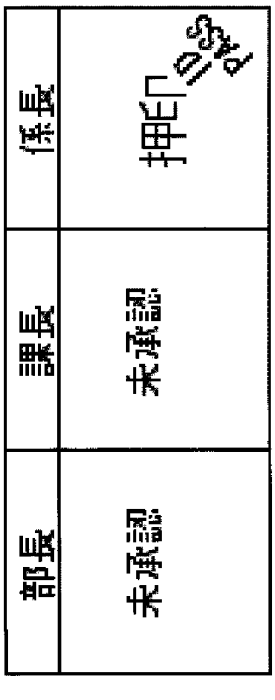

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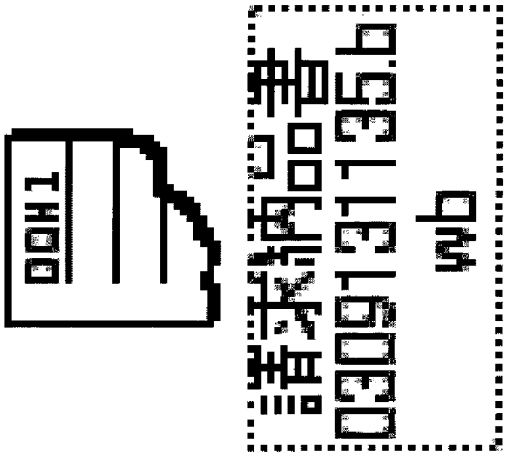

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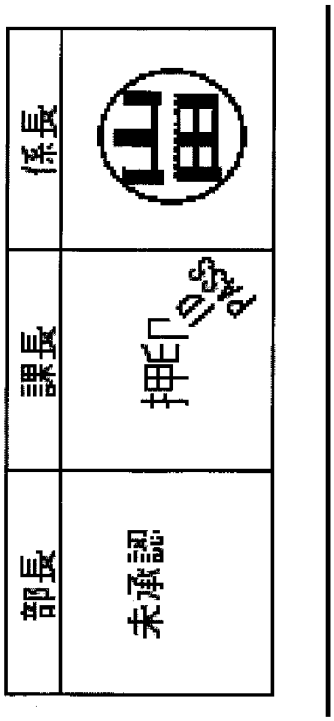

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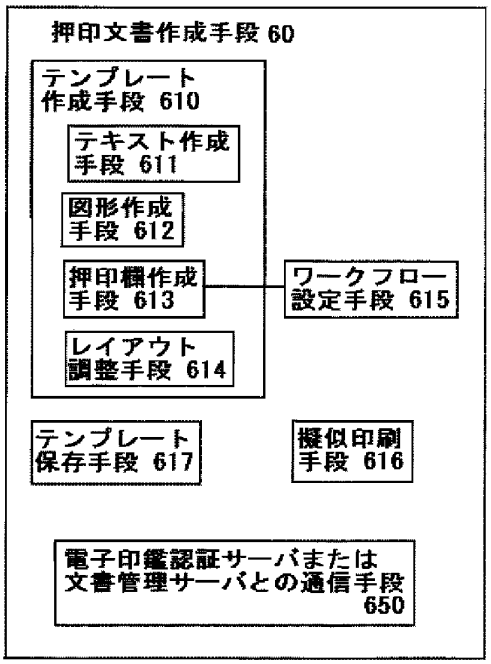

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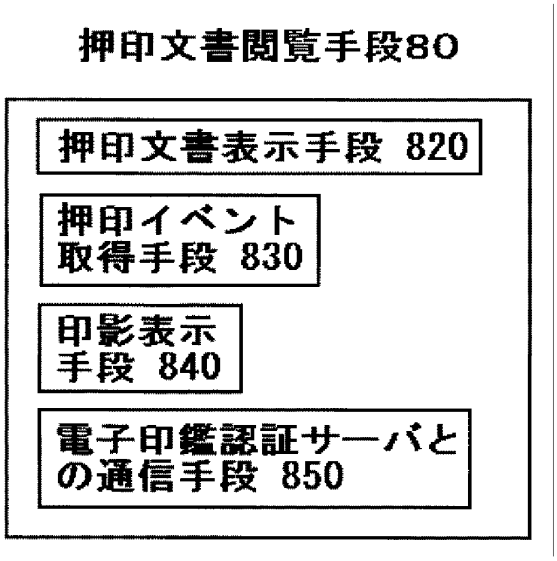

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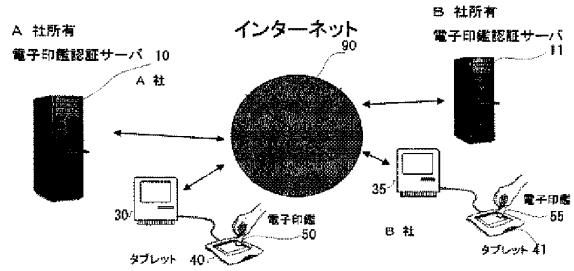

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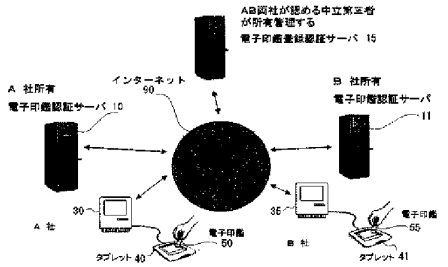

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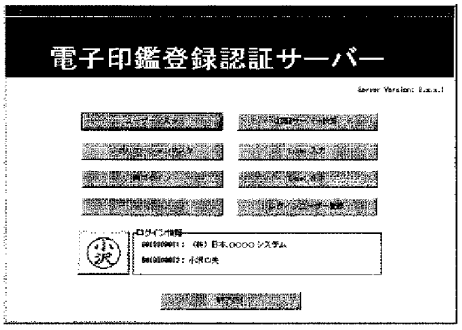

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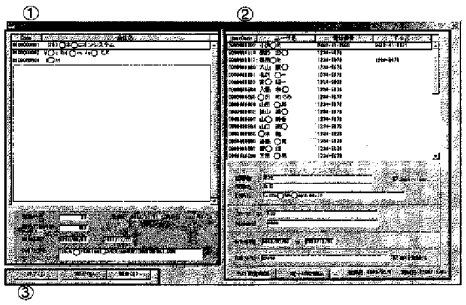

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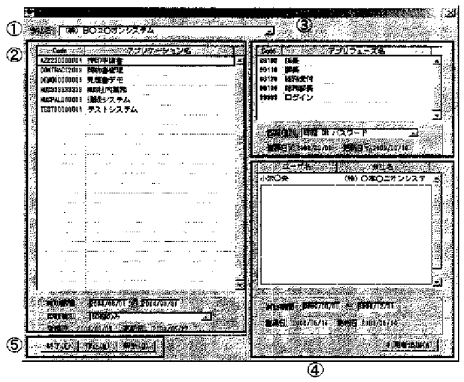
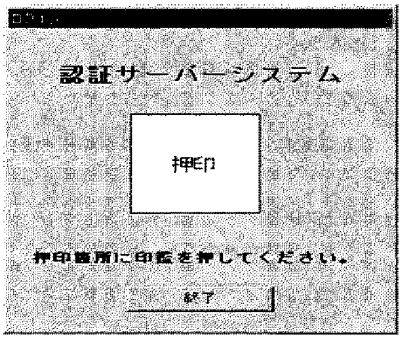
【図73】



【図74】

管理会社宛		
項目	内　容	備考
会社名		
住所		
電話番号		
担当者		
メールアドレス		

【図75】



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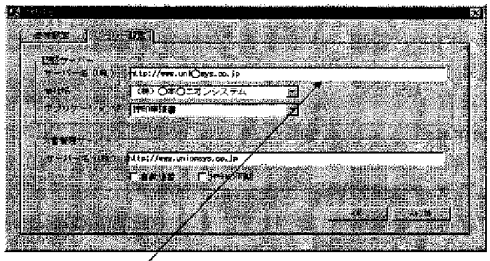

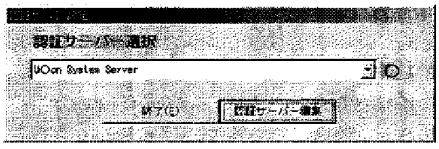

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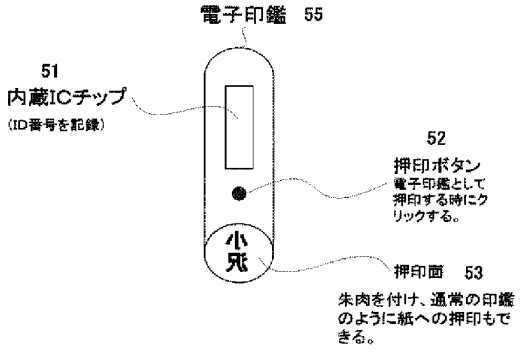

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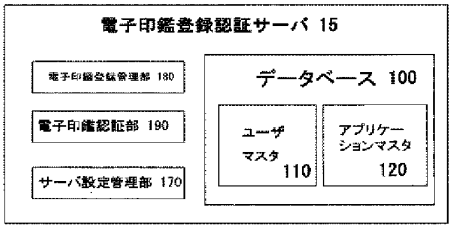
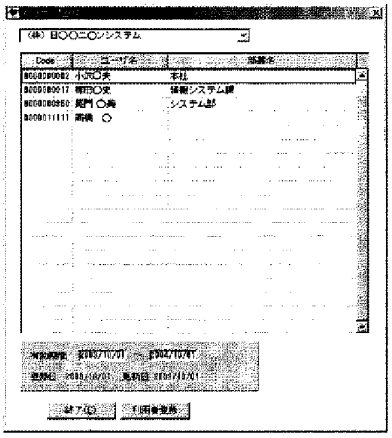


【図79】

電子印鑑登録証明書　発行 xxx法人	
登録者	XXX 株式会社
登録日	2003年1月6日
使用アプリケーション	Xxxxx
押印年月日時刻	2004/2/2/15/00
押印者	＊＊＊
印影	

【図80】



Espacenet

Bibliographic data: JP2007172576 (A) — 2007-07-05

ELECTRONIC DEVICE AND PROGRAM

Inventor(s): MATSUSHITA YOSHITERU; OSAWA HIROSHI; TAKEMOTO MINORU; SUZUKI KIYOSHI ± (MATSUSHITA YOSHITERU, ; OSAWA HIROSHI, ; TAKEMOTO MINORU, ; SUZUKI KIYOSHI)

Applicant(s): SHARP KK ± (SHARP CORP)

Classification: **- international:** ***G06F3/048; G06K17/00; G06Q10/00; G06Q20/00; G06Q20/30; G06Q20/32; G06Q20/36; G06Q50/00; G07F7/08***

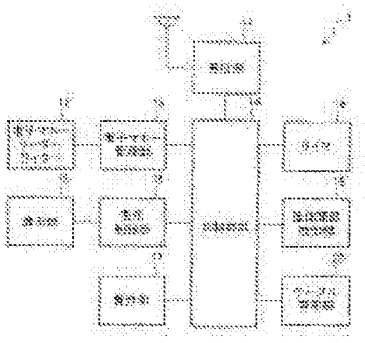
- cooperative:

Application number: JP20060226909 20060823

Priority number (s): JP20050336595 20051122 ; JP20060226909 20060823

Abstract of JP2007172576 (A)

PROBLEM TO BE SOLVED: To allow a user to know the balance of electronic money visually, without it being known by others concerning an electronic device equipped with an electronic money function. ;SOLUTION: The electronic device (exemplified as a mobile terminal device 1)comprises a display part 15 for displaying an image, a display control part 16 for controlling the display part 15, and a main control part 14 for controlling the whole mobile terminal device 1. The main control part 14 controls the display control part 16 so as to display the present balance shown by the electronic money information acquired from an electronic money management part 13 as associated graphic images in the display part 15, referring to the table managed by



a table management part 20.
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APPLE INC. / Page 406 of 3598

(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2007-172576
(P2007-172576A)
(43)公開日　平成19年7月5日(2007.7.5)

(51)Int.Cl.		F I			テーマコード（参考）
G06Q 20/00	(2006.01)	G06F	17/60	432E	3E044
G06F 3/048	(2006.01)	G06F	17/60	432A	5B058
G07F 7/08	(2006.01)	G06F	3/048	652A	5E501
G06K 17/00	(2006.01)	G07F	7/08	Z	
G06Q 10/00	(2006.01)	G06K	17/00	R	

審査請求 未請求　請求項の数 24　ＯＬ　（全 21 頁）　最終頁に続く

(21)出願番号　特願2006-226909 (P2006-226909)
(22)出願日　平成18年8月23日 (2006.8.23)
(31)優先権主張番号　特願2005-336595 (P2005-336595)
(32)優先日　平成17年11月22日 (2005.11.22)
(33)優先権主張国　日本国 (JP)

（特許庁注：以下のものは登録商標）
１．Ｂｌｕｅｔｏｏｔｈ

(71)出願人　000005049
シャープ株式会社
大阪府大阪市阿倍野区長池町２２番２２号
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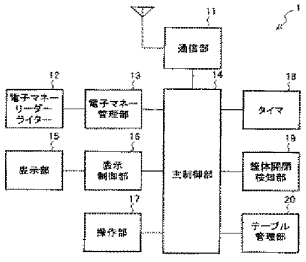
最終頁に続く

(54)【発明の名称】電子機器及びプログラム

(57)【要約】
【課題】電子マネー機能を備えた電子機器において、電子マネーの残高金額を他人に知られることなく容易にユーザに視認させることを可能にする。
【解決手段】電子機器（携帯端末装置１で例示）に、画像を表示するための表示部１５と、表示部１５を制御する表示制御部１６と、携帯端末装置１の全体を制御する主制御部１４とを備える。主制御部１４は、電子マネー管理部１３から得られた電子マネー情報が示す現在の残高金額を、テーブル管理部２０に管理されたテーブルを参照して、対応付けた図形画像として表示部１５に表示するよう、表示制御部１６を制御する。
【選択図】図１



【特許請求の範囲】
【請求項1】
電子マネー機能を搭載した電子機器において、電子マネー情報が示す現在の残高金額を、対応付けた図形の画像で表示するように出力する図形表示手段を備えたことを特徴とする電子機器。
【請求項2】
前記図形表示手段は、当該電子機器に具備された画像表示装置、又は当該電子機器に接続された画像表示装置に対し、前記図形の画像を表示するように出力する手段であることを特徴とする請求項１に記載の電子機器。
【請求項3】
前記画像表示装置は、背景画像を表示する手段を有し、前記図形表示手段は、前記現在の残高金額に対応する図形の画像を、前記画像表示装置における背景画像として表示するよう出力する手段を有することを特徴とする請求項２に記載の電子機器。
【請求項4】
残高金額と図形の画像とを対応付けて格納するテーブルを備え、前記図形表示手段は、前記テーブルを参照することで、前記現在の残高金額を、対応する図形の画像で表示するように出力することを特徴とする請求項１乃至３のいずれか１項に記載の電子機器。
【請求項5】
前記テーブルをユーザ操作に基づき編集するテーブル編集手段を備えたことを特徴とする請求項４に記載の電子機器。
【請求項6】
ユーザ操作に応じて前記参照するテーブルを切り換える操作対応の切換手段を備えたことを特徴とする請求項４又は５に記載の電子機器。
【請求項7】
当該電子機器は可動部をもつ携帯端末装置であり、該可動部の可動状態に応じて、前記参照するテーブルを切り換える可動部対応の切換手段を備えたことを特徴とする請求項４乃至６のいずれか１項に記載の電子機器。
【請求項8】
傾きセンサと、該傾きセンサで検出された当該電子機器の傾き情報に応じて、前記参照するテーブルを切り換える傾き対応の切換手段とを備えたことを特徴とする請求項４乃至７のいずれか１項に記載の電子機器。
【請求項9】
位置情報に応じて前記テーブルを変更する位置対応の変更手段を備えたことを特徴とする請求項４乃至８のいずれか１項に記載の電子機器。
【請求項10】
日時情報に応じて前記テーブルを変更する日時対応の変更手段を備えたことを特徴とする請求項４乃至９のいずれか１項に記載の電子機器。
【請求項11】
前記電子マネー機能をロックするロック手段と、前記ロック手段でのロックが実行された場合、前記図形表示手段で表示される図形の画像の位置にロックが実行されていることを示す図形の画像を表示するよう出力するロック表示手段とを備えたことを特徴とする請求項１乃至１０のいずれか１項に記載の電子機器。
【請求項12】
前記図形表示手段は、前記現在の残高金額に変更が生じたときに一定時間のみ図形の画像の表示出力を実行することを特徴とする請求項１乃至１１のいずれか１項に記載の電子機器。
【請求項13】
前記図形表示手段は、前記現在の残高金額に変更が生じた後、所定の操作をユーザが実行したときに、図形の画像の表示出力を実行することを特徴とする請求項１乃至１２のい

ずれか１項に記載の電子機器。
【請求項14】
前記図形表示手段は、前記現在の残高金額に変更が生じた後、一定時間内に前記所定の操作をユーザが実行したときに限り、図形の画像の表示出力を実行することを特徴とする請求項１３に記載の電子機器。
【請求項15】
前記図形表示手段は、前記図形の画像の表示出力を一定時間だけ実行することを特徴とする請求項１３又は１４に記載の電子機器。
【請求項16】
当該電子機器は可動部をもつ携帯端末装置であり、前記所定の操作は前記可動部を可動させる操作であることを特徴とする請求項１３乃至１５のいずれか１項に記載の電子機器。
【請求項17】
当該電子機器はクラムシェル型の携帯端末装置であり、前記所定の操作はクラムシェルの開閉操作であることを特徴とする請求項１６に記載の電子機器。
【請求項18】
当該電子機器は、複数の電子マネー情報を保持し、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報に対する残高金額の合計を、対応した図形の画像で表示するように出力する手段を有することを特徴とする請求項１乃至１７のいずれか１項に記載の電子機器。
【請求項19】
当該電子機器は、複数の電子マネー情報を保持し、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報が示す個々の現在の残高金額を、それぞれに対応した図形の画像で表示するように出力する手段を有することを特徴とする請求項１乃至１８のいずれか１項に記載の電子機器。
【請求項20】
前記図形表示手段は、前記現在の残高金額として、使用直後の電子マネー情報が示す現在の残高金額のみを、対応付けた図形の画像で表示するように切り換えて出力する手段を有することを特徴とする請求項１８又は１９に記載の電子機器。
【請求項21】
当該電子機器は、複数の電子マネー情報を保持し、前記テーブルは前記電子マネー情報毎に備え、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報が示す個々の現在の残高金額を、個々の電子マネー情報に対応する前記テーブルを参照することで、対応した図形の画像で表示するように出力する手段を有することを特徴とする請求項４乃至１０のいずれか１項に記載の電子機器。
【請求項22】
前記図形は絵文字であることを特徴とする請求項１乃至２１のいずれか１項に記載の電子機器。
【請求項23】
前記図形は、１又は複数個の図形で表され、残高金額に応じて前記図形の個数及び／又は色を変化させたものであることを特徴とする請求項１乃至２２のいずれか１項に記載の電子機器。
【請求項24】
請求項１乃至２３のいずれか１項に記載の電子機器に組み込み、各手段として、前記電子機器の演算処理装置を機能させるためのプログラム。
【発明の詳細な説明】
【技術分野】
【0001】
本発明は、電子機器及びプログラムに関し、より詳細には、電子マネー機能を備えた電子機器、及びその電子機器に組み込むためのプログラムに関する。
【背景技術】

【0002】
現在、電子マネー機能が搭載された携帯端末装置が普及している。それら携帯端末装置で残高を確認する方法としては、メニューから電子マネー残高確認アプリケーションを立ち上げて液晶画面に残高金額を表示させる方法がある。
【0003】
また、特許文献１には、電子マネーカードの残高を読み取ってユーザに知らせることの可能な電子マネーカードの残高表示方法及び装置が開示されている。特許文献１に記載の電子マネーカードの残高表示装置は、装置本体と、装置本体に設けられ電子マネーカードを挿入するカード挿入部と、電子マネーカードの残高を各種媒体で表示する残高表示手段と、装置本体に加えられる振動を検出する振動感知手段と、振動感知手段により振動を感知すると電子マネーカードの残高を検出し当該検出残高に応じて残高表示手段を作動させる制御手段とを備え、装置本体に電子マネーカードをセットし、装置本体に振動を加えると、この振動を振動感知手段が検出し、この検出信号に基づいて電子マネーカードの残高表示装置が起動して残高表示手段が電子マネーカードの残高に対応する態様で動作することにより残高表示を行なう。
【特許文献1】特開平１１－２５９６１１号公報
【発明の開示】
【発明が解決しようとする課題】
【0004】
しかしながら、上述のごとき携帯端末装置をはじめとする電子マネー機能が搭載された従来の電子機器は、電子マネーの残高金額を確認する際に手間がかかる。一方、電子機器に電子マネー残高金額自体を画面表示すると、周囲の人に残高金額を知られる可能性があり、プライバシー上問題が生ずるだけでなく、犯罪も誘発しかねない。
【0005】
このように、電子マネー機能を備えた電子機器では、ユーザは自分の電子機器に電子マネーがどれぐらい残っているのかを容易に知りたい反面、電子マネーの残高金額はプライバシーに関わる情報であるため周囲の人には知られたくないという要求がある。
【0006】
このような電子機器として、特許文献１に記載の装置を適用したとしても、残高が５０００～１００００円のときはＬＥＤが赤色で発光するという金額と表示方法の対応付けを覚えておかないといけない。
【0007】
本発明は、上述のごとき実情に鑑みてなされたものであり、電子マネーの残高金額を他人に知られることなく容易に視認させることが可能な電子機器、及びその電子機器に組み込むためのプログラムを提供することをその目的とする。
【課題を解決するための手段】
【0008】
上述の課題を解決するために、本発明の第１の技術手段は、電子マネー機能を搭載した電子機器において、電子マネー情報が示す現在の残高金額を、対応付けた図形の画像で表示するように出力する図形表示手段を備えたことを特徴としたものである。
【0009】
第２の技術手段は、第１の技術手段において、前記図形表示手段は、当該電子機器に具備された画像表示装置、又は当該電子機器に接続された画像表示装置に対し、前記図形の画像を表示するように出力する手段であることを特徴としたものである。
【0010】
第３の技術手段は、第２の技術手段において、前記画像表示装置は、背景画像を表示する手段を有し、前記図形表示手段は、前記現在の残高金額に対応する図形の画像を、前記画像表示装置における背景画像として表示するよう出力する手段を有することを特徴としたものである。
【0011】

第４の技術手段は、第１乃至第３のいずれかの技術手段において、残高金額と図形の画像とを対応付けて格納するテーブルを備え、前記図形表示手段は、前記テーブルを参照することで、前記現在の残高金額を、対応する図形の画像で表示するように出力することを特徴としたものである。

【0012】

第５の技術手段は、第４の技術手段において、前記テーブルをユーザ操作に基づき編集するテーブル編集手段を備えたことを特徴としたものである。

【0013】

第６の技術手段は、第４又は第５の技術手段において、ユーザ操作に応じて前記参照するテーブルを切り換える操作対応の切換手段を備えたことを特徴としたものである。

【0014】

第７の技術手段は、第４乃至第６のいずれかの技術手段において、当該電子機器は可動部をもつ携帯端末装置であり、該可動部の可動状態に応じて、前記参照するテーブルを切り換える可動部対応の切換手段を備えたことを特徴としたものである。

【0015】

第８の技術手段は、第４乃至第７のいずれかの技術手段において、傾きセンサと、該傾きセンサで検出された当該電子機器の傾き情報に応じて、前記参照するテーブルを切り換える傾き対応の切換手段とを備えたことを特徴としたものである。

【0016】

第９の技術手段は、第４乃至第８のいずれかの技術手段において、位置情報に応じて前記テーブルを変更する位置対応の変更手段を備えたことを特徴としたものである。

【0017】

第１０の技術手段は、第４乃至第９のいずれかの技術手段において、日時情報に応じて前記テーブルを変更する日時対応の変更手段を備えたことを特徴としたものである。

【0018】

第１１の技術手段は、第１乃至第１０のいずれかの技術手段において、前記電子マネー機能をロックするロック手段と、前記ロック手段でのロックが実行された場合、前記図形表示手段で表示される図形の画像の位置にロックが実行されていることを示す図形の画像を表示するよう出力するロック表示手段とを備えたことを特徴としたものである。

【0019】

第１２の技術手段は、第１乃至第１１のいずれかの技術手段において、前記図形表示手段は、前記現在の残高金額に変更が生じたときに一定時間のみ図形の画像の表示出力を実行することを特徴としたものである。

【0020】

第１３の技術手段は、第１乃至第１２のいずれかの技術手段において、前記図形表示手段は、前記現在の残高金額に変更が生じた後、所定の操作をユーザが実行したときに、図形の画像の表示出力を実行することを特徴としたものである。

【0021】

第１４の技術手段は、第１３の技術手段において、前記図形表示手段は、前記現在の残高金額に変更が生じた後、一定時間内に前記所定の操作をユーザが実行したときに限り、図形の画像の表示出力を実行することを特徴としたものである。

【0022】

第１５の技術手段は、第１３又は第１４の技術手段において、前記図形表示手段は、前記図形の画像の表示出力を一定時間だけ実行することを特徴としたものである。

【0023】

第１６の技術手段は、第１３乃至第１５のいずれかの技術手段において、当該電子機器は可動部をもつ携帯端末装置であり、前記所定の操作は前記可動部を可動させる操作であることを特徴としたものである。

【0024】

第１７の技術手段は、第１６の技術手段において、当該電子機器はクラムシェル型の携

帯端末装置であり、前記所定の操作はクラムシェルの開閉操作であることを特徴としたものである。

【0025】

第１８の技術手段は、第１乃至第１７のいずれかの技術手段において、当該電子機器は、複数の電子マネー情報を保持し、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報に対する残高金額の合計を、対応した図形の画像で表示するように出力する手段を有することを特徴としたものである。

【0026】

第１９の技術手段は、第１乃至第１８のいずれかの技術手段において、当該電子機器は、複数の電子マネー情報を保持し、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報が示す個々の現在の残高金額を、それぞれに対応した図形の画像で表示するように出力する手段を有することを特徴としたものである。

【0027】

第２０の技術手段は、第１８又は第１９の技術手段において、前記図形表示手段は、前記現在の残高金額として、使用直後の電子マネー情報が示す現在の残高金額のみを、対応付けた図形の画像で表示するように切り換えて出力する手段を有することを特徴としたものである。

【0028】

第２１の技術手段は、第４乃至第１０のいずれかの技術手段において、当該電子機器は、複数の電子マネー情報を保持し、前記テーブルは前記電子マネー情報毎に備え、前記図形表示手段は、前記現在の残高金額として、前記複数の電子マネー情報が示す個々の現在の残高金額を、個々の電子マネー情報に対応する前記テーブルを参照することで、対応した図形の画像で表示するように出力する手段を有することを特徴としたものである。

【0029】

第２２の技術手段は、第１乃至第２１のいずれかの技術手段において、前記図形は絵文字であることを特徴としたものである。

【0030】

第２３の技術手段は、第１乃至第２２のいずれかの技術手段において、前記図形は、１又は複数個の図形で表され、残高金額に応じて前記図形の個数及び／又は色を変化させたものであることを特徴としたものである。

【0031】

第２４の技術手段は、第１乃至第２３のいずれかの技術手段における電子機器に組み込み、各手段として、前記電子機器の演算処理装置を機能させるためのプログラムである。

【発明の効果】

【0032】

本発明によれば、電子マネーの残高金額を他人に知られることなく容易に視認させることが可能となる。

【発明を実施するための最良の形態】

【0033】

本発明に係る電子機器は、電子マネー機能を搭載し、主たる特徴として次の図形表示手段を備えるものとする。この図形表示手段とは、電子マネー情報が示す現在の残高金額を、対応付けた図形の画像で表示するように出力する手段である。電子マネー残高表示に際し、電子マネーの現在の残高金額を対応付けた図形画像で表示することで、電子マネーの残高金額を他人に知られることなく、また対応付けをユーザが記憶しなくても金額に意味付けられた図形画像を表示することで使用者にとって分かり易く視認させることが可能となる。

【0034】

以下、本発明に係る電子機器として、携帯電話やＰＤＡ（情報携帯端末）等の携帯端末装置を例示して説明するが、本発明は、電子マネー機能が具備されていれば如何なる電子機器であっても適用可能である。また、上述の図形表示手段は、電子機器に具備された画

像表示装置、或いは電子機器に接続された画像表示装置に対し、図形画像を表示するように出力する手段とする。このように、本発明に係る電子機器は、画像表示装置が内蔵又は外部接続（一時的な接続も含む）され、その画像表示装置に現在の残高金額を対応付けた図形画像を表示する。

【0035】

（実施形態１）

図１は、本発明の一実施形態に係る携帯端末装置の一構成例を示すブロック図、図２は、図１の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応付けられたテーブルの一例を示す図、図３は、図１の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図、図４は、図１の携帯端末装置に図２のテーブルを用いて電子マネー残高金額を表示した例を示す図である。

【0036】

図１、図２、及び図４において、１は電子機器の一例としての携帯端末装置、２はテーブル、１１は通信部、１２は電子マネーリーダーライターを有する電子マネーリーダーライター部、１３は電子マネー管理部、１４は主制御部、１５は表示部、１６は表示制御部、１７は操作部、１８はタイマ、１９は筐体開閉検知部、２０はテーブル管理部、３０は表示画面、３１はバッテリ残量表示画像、３２は電波強度表示画像、３３は時刻情報表示画像、３４は電子マネー残高金額表示画像である。

【0037】

図１で例示する携帯端末装置１は、携帯端末装置全体の制御を行う主制御部１４と、電話や電子メールやインターネットアクセス等における通信を行う通信部１１と、ＰＯＳ端末のような外部端末と電子マネー（電子マネー情報）の受け渡しを行う電子マネーリーダーライター部１２と、電子マネーの残高等を管理する電子マネー管理部１３と、操作時の各種状態や残高情報などを表示する表示部１５と、主制御部１４からの信号に基づき表示部１５を制御する表示制御部１６と、時間を計時するタイマ１８と、筐体が開状態にあるのか閉状態にあるのかを検知する筐体開閉検知部１９と、残高金額と表示する図形画像とを対応付けたテーブルを管理するテーブル管理部２０と、テーブル情報などを入力することができる操作部１７とから構成されている。

【0038】

ここで、電子マネー情報とは、貨幣価値を電子データとして表したもので、電子マネー機能を備える携帯端末装置間で直接、或いは電子マネー管理サーバ等を介して送受される。携帯端末装置間での通信は通信部１１やＢｌｕｅｔｏｏｔｈや赤外線通信などを適用した他の通信部などで行われ、電子マネー管理サーバとの通信は通信部１１を介して行われる。

【0039】

電子マネー管理部１３では、現在の残高金額が記憶されているだけでなく、例えば、取引日時、取引金額、送金／受取の種別、取引の形態、相手端末固有のＩＤなどの電子マネー情報の取引履歴も記憶してもよい。電子マネーリーダーライター部１２及び電子マネー管理部１３は、メモリ回路や高周波回路などを内蔵する非接触型ＩＣチップなどで構成される。

【0040】

表示部１５は、電子マネー情報の取引履歴画面などを表示するＬＣＤなどから構成され、表示ドライバ等でなる表示制御部１６により駆動制御される。ここで、表示部１５及び表示制御部１６は上述した画像表示装置の一例であり、この例では、現在の残高金額を図形画像は、主制御部１４から伝送された図形画像データを表す信号及びその表示命令に基づき、表示制御部１６を介して表示部１５にて表示されることとなる。

【0041】

主制御部１４には、携帯端末装置１を制御するための制御プログラム等が格納されたＲＯＭ等の不揮発性メモリが内蔵又は接続されている。そして、その制御プログラムは主制御部１４に内蔵されたＣＰＵ等の演算処理装置によって、作業領域であるＲＡＭ等の揮発

性メモリに読み出されて実行される。この揮発性メモリも、主制御部１４に内蔵又は接続されてなる。

【0042】

主制御部１４に組み込まれる制御プログラムは、上述の図形表示手段や後述のテーブル編集手段や変更手段や切換手段などの各手段として、携帯端末装置等の電子機器の演算処理装置を機能させるためのプログラムであり、このプログラムを実行することで主制御部１４は表示制御部１６に対して表示部１５に図形画像を表示させる。すなわち、このプログラムは、各手段として、電子機器の演算処理装置を機能させるためのプログラムである。なお、このような制御プログラムは後述の実施形態においても組み込まれる。そして、本発明はこのような電子機器に組み込むためのプログラムとしての形態も採用できる。また、このようなプログラムはネットワークを介して或いは記録媒体に格納されて流通できる。

【0043】

このように、上述の図形表示手段は、通常、主制御部１４内にプログラムとして実行可能に組み込まれ、表示対象の図形画像を読み出し、その図形画像を表示する信号を表示制御部１６に対して出力する。実際、主制御部１４では、図形画像を格納する書き換え可能ＲＯＭ等から表示対象の図形画像が読み出され、図形画像データを表す信号として表示制御部１６へ出力する。

【0044】

操作部１７は、各種設定を行うための複数の数字キーや操作キーなどから構成される。ユーザ操作は、操作部１７を用い、表示部１５に操作内容を表示するなどして実行される。操作部１７は、その他、個人間取引の場合などに携帯端末装置間で送受する電子マネー情報の金額が入力される。

【0045】

上述のごとき構成により、携帯端末装置１においては、主制御部１４が、電子マネー管理部１３から得られた電子マネー情報が示す現在の残高金額を、テーブル管理部２０に管理されたテーブルを参照して、対応付けた図形画像として表示部１５に表示するよう、表示制御部１６を制御する。そして、表示制御部１６は、電子マネー管理部１３から得られた電子マネー情報が示す現在の残高金額を、テーブルにて対応付けられた図形画像として表示部１５に表示するよう制御する。

【0046】

このテーブルとして、テーブル管理部２０には、図２で例示したような残高金額と図形画像が対応付けられたテーブル２が保持されている。例示したテーブル２は、会社から家に帰るときの交通機関と運賃が対応付けられたテーブルであり、会社から家までタクシーで帰るには２５００円、電車で帰るには３６０円かかることを示している。

【0047】

テーブル２では、現在の残高がタクシーで帰ることができるだけ残っているときにはタクシーの絵文字（又は絵文字のアイコン）を、電車で帰ることができるだけ残っているときには電車の絵文字（又は絵文字のアイコン）を、電車で買えるだけの残高がないときには人の絵文字（又は絵文字のアイコン）を、表示部１５に表示するように対応付けられている。このような、残高金額と図形画像が対応付けられたテーブルを持つことで、残高金額に対応した図形画像を容易に表示させることができる。テーブル２において、残高金額とその残高に意味合いを持たせる図形（例えば、３６０円を電車の絵文字（ピクトグラム））の画像とを関連付けておくことで、使用者は直感的に理解できるようにすることができる。なお、テーブル編集手段として後述するが、ここでの電車賃やタクシー代の情報も操作部１７によりユーザ設定可能としておくとよい。

【0048】

次に、携帯端末装置１の動作の一例を、図３及び図４を参照して説明する。まず、電子マネー管理部１３で残高に変化があったかを検知する（ステップＳ１）。具体的には電子マネーリーダーライター部１２が店にあるレジ端末と支払い処理を行ったときや、通信部

１１からインターネットに接続して電子マネーを受け取ったりしたときのことである。

【0049】

残高に変化があったとき（ステップＳ１でＹＥＳ）、電子マネー管理部１３はタイマ１８に計時を開始させる信号を出力する（ステップＳ２）。そして、残高が変化してから一定時間経過したか否かを判定する（ステップＳ３）。

【0050】

これは、レジなどで支払いを終えたあとに携帯端末装置１を開いて残高を確認するときには表示してほしいが、携帯端末装置１を開くたびに表示されるのは煩わしいので、支払いが終わってから一定時間以内に携帯端末装置１を開いたときには残高情報を表示するが、それ以上経過してからでは表示させないようにするためである。また、開いたときだけではなく、支払いが終わってから一定時間以内に携帯端末装置１を閉じたときに、後述するサブ画面に残高情報を図形画像表示するようにしてもよい。

【0051】

この例では、携帯端末装置１がクラムシェル型であることを想定して、携帯端末装置１におけるヒンジ部の開閉操作を挙げて説明しているが、上述の図形表示手段は、現在の残高金額に変更が生じた後、一定時間内に所定の操作をユーザが実行したときに限り、図形の表示出力を実行するようにしてもよい。所定の操作としては、携帯端末装置１がスライド型である場合にはスライド部、フリップ型である場合にはカバーと本体とのヒンジ部、リボルバー型又はスイーベル型である場合には回転部といった、携帯端末装置１の可動部を可動させる操作が適用できる。また、ここでは時間だけで表示を制御しているが、開閉回数もカウントして一定時間以内でも２回目以降は表示させないとしてもよい。

【0052】

ステップＳ３の判定により、残高が変化してから一定時間経過していない場合、すなわち一定時間以内に（ステップＳ３でＮＯ）、筐体開閉検知部１９より携帯端末装置１が開いたことが検知されたら（ステップＳ４でＹＥＳ）、電子マネー管理部１３は電子マネーの残高を確認し、主制御部１４を介して、テーブル管理部２０に残高情報を渡す（ステップＳ５）。

【0053】

次に、テーブル管理部２０では、残高情報をテーブルに照合し（ステップＳ６）、それに対応する図形情報を主制御部１４に渡し、主制御部１４が表示制御部１６を介して表示部１５でその図形画像を表示する（ステップＳ７）。ステップＳ７では、例えば、図４で例示する携帯端末装置１の表示画面３０（メイン画面が好ましい）上に、バッテリ残量表示画像３１、電波強度表示画像３２、及び時刻情報表示画像３３などと同様に、電子マネー残高金額表示画像３４をピクト表示するとよい。

【0054】

ステップＳ７で表示を開始したとき、タイマ１８をリセットし計時を開始させる（ステップＳ８）。図形画像を表示してから一定時間後になったら（ステップＳ９でＹＥＳ）、図形画像の表示を停止させる（ステップＳ１０）。このように、上述の図形表示手段は、図形画像の表示出力を開始してから一定時間だけ実行するようにすることが好ましい。なお、ステップＳ９での一定時間とステップＳ３での一定時間は同じとしてもよいが、ステップＳ９の方が短く設定しておくことが好ましい。

【0055】

また、図形画像表示に関する他の形態として、上述の図形表示手段は、現在の残高金額に変更が生じた後、所定の操作をユーザが実行したときには、いつでも図形画像の表示出力を実行するよう構成してもよい。また、別の形態として、図形画像表示は、現在の残高金額に変更が生じた時点で、一定時間のみ実行するよう構成してもよい。

【0056】

図５は、図４の電子マネー残高金額の表示位置に電子マネーがロックされていることを示した例を示す図で、図中、３５は電子マネーロック表示画像である。携帯端末装置１は、落としたとき電子マネーを使用されないように、電子マネー機能にロックをかけるロッ

ク手段を有するものもある。このロック手段は、通常、主制御部１４内にプログラムとして実行可能に組み込まれ、電子マネー管理部１３へのアクセスを禁じるなどしてロックをかける。そのような形態にあっては、図５に示す電子マネーロック表示画像３５のように、電子マネー機能にロックがかけられていることを、電子マネー残高金額の表示位置に、図形画像表示でユーザに視認させる。

【0057】

図５のように、図４の電子マネー残高表示画像３４があった位置に電子マネー機能がロックされていることを示す電子マネーロック表示画像３５を示すことにより、使用者に電子マネー機能がロックされていることを容易に認識させることができる。図５では表示画像を差し替える例を示したが、ロックされているときは、図４の電子マネー残高表示画像３４の色を変えたりして使用者に認識させてもよい。

【0058】

図６は、図１の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応付けられたテーブルの他の例を示す図、図７は、図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した例を示す図、図８乃至図１０は、それぞれ、図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した他の例を示す図である。図６乃至図１０において、３６はテーブル、３７，３７ａ，３７ｂは電子マネー残高金額表示画像、４０はサブ画面、４１は外側操作キー、４１ａは右キー、４１ｂは左キーである。

【0059】

図２及び図４の例では、表示させる図形画像として、残金を表すために暗喩的な絵文字を用いたが、直喩的な図形の画像を用いてもよい。図６で例示するテーブル３６では、そのような図形としてバー表示の図形を用いている。テーブル３６では、１又は複数本で表されるバーの図形を用いており、その図形は、残高金額に応じてバーの本数及び／又は色を変化させたものを用いている。

【0060】

例えば、０～４００円の場合はバー無し、４００～７９９円の場合は赤色の１本、・・・、１６００～１９９９円の場合は赤色の４本、２０００～３９９９円の場合は緑色の１本、・・・、８０００～９９９９円の場合は緑色の４本、１００００～１９９９９円の場合は青色の１本、・・・、４００００～４９９９９円の場合は青色の４本、５００００円以上の場合は青色の５本、といった具合に対応付けする。

【0061】

テーブル管理部２０で図６に示すようなテーブル３６を持たせることで、図７の電子マネー残高金額表示画像３７が、残高が１００００円以上あるときには１本が１００００円を表す青いバーを用いて表示され、２０００円以上１００００円未満のときには１本が２０００円を表す緑色のバーを用いて表示され、２０００円未満のときには１本が４００円を表す赤いバーを用いて表示される。このように、残高に応じてバー１本に割り当てる金額を変更することで、少ない本数で比較的詳細な金額を示すことができる。この例では異なる色のバーで表示したが、バーの形を変えて表示してもよい。また、図７の電子マネー残高金額表示画像３７のように、バー表示した残高情報を他のアイコンといっしょにピクト表示させてもよい。また、図８に示すように、クラムシェル型での携帯端末装置１において、バー表示する残高情報をサブ画面（例えばサブ液晶画面）４０に表示してもよい。

【0062】

また、ここではバー表示で例示しているが、図形が１又は複数個の同一図形（例えば、「●」や「◆」）で表され、残高金額に応じてその同一図形の個数及び／又は色を変化させたものを用いるようにしてもよい。また、同一図形でなくても、例えば、頭、胴体、右腕、左腕、右足、左足といった人型の部分的な図形などであってもよい。このような１又は複数個の図形で表す場合も、残高金額に応じてその図形の個数及び／又は色を変化させるとよい。

【0063】

また、電子マネーにはＥｄｙ（登録商標）やＳｕｉｃａ（登録商標）など、複数の種類がある。携帯端末装置１に複数の電子マネーが利用可能に搭載されているときには、それらの残高の合計金額をテーブルで照合し、対応する図形画像を表示させてもよいし、図９の電子マネー残高金額表示画像３７ａ，３７ｂに示すように電子マネーごとに別々に表示してもよい。図９では、電子マネー毎の残高を区別するために異なる形のバーを用いて表示しているが、色で区別してもよく、１又は複数の他の同一図形の個数及び／又は色で区別してもよい。

【0064】

また、電子マネー毎の残高を区別するために異なる形の同一図形を用いているが、このような図形表示を行うために、電子マネー毎にテーブルを用意しておいてもよい。そして、主制御部１４が、現在の残高金額として、複数の電子マネー情報が示す個々の現在の残高金額を対応図形画像で表示する制御を行うに際し、テーブル管理部２０に格納された個々の電子マネー情報に対応するテーブル（例えばＥｄｙ（登録商標）用テーブルやＳｕｉｃａ（登録商標）用テーブル）を参照して対応図形画像を読み出すようにしておけばよい。例えば、Ｅｄｙ（登録商標）用テーブルでは缶ジュース１本買える１２０円をバー１本で表し、Ｓｕｉｃａ（登録商標）用テーブルでは初乗り料金の１８０円をバー１本で表すといった具合に、電子マネーの種別ごとに異なるテーブルを持たせておくことで、用途に応じた図形表示が可能となる。

【0065】

また、図９の表示画面３０の表示例で示すように、上述の図形表示手段は、現在の残高金額に対応する図形の画像を、画像表示装置における背景画像として表示出力する手段を有することが好ましい。背景画像としては、例えば携帯電話の待ち受け画面やＰＤＡの壁紙などが該当する。背景画像として表示することで、画面が小さい携帯端末装置であっても、背景であるので大きく表示可能となる。このため、表示部１５及び表示制御部１６で例示した上述の画像表示装置は、背景画像を表示する背景画像表示手段を有するものとする。この背景画像表示手段としては、既存の技術が適用でき、例えば、マークアップ言語で背景の属性を加えておきそれを出力して表示部１５に表示させる方法や、ＯＳＤ（Ｏｎ　Ｓｃｒｅｅｎ　Ｄｉｓｐｌａｙ）表示で背景画像を表示部１５に表示させる方法など、様々な方法を採用できる。

【0066】

また、携帯端末装置１は、テーブルをユーザ操作に基づき編集するテーブル編集手段を備えることが好ましい。このテーブル編集手段は、操作部１７でのユーザ操作を受け付け、そのユーザ操作に基づき、テーブルの中身の閾値の金額や対応図形画像や対応付けを編集する手段である。ここでは、複数テーブルを備える場合には、編集対象のテーブルを操作部１７で選択させてから、金額や対応図形や対応付けの編集をさせるとよい。このテーブル編集手段は、通常、操作部１７及び主制御部１４内に実行可能に組み込まれＧＵＩ（グラフィカルユーザインターフェース）プログラムなどで構成できる。

【0067】

ここで、主制御部１４はＧＵＩプログラムを実行し、表示制御部１６を介して表示部１５に編集画面を表示させ、ユーザがその編集画面を見ながら操作部１７で対応付けの変更を行う操作を受け付け、受け付けた操作に基づきテーブル管理部２０のテーブルを書き換えるか追加記録する。なお、編集前にはデフォルトテーブルで図形画像の表示がなされ、編集用に複数の図形アイテムや対応付けテーブルなどが用意されていることが好ましい。これにより、テーブル２で例示したようなテーブル情報は、操作部１７により容易に編集することができる。

【0068】

上述したテーブル切換処理の他の形態について説明する。

電子マネー情報毎にテーブルを備えた形態を含み、複数のテーブルを備えた形態にあっては、携帯端末装置１に、ユーザ操作に応じて参照するテーブルを切り換える操作対応の切換手段を備えるとよい。

【0069】
例えば、図１０で示したように携帯電話を閉じた状態で操作を行えるようなボタン（外側操作キー）４１が備えられている場合を想定する。ここで、外側操作キー４１には右キー４１ａ及び左キー４１ｂが含まれる。このような携帯端末装置１を採用した場合には、右キー４１ａ及び／又は左キー４１ｂがユーザによって押下されることで、テーブル間で参照対象のテーブルを切り換えるとよい。テーブルの切り換えにより、残高の図形表示と数字表示を切り換えることができる。例えば、１目盛りでビール１杯で表示するテーブルから、１目盛りで飴玉１個を表示するテーブルへと切り換えることもできる。
【0070】
また、電子マネー情報毎にテーブルを備えた形態にあっては、ボタンと電子マネー情報とを（例えば右キー４１ａをＥｄｙ（登録商標）用テーブルに、左キー４１ｂをＳｕｉｃａ（登録商標）用テーブルに）対応させておき、キー４１ａ／４１ｂを押すとそれに対応する電子マネーの残高金額の図形を表示するようにしてもよい。図１０の例では、右キー４１ａの押下によりサブ画面４０に電子マネー残高金額表示画像３７ａを示し（図１０左側）、左キー４１ｂの押下によりサブ画面４０に電子マネー残高金額表示画像３７ｂを示す（図１０右側）ように、参照するテーブルを切り換えることで表示する電子マネー残高を切り換えている。このように押されたキーに対応する電子マネーの残金を表示するだけでなく、キー４１ａ／４１ｂをトグル操作することで、電子マネーの残金表示を順次切り換えてもよい。
【0071】
このように、図形表示手段は、現在の残高金額として、複数の電子マネー情報が示す個々の現在の残高金額のうち、ユーザ操作に基づき選択された電子マネー情報が示す現在の残高金額のみを、対応付けた図形の画像で表示するように切り換えて出力するようにしてもよい。
【0072】
また、図形表示手段は、現在の残高金額として、使用直後の電子マネー情報が示す現在の残高金額のみを、対応付けた図形の画像で表示するように切り換えて出力する手段を有することが好ましい。この手段は、図形画像表示を現在の残高金額に変更が生じた時点で一定時間のみ実行するとした例において、表示を特に一定時間のみに限らないようにしたものである。例えば、図９のように電子マネー残高金額表示画像３７ａ，３７ｂの２つの画像を表示していた場合や、それらの合計金額を表示していた場合であっても、電子マネー使用直後には、対応する電子マネー残高金額表示画像のみの表示に切り換えるなどすればよい。
【0073】
この利用シーンとしては、Ｓｕｉｃａ（登録商標）とＥｄｙ（登録商標）の電子マネーを保持する携帯電話において、通常はそれぞれの残高金額を示す図形を待ち受け画面に表示しておき、Ｓｕｉｃａ（登録商標）（ここではモバイルＳｕｉｃａ（登録商標））を改札にかざして通過するような場面が挙げられる。ユーザが改札を通過してモバイルＳｕｉｃａ（登録商標）を利用した後は、テーブル切換により、Ｓｕｉｃａ（登録商標）の残高金額を示す図形のみを表示させるとよい。勿論、一定時間経過後は、再びそれぞれの図形や合計の図形を表示するなどの処理を実行してもよい。
【0074】
また、上述したが携帯端末装置１の本体で図形表示するのではなく、本体に接続（一時的に接続も含む）された画像表示装置（子機とも言える）に図形表示してもよい。すなわち、本体以外に表示機能を備えた子機があり、携帯電話本体で電子決済したら残高情報を子機に出力するようにしてもよい。この利用シーンとしては、上述の改札通過時が挙げられる。ディスプレイが備わった改札装置があり、モバイルＳｕｉｃａ（登録商標）が搭載された携帯電話をその改札装置にかざして通過すると、携帯電話はＦｅｌｉＣａ（登録商標）等の非接触ＩＣカード技術の機能を利用して改札装置に残高金額に対応する図形情報を出力し、図形情報を受け取った改札装置はディスプレイに図形で表示することにより、

ユーザは周囲の人に具体的な残高金額を知られることなく残高金額を確認することができる。

【0075】

また、上述のごとき参照するテーブルの切り換えは、クラムシェル等の可動部をもつ携帯端末装置１である場合、その可動部の可動状態（可動自体も含む）に応じて実行してもよい。利用シーンとしては、例えば、クラムシェルを閉じているときは１目盛りをビール１杯とするテーブルに設定しているが、クラムシェルを開いたときはテーブル切換により着メロ１曲ダウンロードするのにかかる値段を１目盛りとするテーブルに設定することなどが挙げられる。なお、上述したようにクラムシェル以外のスライド部等の可動部をもつ場合にも適用でき、上述した可動部を可動させる所定の操作に基づき、テーブル切換を実行するようにするとよい。このように、携帯端末装置１では、可動部対応の切換手段を備えてもよい。

【0076】

また、参照するテーブルの切り換えは、携帯端末装置１に具備した傾きセンサで検出された携帯端末装置１の傾き情報に応じて実行するようにしてもよい。すなわち、携帯端末装置１では、傾き対応の切換手段を備えてもよい。例えば、電子マネーリーダーライター部１２を下に向けた状態で、ほぼ平行にかざしたときにはＳｕｉｃａ（登録商標）用テーブルに、やや斜めにかざしたときにはＥｄｙ（登録商標）用テーブルに、切り換えを実行するなど、様々な利用シーンが想定できる。

【0077】

（実施形態２）

図１１は、本発明の他の実施形態に係る携帯端末装置の一構成例を示すブロック図で、図中、２１は位置情報取得部、２２は運賃確認部であり、その他、図１で説明したものと同様の構成要素又は一部変更された構成要素には同じ符号を付して、その説明を一部省略している。また、図１２は、図１１の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図である。なお、ここで説明する実施形態も上述した実施形態と同様の応用が可能である。

【0078】

図１１で例示する携帯端末装置１は、携帯端末装置全体の制御を行う主制御部１４と、電話や電子メールやインターネットアクセス等における通信を行う通信部１１と、ＰＯＳ端末のような外部端末と電子マネーの受け渡しを行う電子マネーリーダーライター部１２と、電子マネーの残高等を管理する電子マネー管理部１３と、操作時の各種状態や残高情報などを表示する表示部１５と、主制御部１４からの信号に基づき表示部１５を制御する表示制御部１６と、現在端末がある位置情報を取得するＧＰＳ等の位置情報取得部２１と、出発地と目的地の情報を入力するとその運賃を確認する運賃確認部２２と、残高金額と表示する図形画像とを対応付けたテーブルを管理するテーブル管理部２０と、テーブル情報や位置情報として出発地の情報を入力することや目的地情報を入力することなどができる操作部１７とから構成されている。

【0079】

図１１で例示する携帯端末装置１は、携帯端末装置１の位置情報及び目的地情報に応じて、テーブルを変更する位置対応の変更手段を備えることを主たる特徴とする。この変更手段は、テーブルにおける対応付けの自動編集や複数テーブル間でのテーブル切り換えも含むものとする。この位置対応の変更手段は、通常、主制御部１４内にプログラムとして実行可能に組み込まれる。ここで、主制御部１４は、そのプログラムを実行することで、テーブル管理部２０からテーブルを読み出し、位置情報取得部２１から取得した位置情報及び目的地情報に応じて、運賃確認部２２で運賃を確認して、その確認結果に基づき、読み出したテーブルを変更してテーブル管理部２０に上書き又は追加記録する。

【0080】

次に、本実施形態における携帯端末装置１の動作の一例を、図１２を参照して説明する。テーブル管理部２０は図２に示すようなテーブルを持ち、本実施形態ではその運賃情報

を随時更新することができる構成となっている。

【0081】

はじめに、操作部１７などにより運賃を計算するときの目的地となるところの位置情報が運賃確認部２２に登録されているものとする。まず、位置情報取得部２１で現在携帯端末装置１のある位置の情報を取得する（ステップＳ１１）。消費電力などのことを考慮し、実際には間欠的に動作させることが考えられる。

【0082】

位置情報取得部２１の出力情報から主制御部１４が端末の移動を検知したら（ステップＳ１２でＹＥＳ）、運賃確認部２２に最新の位置情報を送る。運賃確認部２２では、位置情報と登録された目的地の位置情報に基づいて、現在位置から目的地まで電車で行くときの運賃、タクシーで行くときの運賃を確認する（ステップＳ１３）。確認方法としては、端末内部に運賃計算テーブルを持っていてもいいし、通信部１１からインターネットに接続して運賃情報を取ってきてもよい。次に、運賃確認部２２で確認した運賃情報をテーブル管理部２０に送り、テーブルの運賃情報を確認する。ここで、テーブルでの対応付けを書き換えておくことで、以降の図形画像表示に用いる現在位置等の位置情報に基づいたテーブルが利用できる。以降、電子マネーの残高を確認して図形画像を表示するまでの動作は、実施形態１のステップＳ５～Ｓ７と同様である（ステップＳ１５～Ｓ１７）。

【0083】

一方、位置情報取得部２１の出力情報から主制御部１４が端末の移動を検知しなかったとき（ステップＳ１２でＮＯ）、電子マネー管理部１３は残高に変化があったかを検知する（ステップＳ１８）。以降の動作は実施形態１と同様に、残高確認（ステップＳ１９）、残高の照合（ステップＳ２０）、及び対応図形画像の表示（ステップＳ２１）を実行する。

【0084】

この実施形態では、自分のいる場所などに応じてダイナミックにテーブルを更新することができるため、単なる金額を示すものではなく現在位置から家に帰るための運賃などの意味を持ったものを表示することができる。すなわち、携帯端末装置１の位置情報と目的地情報に応じたテーブル変更により、今の所持残高では目的地まで行くのにどの交通手段を利用できるかという図形で表示する。

【0085】

また、上述の位置対応の変更手段は、単に、携帯端末装置１の位置情報（現在位置情報）と目的地情報に応じた変更に限ったものではなく、位置情報に応じてテーブルを変更する手段であればよい。テーブル変更に寄与する位置情報としては、携帯端末装置１の位置情報及び目的地情報の他に、携帯端末装置１の位置情報（現在位置情報）のみ、目的地の位置情報のみ、他の機器の位置情報などが挙げられる。

【0086】

例えば、友達に会うことを想定すると、通信部１１を利用して友達の所持する携帯端末装置１の位置情報を取得し、その位置情報と予め登録している自分の自宅の位置情報から、今の所持残高で友達に会うためにはどの交通手段を利用できるかというものを図形で示してもいい。また、携帯端末装置１が備えるＧＰＳにより居酒屋にいるということを検知したときは、テーブル切換又はテーブル編集により、バー表示としてジョッキの図形を用いて１目盛りをビール１杯の値段とするテーブルに設定し、駄菓子屋にいるときは飴玉の図形で飴玉１個の値段を１目盛りとするテーブルに設定する。このことにより、所持金でビール何杯飲めるのか、飴玉何個買えるのかということが一目でわかる。例えば、残金が飴玉を１００個分に相当するとしたとき、小さなディスプレイで１００個を表示するのは困難であるため、飴玉マーク×１００というような表示でもかまわない。

【0087】

（実施形態３）

図１３は、本発明の他の実施形態に係る携帯端末装置の一構成例を示すブロック図、図１４は、図１３の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応

付けられたテーブルの一例を示す図、図１５は、図１３の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図である。図１３及び図１４において、２３は日時情報取得部、３８はテーブル、３８ａ，３８ｂ，３８ｃはこのテーブル３８を参照することで表示される電子マネー残高金額表示画像であり、その他、図１で説明したものと同様の構成要素又は一部変更された構成要素には同じ符号を付して、その説明を一部省略している。なお、ここで説明する実施形態も上述した実施形態と同様の応用が可能である。

【0088】

図１３で例示する携帯端末装置１は、携帯端末装置全体の制御を行う主制御部１４と、電話や電子メールやインターネットアクセス等における通信を行う通信部１１と、ＰＯＳ端末のような外部端末と電子マネーの受け渡しを行う電子マネーリーダーライター部１２と、電子マネーの残高等を管理する電子マネー管理部１３と、操作時の各種状態や残高情報などを表示する表示部１５と、主制御部１４からの信号に基づき表示部１５を制御する表示制御部１６と、現在の日時（日付及び／又は時間）を取得する日時情報取得部２３と、残高金額と表示する図形画像とを対応付けたテーブルを管理するテーブル管理部２０と、テーブル情報などを入力することができる操作部１７とから構成されている。

【0089】

図１３で例示する携帯端末装置１は、携帯端末装置１の日時情報に応じて、テーブルを変更する日時対応の変更手段を備えることを主たる特徴とする。この変更手段は、テーブルにおける対応付けの自動編集や複数テーブル間でのテーブル切り換えも含むものとする。この日時対応の変更手段は、通常、主制御部１４内にプログラムとして実行可能に組み込まれる。ここで、主制御部１４は、そのプログラムを実行することで、テーブル管理部２０からテーブルを読み出し、日時情報取得部２３から取得した日時情報に応じて、読み出したテーブルを変更して、テーブル管理部２０に上書き又は追加記録する。

【0090】

次に、本実施形態における携帯端末装置１の動作の一例を、図１４及び図１５を参照して説明する。テーブル管理部２０は図１４に示すようなテーブル３８を持っている。これは、１ヶ月の目標支出額が３００００円で、月末が締め日となっているときの例である。尚、１ヶ月は３０日であるとしている。月初めに３００００円がチャージされるとして、１日あたり１０００円使用できるので、１日が終わった時点では２９０００円以上あれば「順調」を示す図形画像（電子マネー残高金額表示画像３８ａ）を表示する。その日の目標残高に対して使い込み金額が１０００円以下であれば「注意」を示す図形画像（電子マネー残高金額表示画像３８ｂ）を表示し、１０００円以上であれば「警告」を示す図形画像（電子マネー残高金額表示画像３８ｃ）を表示する。このテーブルは管理期間（図１４では３０日）と目標支出額（図１４では３００００円）などを操作部１７から入力することにより自動で生成されテーブル管理部２０に保存されている。

【0091】

このようなテーブル３８をテーブル管理部２０に格納しておき、まず、日時情報取得部２３により現在の日時の情報を取得する（ステップＳ３１）。日時情報取得部２３の出力情報から主制御部１４が日付が変わったことを検知したら（ステップＳ３２でＹＥＳ）、電子マネー管理部１３は電子マネーの残高を確認する（ステップＳ３３）。テーブル管理部２０は、日時情報取得部２３からの日時情報と、電子マネー管理部１３からの電子マネーの残高情報をテーブルに照合して（ステップＳ３４）、対応する図形画像を表示制御部１６に出力し、以降、実施形態１と同様に表示部１５にその対応図形画像を表示し（ステップＳ３５）、ステップＳ３１に戻る。

【0092】

主制御部１４が日付がかわったことを検知しなかったとき（ステップＳ３２でＮＯ）、電子マネー管理部１３は電子マネーの残高に変化があったかを検知する（ステップＳ３３）。以降の動作は実施形態１と同様に、残高確認（ステップＳ３７）、残高の照合（ステップＳ３８）、及び対応図形画像の表示（ステップＳ３９）を実行する。但し、ステップ

Ｓ３８では日付と残高をテーブルと照合する。

【0093】

また、テーブル変更に寄与する日時情報としては、単に時刻情報であってもよい。例えば、携帯端末装置１本体の時刻情報や通信部１１を介して取得した時刻情報などから、朝は出勤時に駅の売店で買う可能性のある缶ジュース１本の値段をバー１本に割り当てて表示し、夕方は居酒屋で飲む可能性のあるビール１杯の値段をバー１本に割り当てて表示するなどの処理が可能となる。

【0094】

この実施形態では、自分の使用可能金額に基づく使用ペースに応じてダイナミックにテーブルを更新することができるため、単なる金額を示すものではなく使いすぎや余裕があるなどといった意味を持ったものを表示することができる。

【図面の簡単な説明】

【0095】

【図1】本発明の一実施形態に係る携帯端末装置の一構成例を示すブロック図である。

【図2】図１の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応付けられたテーブルの一例を示す図である。

【図3】図１の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図である。

【図4】図１の携帯端末装置に図２のテーブルを用いて電子マネー残高金額を表示した例を示す図である。

【図5】図４の電子マネー残高金額の表示位置に電子マネーがロックされていることを示した例を示す図である。

【図6】図１の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応付けられたテーブルの他の例を示す図である。

【図7】図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した例を示す図である。

【図8】図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した他の例を示す図である。

【図9】図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した他の例を示す図である。

【図10】図１の携帯端末装置に図６のテーブルを用いて電子マネー残高金額を表示した他の例を示す図である。

【図11】本発明の他の実施形態に係る携帯端末装置の一構成例を示すブロック図である。

【図12】図１１の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図である。

【図13】本発明の他の実施形態に係る携帯端末装置の一構成例を示すブロック図である。

【図14】図１３の携帯端末装置のテーブル管理部に格納された残高金額と図形画像が対応付けられたテーブルの一例を示す図である。

【図15】図１３の携帯端末装置における電子マネー残高金額の表示処理例を説明するためのフロー図である。

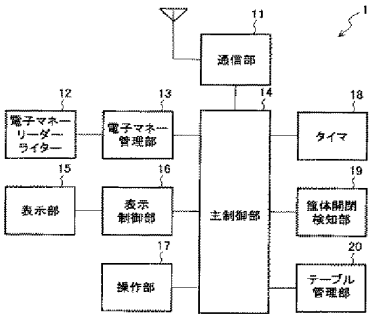
【符号の説明】

【0096】

１…携帯端末装置、２，３６，３８…テーブル、１１…通信部、１２…電子マネーリーダーライター部、１３…電子マネー管理部、１４…主制御部、１５…表示部、１６…表示制御部、１７…操作部、１８…タイマ、１９…筐体開閉検知部、２０…テーブル管理部、２１…位置情報取得部、２２…運賃確認部、２３…日時情報取得部、３０…表示画面、３１…バッテリ残量表示画像、３２…電波強度表示画像、３３…時刻情報表示画像、３４，３７，３７ａ，３７ｂ，３８ａ，３８ｂ，３８ｃ…電子マネー残高金額表示画像、３５…電子マネーロック表示画像、４０…サブ画面、４１…外側操作キー、４１ａ…右キー、４１ｂ…左キー。

【図1】

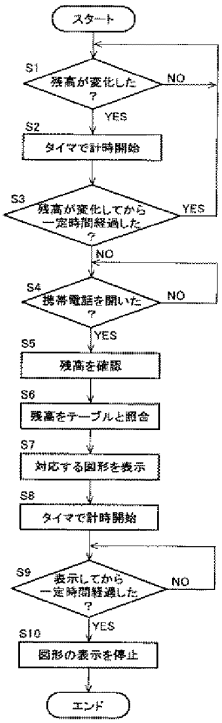
【図2】



2

交通機関	運賃	アイコン
徒歩	―	
電車	360円	
タクシー	2500円	

【図3】



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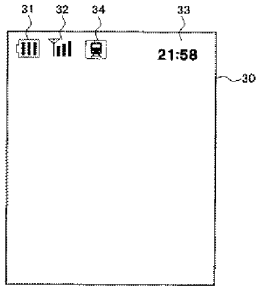

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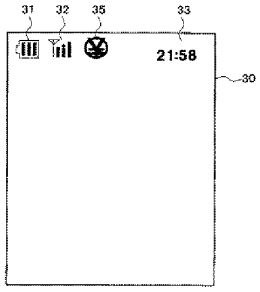

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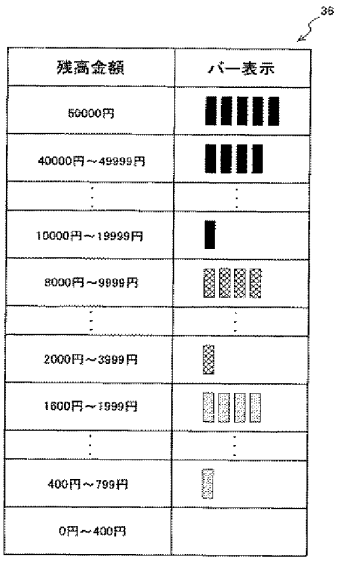
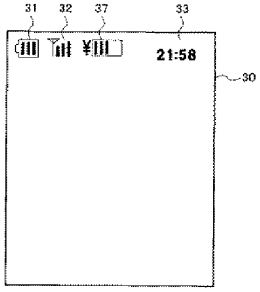


【図7】



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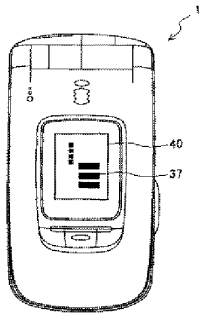
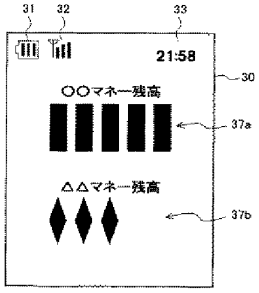
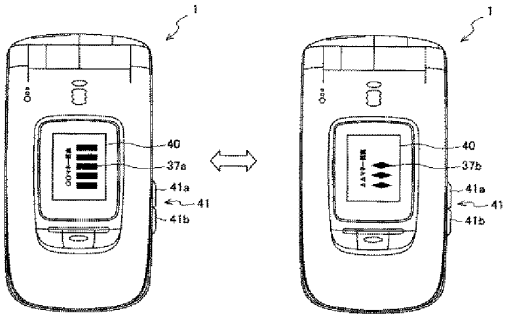


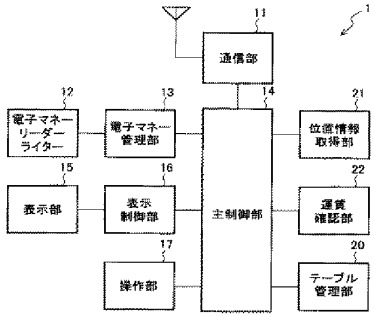
【図9】



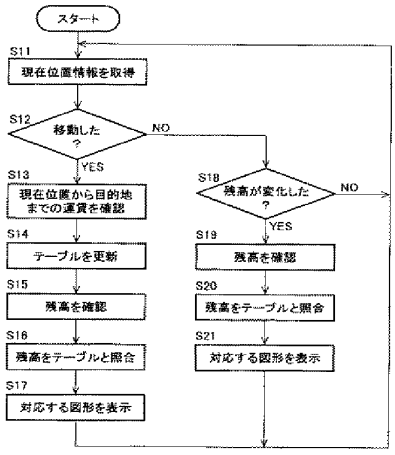
【図10】



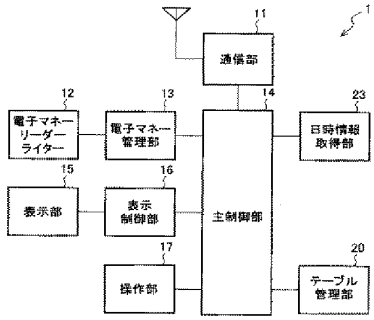
【図11】



【図12】



【図13】

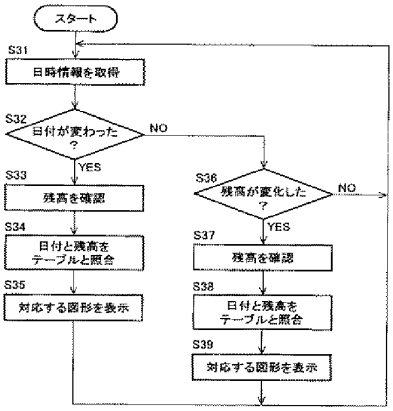


【図14】

38

日付	38a	38b	38c
1日	29000円以上	28999円～27000円	29000円以下
2日	28000円以上	27999円～26000円	28000円以下
：	：	：	：
28日	2000円以上	1999円～1000円	999円～0円
29日	1000円以上	999円～0円	－
30日	0円以上	－	－

【図15】


スタート
S31
日時情報を取得
S32
日付が変わった？
NO
YES
S33
残高を確認
S34
日付と残高をテーブルと照合
S35
対応する図形を表示
S36
残高が変化した？
NO
YES
S37
残高を確認
S38
日付と残高をテーブルと照合
S39
対応する図形を表示

(51)Int.Cl.	F I	テーマコード（参考）
	Ｇ０６Ｆ　17/60　　５０６	

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Ｆターム(参考) 3E044 AA01 BA06 CA01 CA09 CB01 CB05 CC10 DA03 DB20 EA06
EB02 EB05
5B058 YA07
5E501 AA04 AB03 BA03 BA17 FA46

Espacenet

Bibliographic data: JP2009146708 (A) — 2009-07-02

PUSH-BUTTON DEVICE OF ELECTRONIC APPARATUS

Inventor(s): NAGANO HITOSHI; FUJITA KENICHI; WARIISHI KEN ± (NAGANO HITOSHI, ; FUJITA KENICHI, ; WARIISHI KEN)

Applicant(s): DX ANTENNA ± (DX ANTENNA CO LTD)

Classification: **- international:** ***H01H13/14; H01H13/70***
- cooperative:

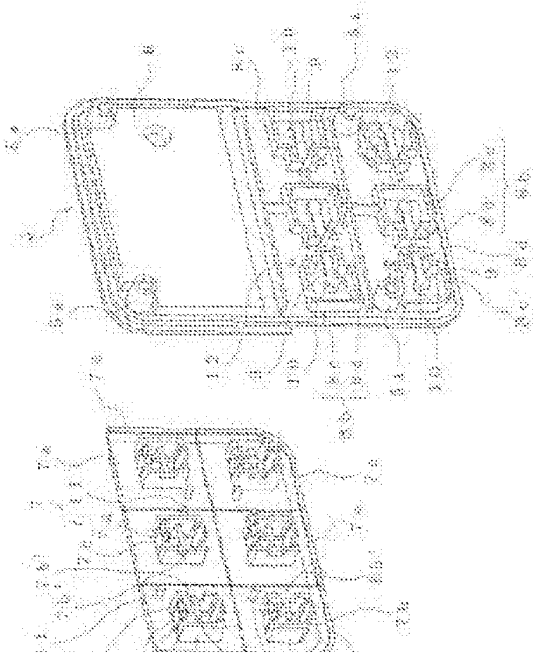
Application number: JP20070322417 20071213

Priority number (s): JP20070322417 20071213

Also published as: JP5111085 (B2)

Abstract of JP2009146708 (A)

PROBLEM TO BE SOLVED: To provide a push-button device of an electronic apparatus surely and smoothly attachable to a position of a corresponding tact switch in incorporating each bush button of a plurality of push buttons identified by displaying a sign, a character or the like, capable of preventing the push buttons from jouncing, tilting or rotating, and allowing on/off operation without an uncomfortable feeling. SOLUTION: This push-button device includes: a support plate 5 arranged oppositely to respective tact switches on a wiring board, slidably supporting the respective push buttons 7 and having frame-like openings 8; and pressing parts 10 arranged in the respective frame-like openings 8, and elastically supporting the push buttons 7



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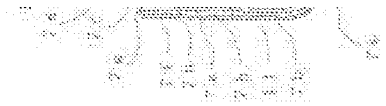

to resist the pressing-in direction of the push buttons. On the back surface of each push button 7, a guide frame member 7b insertable in the frame-like opening 8 is projected, and a lock piece 7c having a lock means 7d lockable to a lower end edge of the frame-like opening 8 of the support plate 5 is projected; at least one positioning pin 11 is projected on the back surface of each push button 7; and a pin hole 12 allowing the positioning pin 11 to be inserted therein is formed in the vicinity of each frame-like opening 8 of the support plate 5. ;COPYRIGHT: (C)2009,JPO&INPIT

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APPLE INC. / Page 429 of 3598

(19)日本国特許庁(JP)　(12)公開特許公報(A)　(11)特許出願公開番号
特開2009-146708
(P2009-146708A)
(43)公開日　平成21年7月2日(2009.7.2)

(51)Int.Cl.		F I			テーマコード（参考）
H01H 13/14	(2006.01)	H01H	13/14	B	5G206
H01H 13/70	(2006.01)	H01H	13/70	C	

審査請求 未請求　請求項の数 4　OL　（全 12 頁）

(21)出願番号　特願2007-322417 (P2007-322417)
(22)出願日　平成19年12月13日 (2007.12.13)

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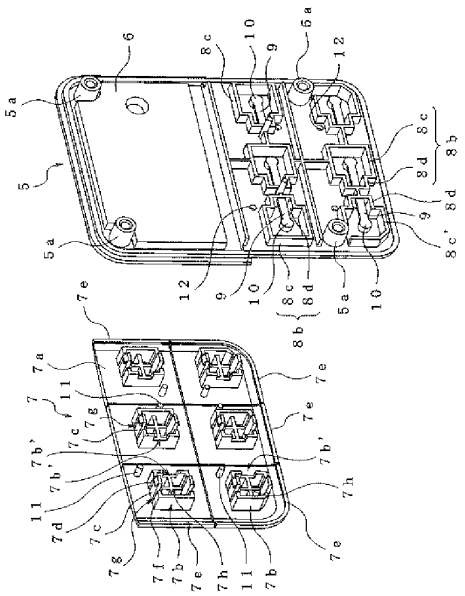
最終頁に続く

(54)【発明の名称】電子機器の押し釦装置

(57)【要約】
【課題】　記号や文字などを表示して識別される複数の押し釦の各押し釦の組み込み時に対応するタクトスイッチの位置に、確実に且つスムーズに組み付けることができ、押し釦ががたついたり、傾斜したり、回転したりせず、違和感なくＯＮ／ＯＦＦ操作できる、電子機器の押し釦装置を提供する。
【解決手段】　配線基板上の各タクトスイッチに対向して配設され、各押し釦７をスライド可能に支持する枠状開口部８を備えた支持板５と、各枠状開口部８内に配置され、押し釦７をその押し込み方向に抗するように弾性的に支持する押圧部１０とを備え、各押し釦７の裏面には、枠状開口部８内に嵌挿可能なガイド枠部材７ｂを突設するとともに、支持板５の枠状開口部８の下端周縁に係止可能な係止具７ｄを備えた係止片７ｃを突設し、各押し釦７の裏面に、少なくとも1本の位置決めピン１１を突設するとともに、支持板５の各枠状開口部８の近傍に位置決めピン１１を嵌挿可能なピン孔１２を設けている。
【選択図】　図３



【特許請求の範囲】
【請求項1】
機器ケーシング内に配線基板が設けられ、この配線基板上に複数のタクトスイッチが間隔をあけて配置され、前記各タクトスイッチをこれらのタクトスイッチに対応する押し釦を介してそれぞれＯＮ／ＯＦＦする電子機器の押し釦装置において、
前記配線基板上の前記各タクトスイッチに対向して配設され、前記各押し釦をスライド可能に支持する枠状開口部を備えた支持板と、前記各枠状開口部内に配置され、前記押し釦をその押し込み方向に抗するように弾性的に支持する押圧部とを備え、
前記各押し釦の裏面には、前記枠状開口部内に嵌挿可能なガイド枠部材を突設するとともに、前記支持板の枠状開口部の下端周縁に係止可能な係止具を備えた係止片を突設し、
前記各押し釦の裏面に、少なくとも1本の位置決めピンを前記ガイド枠部材から離して突設するとともに、前記支持板の各枠状開口部の近傍に前記位置決めピンを嵌挿可能なピン孔を設けたことを特徴とする電子機器の押し釦装置。
【請求項2】
前記支持板の前記各枠状開口部の形状を一部または全部共通にするとともに、前記各押し釦のガイド枠部材の形状を一部または全部共通にし、前記ガイド枠部材の形状が共通する前記各押し釦は、前記位置決めピンの突設位置を相互に異ならせ、それらの各位置決めピンに対応させて前記支持板にピン孔を設けたことを特徴とする請求項１記載の電子機器の押し釦装置。
【請求項3】
前記各枠状開口部内に前記押し釦に対応して弾性アーム片の基端を連設し、この弾性アーム片の先端部に前記押圧部を前記タクトスイッチに対向させて設けたことを特徴とする請求項１または２記載の電子機器の押し釦装置。
【請求項4】
前記各押し釦の裏面に、常態で対応する前記押圧部に当接する突起部を突設したことを特徴とする請求項１～３のいずれか記載の電子機器の押し釦装置。

【発明の詳細な説明】
【技術分野】
【0001】
本発明は、緊急告知放送受信機やラジオやインターホンの親機などの電子機器における押し釦装置に関するものである。
【背景技術】
【0002】
従来、この種の電子機器の押し釦装置では、図８または図９に示すように、押し釦５１または６１に対向して位置するようにタクトスイッチ５２または６２が配線基板５３または６３上に設けられている。そして、押し釦５１または６１の中央を押すことで押圧部５４または６４にてタクトスイッチ５２または６２が押されてＯＮされ、電子機器が所定の動作を行うようになっている。
【0003】
また、そのような押し釦装置では、図８または図９に示すように押し釦５１または６１が、正面カバー部材５５または６５の開口部周壁５５ａまたは凹状のガイド枠６５ａにて取り囲まれており、押し釦５１または６１の回転が規制されるとともに、押し釦５１または６１を押したときに開口部周壁５５ａまたはガイド枠６５ａに沿ってガイドされることにより、スイッチがＯＮされ、電子機器が所定の動作が行われるだけでなく、使用者にスイッチがＯＮされたことを知らせるために押し釦の、機能などを表示した表示部をＬＥＤで照明するようにしたものが知られている（例えば、特許文献１，２参照）。
【0004】
そのような装置では、配線基板上の、押し釦に対向する位置にＬＥＤが設けられ、そのＬＥＤを点灯させてそのＬＥＤの発光にて押し釦の表示部を表示させるスイッチは、押し釦に対して偏倚して設けられている。このようにＬＥＤを点灯させるためのスイッチが押

し釦に対して偏倚して設けられていると、使用者が、押し釦の、スイッチが設けられている側の端部を押す場合と、押し釦の中央部分を押す場合と、押し釦の、スイッチが設けられていない側の端部を押す場合とで、タクトスイッチをＯＮさせるために必要とされる押圧力が異なる。そのため、押し釦を押すときに使用者の受ける感触が異なることになり、使用者が違和感を感じるおそれがある。

【0005】

そこで、押し釦による押圧部、ＬＥＤおよびタクトスイッチの位置関係を工夫することにより、押し釦の表示部に影を生じさせることなく、押し釦のいずれの位置を押してもほぼ同じ押圧力でタクトスイッチをＯＮすることができる電子機器における押し釦装置が提供されている（例えば、特許文献３参照）。

【特許文献1】特開平０６－１７１３４５号公報

【特許文献2】特開平０９－１３９１３６号公報

【特許文献3】特開２００６－７９９４０号公報

【発明の開示】

【発明が解決しようとする課題】

【0006】

ところで、例えば上記した緊急告知放送用受信機では、緊急告知放送の受信以外に、ＦＭラジオ、時計機能、アラーム機能など多数の機能を備えるのが一般的であり、このような場合、機能を切り替えるのをはじめ、多数の切替操作が必要になることから、複数（例えば５～６以上）のスイッチを操作するための押し釦が具備される。また、受信機の構造を簡略にして薄型化を図る上ではタクトスイッチが有利である。しかし、タクトスイッチはＯＮ／ＯＦＦ操作時のストロークが０．２ｍｍ～０．３ｍｍ程度と非常に短いことから、押し釦のガイド部と被ガイド部間に僅かな隙間があっても操作時に押し釦ががたついたり、傾斜したり、回転したりするおそれがある。そこで、上記の特許文献１～３に記載の装置では、押し釦が傾いたり回転したりしないように規制する開口部周壁やガイド枠が、筐体の表面において押し釦の周囲に設けられている。

【0007】

一方、そのようなガイド枠を設けると、装置全体の厚みが増し構造が複雑になるほか、押し釦を開口部内やガイド枠内に収める必要があるために、押し釦の大きさがかなり制限される。そこで、複数の各押し釦を筐体の表面に露呈させた状態で配置すれば、押し釦の大きさを拡大できる。また、押し釦の表面には、その機能や種類などを識別できるように記号や文字などが表示される。このような場合、押し釦の組み付け時に組み付け方向（上下あるいは左右）を規制したり、タクトスイッチとの関係で誤挿入を防止したりしなければならない。さらに、複数の押し釦を限られた位置にできるだけコンパクトに配置し、デザイン的にも見栄えの良いものにするために、例えば板状の矩形にし、並べて配置しようとすると、隣接する押し釦の隙間を一定にし且つ平行に保つ必要がある。また、上記のように、タクトスイッチはＯＮ／ＯＦＦ操作時のストロークが極めて短いことから、操作性を良好にするためにはストロークをある程度伸ばす必要がある。さらに、押し釦を押してタクトスイッチを操作する際にスムーズに操作できるようにするには、押し釦をガイドするための、押し釦側のガイド部と相手方の被ガイド部との間に、ある程度の隙間を設ける必要がある。このような場合、押し釦の周囲には枠がないから、押し釦の回り止めが必要になる。

【0008】

本発明は上述の点に鑑みなされたもので、表面に露呈した状態で並べて配置され、記号や文字などを表示して識別される複数の押し釦を備えた電子機器において、各押し釦の組み込み時に対応するタクトスイッチの位置に、確実に且つスムーズに組み付けることができ、組み付け状態で隣接する押し釦間の隙間を一定に且つ平行に保持でき、ＯＮ／ＯＦＦ操作時に押し釦ががたついたり、傾斜したり、回転したりせず、誰もが違和感なくＯＮ／ＯＦＦ操作できる、押し釦装置を提供することを課題としている。

【課題を解決するための手段】

【0009】
上記の課題を解決するために本発明に係る電子機器の押し釦装置は、機器ケーシング内に配線基板が設けられ、この配線基板上に複数のタクトスイッチが間隔をあけて配置され、前記各タクトスイッチをこれらのタクトスイッチに対応する押し釦を介してそれぞれＯＮ／ＯＦＦする電子機器の押し釦装置において、前記配線基板上の前記各タクトスイッチに対向して配設され、前記各押し釦をスライド可能に支持する枠状開口部を備えた支持板と、前記各枠状開口部内に配置され、前記押し釦をその押し込み方向に抗するように弾性的に支持する押圧部とを備え、前記各押し釦の裏面には、前記枠状開口部内に嵌挿可能なガイド枠部材を突設するとともに、前記支持板の枠状開口部の下端周縁に係止可能な係止具を備えた係止片を突設し、前記各押し釦の裏面に、少なくとも1本の位置決めピンを前記ガイド枠部材から離して突設するととも、前記支持板の各枠状開口部の近傍に前記位置決めピンを嵌挿可能なピン孔を設けたことを特徴とする。
【0010】
上記の構成を有する本発明に係る電子機器の押し釦装置によれば、前記各押し釦は裏面に突設されたガイド枠部材が支持板の各枠状開口部内にスライド可能に挿入され且つ弾性的に支持されているので、各押し釦の周囲をガイド枠や開口部で取り囲んだりして支持する必要がなく、各押し釦を板状に形成して大きくし、装置の表面に露呈させた状態で並べて配置することができ、したがって構造が簡略化され、厚みを薄くでき、デザイン上も優れている。また、押し釦をその押し込み方向に抗するように弾性的に支持し、タクトスイッチとの間に一定のクリアランスを確保する押圧部を備えているので、タクトスイッチ自体の操作ストロークに比べて押し釦の押し込み時のストロークを大きくすることができ、スイッチ操作が確実に且つ違和感なく行える。さらに、各押し釦の裏面に少なくとも1本の位置決めピンを前記ガイド枠部材から離して突設するととも、前記支持板の各枠状開口部の近傍に前記位置決めピンを嵌挿可能なピン孔を設けているので、各押し釦の周囲をガイド枠や開口部で取り囲んだりしない状態で、つまり各押し釦を電子機器の表面に露呈させた状態で配置した場合でも、押し釦の裏面側のガイド枠部材と支持板の枠状開口部との間に比較的大きな隙間をあけて押し釦が円滑にスライドできるようにしても、押し釦の回転が位置決めピンにより確実に阻止される。すなわち、押し釦のガイド枠部材と支持板の枠状開口部との嵌入構造で押し釦をスライド可能に支持する一方、押し釦の位置決めピンと支持板のピン孔との挿入構造で押し釦の回転を阻止すると同時に、押し釦ごとに位置決めピンの取付位置や取付方向や本数などを変えることにより、支持板の枠状開口部への誤挿入を防ぐことができる。
【0011】
請求項２に記載のように、前記支持板の前記各枠状開口部の形状を一部または全部共通にするとともに、前記各押し釦のガイド枠部材の形状を一部または全部共通にし、前記ガイド枠部材の形状が共通する前記各押し釦は、前記位置決めピンの突設位置を相互に異ならせ、それらの各位置決めピンに対応させて前記支持板にピン孔を設けることができる。
【0012】
このように構成すれば、各押し釦の表面に押し釦の機能や種類を識別するための表示を施す場合に、押し釦の裏面に突設するガイド枠部材の向きなどとともに位置決めピンの位置や本数を押し釦ごとに変更することで、押し釦を取り付ける支持板の枠状開口部が特定され、押し釦を誤って他の枠状開口部内に取り付けたり、押し釦の取り付ける向きを間違ったりすることが防止されるうえに、押し釦を取り付けるべき枠状開口部の位置や押し釦向きなどを確認する必要がないので、組み付け作業が容易で作業効率が向上する。
【0013】
請求項３に記載のように、前記各枠状開口部内に前記押し釦に対応して弾性アーム片の基端を連設し、この弾性アーム片の先端部に前記押圧部を前記タクトスイッチに対向させて設けることが望ましい。
【0014】
このように構成すれば、各タクトスイッチの押圧部を支持板と別体の付勢部材により押

し釦の押し込み方向に抗するように付勢するのに比べて、構造が簡略化され、また弾性アーム片や押圧部を支持板の枠状開口部と一体に形成することにより、部品点数が大幅に削減される。さらに、各押し釦は押圧部を介して弾性アーム片により、押し込み方向に抗するように弾性的に支持されるので、複数の押し釦のいずれでも押し込み操作時の感触が常に良好で一定しており、押し釦の表面からタクトスイッチの頭部までの距離を最小限に短縮できるから、より一層薄くすることができる。

【0015】

請求項４に記載のように、前記各押し釦の裏面に、常態（非操作状態）で対応する前記押圧部に当接する突起部を突設することができる。

【0016】

このように構成することで、押し釦の押し込み方向におけるがたつきがなくなり、操作性がより良好になる。

【発明の効果】

【0017】

本発明に係る電子機器の押し釦装置は上記の構成からなるから、下記のような優れた効果がある。すなわち、

複数の押し釦を露呈した状態で並べて配置し、各押し釦の表面に記号や文字などを表示し、スイッチ操作する機能や種類などを押し釦の表示部で識別できるようにした場合においても、複数の押し釦を間違いなく所定の枠状開口部内に、いいかえれば対応するタクトスイッチの位置に確実に且つスムーズに組み付けることができ、その組み付け作業を効率よく行えるとともに、組み付け状態で隣接する押し釦間の隙間を一定に且つ平行に保持でき、ＯＮ／ＯＦＦ操作時に押し釦ががたついたり、傾斜したり、回転したりせず、各タクトスイッチをＯＮ／ＯＦＦ操作できる。

【発明を実施するための最良の形態】

【0018】

以下、本発明に係る電子機器の押し釦装置について実施の形態を図面に基づいて詳細に説明する。

【0019】

図１は本発明の実施例に係る電子機器の押し釦装置を備えた緊急告知放送端末機器において、押し釦を取り外した状態を示すやや右側方寄り正面視斜視図、図２は図１の緊急告知放送端末機器において、正面より見てやや右側方寄り背面視斜視図、図３は押し釦装置を構成する支持板と押し釦の、正面より見てやや右側方寄り背面視斜視図である。図４は押し釦装置の一部を切断した状態の、やや右側方寄り正面視斜視図、図５は図４のＡ－Ａ線断面図で、押し釦を押していない状態を表し、図６は図４のＡ－Ａ線断面図で、一の押し釦を押した状態を表している。

【0020】

図１に示すように、緊急告知放送端末機器（電子機器）１は、機器ケーシング３の正面に正面カバー部材４が嵌合され、機器ケーシング３内に配線基板１５が収納されている。正面カバー部材４には多数の小孔が穿設され、機器ケーシング３内に収納されたスピーカー（図示せず）からの音声が聞こえるようになっている。緊急告知放送端末装置１の正面カバー部材４において、その中央部分に４隅部を円弧状に形成した略長方形状の開口部１７（図５参照）が形成され、この開口部の下の配線基板１５（図５参照）上に、図３に示すように４隅部を円弧状に形成した略長方形状の支持板５が裏面側に突出する４本の取付部材５ａを介してネジ（図示せず）で取り付けられている。支持板５の上部には、図１・図２に示すように表示パネル６が組み込まれ、下部には複数（本例では６コ）の押し釦７が３コずつ横並びに上下２列に配列される。このため、支持板５の下部には、図１・図３に示すように６コの各押し釦７に対応してそれぞれ枠状開口部８が開口されている。ここで、枠状開口部８とは、正面側開口８ａに連通する枠状部８ｂを裏面側に一体に突設した構造をいうものとする。なお、図２に示すように、機器ケーシング３の背面には、上部の一対の壁掛け用掛け止め具２１が突設され、その下方に端末機器１を机上等に立てて載置

するためのスタンドアーム２２が起伏可能に取り付けられている。また、ケーブルテレビ局などからの緊急告知信号や通信データを受信するための同軸ケーブル用接続端子２３とＡＣ電源コード用接続端子２４が下部中央に設けられている。なお、その両側部には、乾電池ケースのカバー２５がそれぞれ着脱可能に取り付けられている。

【0021】

本実施例に係る押し釦装置２では、支持板５に開口される各枠状開口部８は大小の正方形状開口を二段に積み重ね横向きにして一連に開口した形状からなり、図１・図３に示すように、正面より見て左側と中央の２つは上下２段ともに小さい方の正方形状開口（以下、小型正方形状開口という）８ｄを大きい方の正方形開口（以下、大型正方形状開口という）８ｃに対し右向きに、右側の上下２段は小型正方形状開口８ｄを大型正方形状開口８ｃに対し左向きにそれぞれ配置している。また、下段の右側と左側とは、それぞれ支持板５の下辺両隅の円弧状に対応して、大型正方形状開口８ｃの隅角部を４５°に傾斜する一辺で面取りした五角形状開口８ｃ’に形成している。そして、各枠状開口部８内において、小型正方形状開口８ｄ内の一端中央位置に弾性アーム片９の先端を大型正方形状開口８ｃ・８ｃ’の中心部に向けてその基端を連設し、この弾性アーム片９の先端部に円柱状押圧部１０を一体に上向き突設している。

【0022】

一方、６コの各押し釦７は、矩形または略矩形の板状部７ａと、板状部７ａの裏面に突設され枠状開口部８内に嵌挿可能なガイド枠部材７ｂと、板状部７ａの裏面に突設され枠状開口部８の（枠状部８ｂ）下端周縁に係止可能な係止具７ｄを先端に設けた係止片７ｃとを備えている。各押し釦７の板状部７ａの表面には、図１のように上段の左側から順に二重丸（◎）、上向き三角形（△）、プラス（＋）、下段の左側から順に一重丸（○）、下向き三角形（▽）、マイナス（－）の各記号が表示されている。また６コの押し釦７うち、下段の左側と右側の各押し釦７の板状部７ａは、図３のように支持板５の下辺両隅の円弧状に対応して下側隅角部がそれぞれ円弧状に形成している。また、上段の左側と右側の押し釦７の、各板状部７ａの外縁には下向きの枠辺７ｅを延設し、下段の３コの押し釦７の、各板状部７ａの外縁にも下向きの枠辺７ｅを延設している。

【0023】

また、各押し釦７のガイド枠部材７ｂについては、図３のように嵌挿される枠状開口部８の形状に対応し、正方形状または五角形状に形成している。さらに、各ガイド枠部材７ｂの対向する上下の各辺７ｆは中央部分を切り欠いており、この切り欠き部７ｇ内に外向きの係止具７ｄを先端に一体に形成した係止片７ｃを板状部７ａの裏面から突設している。この係止片７ｃは樹脂製で、ガイド枠部材７ｂの成型時に一体に形成されるが、細幅にして弾力性が十分に生じるようにし、先端の係止具７ｄが支持板５の枠状開口部８の（枠状部８ｂの）下端周縁に確実に係止されるようにしている。さらにまた、各ガイド枠部材７ｂの左または右の一辺には、弾性アーム片９に対応させて凹所７ｂ’を形成している。また、各ガイド枠部材７ｂ内において十字形の突起部７ｈを板状部７ａの裏面に一体に突設しているが、この突起部７ｈの高さ（突出量）は、押し釦７のガイド枠部材７ｂを支持板５の枠状開口部８内に嵌挿し、一対の係止片７ｃの係止具７ｄを枠状開口部８の下端周縁（枠状部８ｂの下縁）に係止させて取り付けた状態で、図５に示すように突起部７ｈが弾性アーム片９の押圧部１０に当接し、その押圧部１０が押し釦７を弾性的に上向きに支持し、この状態では弾性アーム片９は下向きに変形しない、つまり弾性アーム先端の押圧部１０とタクトスイッチ１６の頭部１６ａとのクリアランスが一定に保たれるように設定するのが好ましい。このように設定することで、図４～図６に示すように各押し釦７は支持板５の対応する枠状開口部８内に取り付けられた状態で、弾性アーム片９を介して押圧部１０により上向きに付勢され、がたつきがない。

【0024】

また、各押し釦７の板状部７ａの裏面に、本実施例では図３に示すようにそれぞれ1本の位置決めピン１１をガイド枠部材７ｂから離間させて突設しているが、少なくとも正方形のガイド枠部材７ｂを備えた４コの押し釦７については、位置決めピン１１を突設する

位置が一致しないように、ガイド枠部材７ｂに対する向きあるいは離間距離などを変えている。また、五角形のガイド枠部材７ｂを備えた２コの押し釦７についても、ガイド枠部材７ｂに対する位置決めピン１１の位置が相互に一致しないようにガイド枠部材７ｂに対する向きおよび離間距離を変えている。一方、支持板５には、図３に示すように各押し釦７の位置決めピン１１に対応して各枠状開口部８の近傍にピン孔１２を穿設している。このように構成した結果、６コの各押し釦７は、配線基板１５（図４参照）に配置される６コのタクトスイッチ１６（図５参照）の、板状部７ａに表示された記号（図１）に対応するタクトスイッチ１６の真上に、確実に配置される。いいかえれば、作業者が緊急告知放送端末機器１（の押し釦装置２）を組み立てる際に、押し釦７を間違った位置に取り付けることがない。つまり、本実施例では各押し釦７は、図１において６コの押し釦７の１コでも、支持板５の６コの枠状開口部８において間違った枠状開口部８に取り付けようとしても取り付けることができないだけでなく、取り付ける枠状開口部８が正しい場合でも押し釦７の取り付け方向が間違っていれば、取り付けることができない。なお、図４～図６における符号２６は乾電池である。

【0025】

以上のようにして構成される本発明の実施例に係る押し釦装置２および同押し釦装置２を備えた緊急告知放送端末機器１について、その動作態様を説明する。

【0026】

図４・図５に示すように、各押し釦７は非操作状態（常態）で、弾性アーム片９および押圧部１０により弾性的に支持され、上方に付勢されている。そして、この状態で、弾性アーム片９先端の押圧部１０は、タクトスイッチ１６の頭部１６ａとに一定のクリアランスが設けられている。つまり、このクリアランス（離間距離）に相当するストロークが押し釦７の操作ストロークにプラス（＋）されることにより、押し釦７によるタクトスイッチ１６の操作性を向上し、スイッチ操作時の感触を良好にしている。また、非操作時は各押し釦７の押圧部１０とタクトスイッチ１６の頭部１６ａとの間にクリアランスがあるので、各タクトスイッチ７が誤動作でＯＮすることはない。

【0027】

そして、任意の押し釦７が押されると、図６に示すように押し釦７は枠状ガイド部材７ｂが枠状開口部８によってガイドされ、ほぼ垂直に押し込まれる。また、各押し釦７は露呈し板状部７ａの周囲に枠が設けられていないが、同時に押し釦７側の位置決めピン１１がピン孔１２でガイドされることにより、押し釦７の無用な回転が阻止される。したがって、図４・図５に示すように６コの押し釦７は隣接する押し釦７と隙間が一定に保たれ、縦方向の隙間は相互に平行になっている。そして、押し釦７から押し下げ力が取り除かれると、弾性アーム片９の下向きに変形を元の状態に戻そうとする復元力にて上向きの付勢力が生じ、押し釦７は図５に示される元の位置に確実に戻される。

【0028】

なお、緊急告知放送端末機器１の動作は、図１に示すように◎表示の（ラジオ電源用）押し釦７を押すと、ラジオの電源が入り、表示パネル６傍のラジオ電源ランプ２７が点灯するとともに、表示パネル６の時刻表示がＦＭ受信周波数を表示する。△表示または▽表示の（選局用）押し釦７を押すことにより、受信周波数が変わって所望の放送番組を選曲できる。また、＋表示または－表示の（音量用）押し釦７を押すことで、音量を調整できる。◎表示の押し釦７を再び押すと、ラジオの電源が切れ、ラジオ電源ランプ２７が消えると同時に、表示パネル６に現在時刻が表示される。気象庁からの緊急地震速報データを受信すると、正面カバー部材４の周囲に配設されたフラッシュライト２８が点滅し、表示パネル６には予測震度が表示される。○表示の押し釦７は選択ボタンである。

【0029】

上記に本発明の電子機器における押し釦装置について緊急告知放送端末機器１に適用した一実施例を示したが、下記のように変更して実施することも可能である。

【0030】

1)　弾性アーム片９は片持ち支持構造にしているが、両端支持構造にしてその中央部に

押圧部１０を設けて押し釦７を支持する構成とすることも可能である。

【0031】

2)　上記実施例における位置決めピンを２本にし、各押し釦７で位置決めピン１１の位置や向きを変えることで、支持板５の枠状開口部８に対する押し釦７の取付や向きの誤りを防ぐようにしてもよい。

【0032】

3)　支持板５の枠状開口部８およびこれに対応するガイド枠部材７ｂを円形または楕円形にすることも可能である。この場合には、位置決めピン１１だけで回り止めすることになるが、押し釦のスライド操作は一層スムーズになる。

【0033】

4)　押し釦７を支持板５の枠状開口部８内に一体に形成した弾性アーム片９で弾性的に支持する代わりに、支持板５やその枠状開口部８とは別体のスプリング部材で押圧部１０を介して押し釦７を弾性的に支持することもできる。

【0034】

5)　配列される押し釦７の数は限定されるものではなく、２コ以上から例えば、９コ、１２コ、２０コなど、１列に３コずつ３段、１列に３コまたは４コずつ４段または３段、１列に４コまたは５コずつ５段または４段配列することができ、押し釦７の数が増えるほど有効である。

【0035】

6)　上記実施例では、6コのほぼ同一形状の押し釦7を上下2段に３コずつ横長矩形状に配列したが、例えば図７に示すように、一部形状の異なる複数の押し釦７を円形状（図７（ａ）参照）や楕円形状（図７（ｂ）参照）に配列することもできる。

【図面の簡単な説明】

【0036】

【図1】本発明の実施例に係る電子機器の押し釦装置を備えた緊急告知放送端末機器において、押し釦を取り外した状態を示すやや右側方寄り正面視斜視図である。

【図2】図１の緊急告知放送端末機器において、正面より見てやや右側方寄り背面視斜視図である。

【図3】押し釦装置を構成する支持板と押し釦の、正面より見てやや右側方寄り背面視斜視図である。

【図4】押し釦装置の一部を切断した状態の、やや右側方寄り正面視斜視図である。

【図5】図４のＡ－Ａ線断面図で、押し釦を押していない状態を表している。

【図6】図４のＡ－Ａ線断面図で、一つの押し釦を押した状態を表している。

【図7】図７（ａ）は複数の押し釦を円形状に配列した例を示す正面図、図７（ｂ）は複数の押し釦を楕円形状に配列した例を示す正面図である。

【図8】従来例の説明図である。

【図9】別の従来例の説明図である。

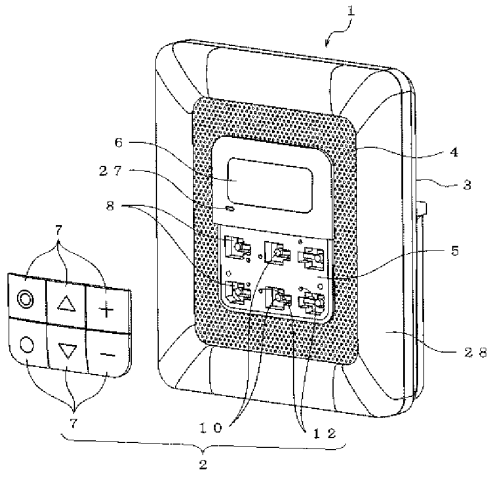
【符号の説明】

【0037】

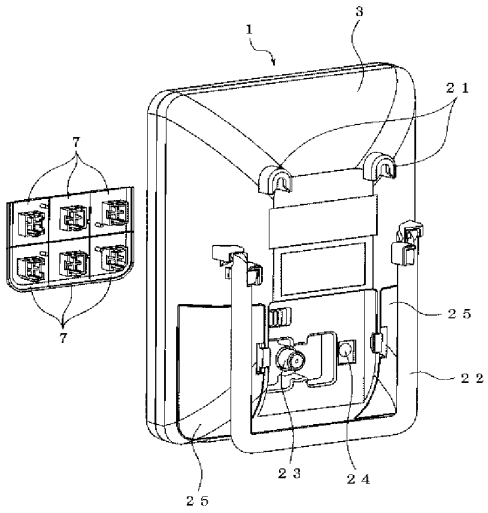
１　緊急告知放送端末機器（電子機器）
２　押し釦装置
３　機器ケーシング
４　正面カバー部材
５　支持板
５ａ取付部材
６　表示パネル
７　押し釦
７ａ板状部
７ｂガイド枠部材
７ｂ’凹所

７ｃ係止片
７ｄ係止具
７ｅ枠辺
７ｇ切り欠き部
７ｈ突起部
８　枠状開口部
８ａ正面側開口
８ｂ枠状部
８ｃ大型正方形状開口
８ｃ’五角形状開口
８ｄ小型正方形状開口
９　弾性アーム片
１０　押圧部（円柱状押圧部）
１１　位置決めピン
１２　ピン孔
１５　配線基板
１６　タクトスイッチ
１６ａ頭部
２１　壁掛け用掛け止め具
２２　スタンドアーム
２３　同軸ケーブル用接続端子
２４　ＡＣ電源コード用接続端子
２５　乾電池ケースのカバー
２６　乾電池

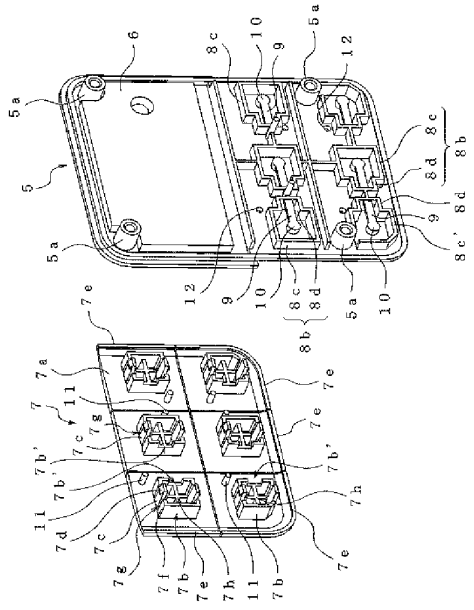
【図1】



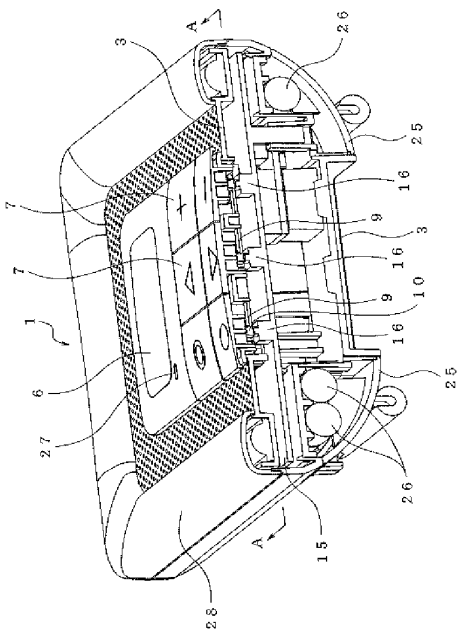
【図2】



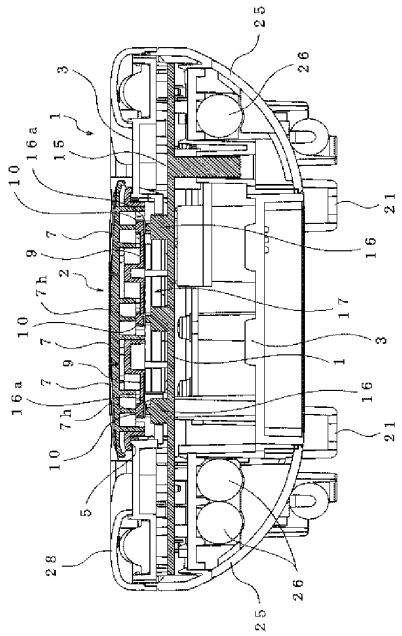
【図3】



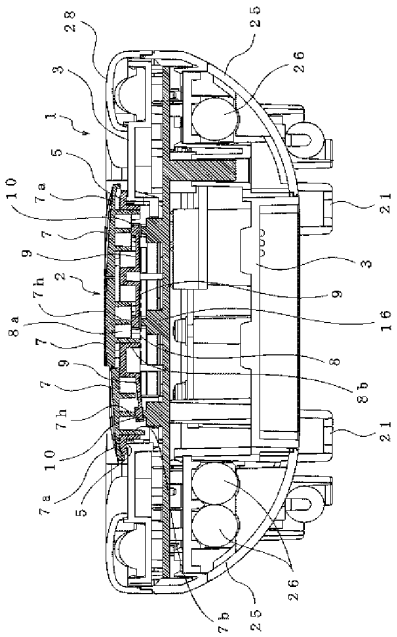
【図4】



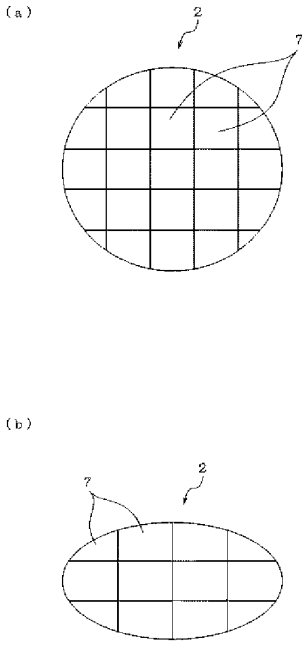
【図5】



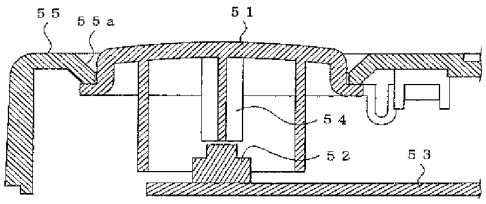
【図6】



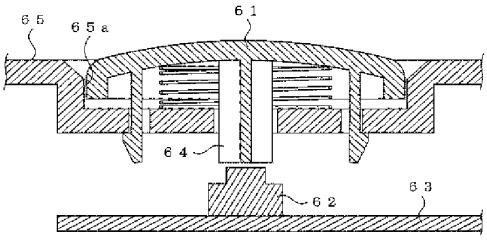
【図7】



【図8】



【図9】



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JS00 JU68 KS03 KS57 NS02 QS02

Claims of JP 2010-541059

[Claim 1]
Access of this service provider to application of a service provider memorized in a secure element like a SmartMX device, a truss known also as WARETTO -- in an aforementioned method of being how to permit TEDDO application and making it said secure element have a service manager who prevents access of WARETTO to memorized application generally -- this method,
a demand which controls a service manager in said secure element by the aforementioned service provider in order to permit access of this service provider to that application -- a truss -- a step which transmits to a TEDDO service manager,
this truss -- a step which transmits this right-to-access code to both sides of the aforementioned service provider and the aforementioned service manager in said secure element while generating a right-to-access code in a TEDDO service manager,
A step which generates WARETTO, gives this WARETTO a right-to-access code, and transmits this WARETTO to said secure element in the aforementioned service provider
******,
When it is going to access application of a service provider of this WARETTO in said secure element, aforementioned WARETTO, A way it is connected to a service manager who has a right-to-access code, and this service manager permits access of WARETTO to application of that service provider at that time.
[Claim 2]
in a method according to claim 1 -- the aforementioned service provider and the above -- a truss -- a way a TEDDO service manager is made to do two-way communication of the preferable data transmission protocol via a computer network like the Internet used HTTPS.
[Claim 3]
in a method according to claim 1 -- the above -- a truss -- both sides or either of a TEDDO service manager and the aforementioned service provider, How to make it considering it as a short message service of a mobile network operator communicate with a secure element arranged in a mobile communication device like a NFC cellular phone via preferable over ZAEA service.
[Claim 4]
at least one service provider and at least one truss -- with a TEDDO service manager, Are two or more mobile communication devices like a NFC cellular phone a communications system which it has, and to the aforementioned mobile communication device, a truss known also as WARETTO of access of this service provider to application of the aforementioned service provider, in order to permit TEDDO application, In the communications system concerned with which a secure element which memorizes application of the aforementioned service provider is provided,
A communications system comprising:
Said secure element has a service manager and it is the aforementioned service provider.

the above -- a truss -- a TEDDO service manager.
The aforementioned mobile communication device.
A calculating unit and a software code portion for said secure element to perform a step of a method according to any one of claims 1 to 3.

[Claim 5]
in the communications system according to claim 4 -- the aforementioned service provider and the above -- a truss -- a communications system with which a TEDDO service manager was made to do two-way communication of the preferable data transmission protocol via a computer network like the Internet used HTTPS.
[Claim 6]
in the communications system according to claim 4 -- the above -- a truss -- both sides or either of a TEDDO service manager and the aforementioned service provider, A communications system it was made to communicate with a secure element arranged in a mobile communication device like a NFC cellular phone via over ZAEA service with preferable considering it as a short message service of a mobile network operator.
[Claim 7]
A communications system which used said secure element as a SmartMX device in the communications system according to claim 4.
[Claim 8]
a truss which received a demand for permitting access of this service provider to that application memorized in a secure element from a service provider -- it being a TEDDO service manager and, Said secure element has a service manager who generally prevents access to memorized application, the above -- a truss -- a truss which a TEDDO service manager generates a right-to-access code, and transmits this right-to-access code to both sides of the aforementioned service provider and the aforementioned service manager in said secure element -- a TEDDO service manager.
[Claim 9]
the truss according to claim 8 -- the aforementioned service provider in a TEDDO service manager, passing a computer network like the Internet which set a preferable data transmission protocol to HTTPS -- the above -- a truss -- a truss it was made to communicate with a TEDDO service manager -- a TEDDO service manager.
[Claim 10]
the truss according to claim 8 -- in a TEDDO service manager -- the above -- a truss -- a TEDDO service manager, a truss it was made to communicate with a secure element arranged in a mobile communication device via over ZAEA service with preferable considering it as a short message service of a mobile network operator -- a TEDDO service manager.
[Claim 11]
It is the service provider which memorized application in a secure element like a SmartMX device

arranged in a mobile communication device, a demand for this service provider to permit access to that application in said secure element further -- a truss -- it transmitting to a TEDDO service manager and, this truss -- a right-to-access code from a TEDDO service manager, [receive and] a truss known also as WARETTO -- generating TEDDO application -- this truss -- giving the aforementioned right-to-access code to TEDDO application -- this truss -- a service provider which transmits TEDDO application to said secure element.

[Claim 12]

in the service provider according to claim 11, this service provider passes a computer network like the Internet which set a preferable data transmission protocol to HTTPS -- the above -- a truss -- a service provider it was made to communicate with a TEDDO service manager.

[Claim 13]

In the service provider according to claim 11, this service provider, A service provider it was made to communicate with a secure element arranged in a mobile communication device via over ZAEA service with preferable considering it as a short message service of a mobile network operator.

[Claim 14]

In a service manager computer program product by which loading is directly carried out into a secure element which has an arithmetic and logic unit and a memory,

A service manager computer program product comprising:

A step which receives and memorizes an access right code when this service manager computer program product starts said secure element.

A step linked to WARETTO installed in said secure element.

A step which receives a right-to-access code from this WARETTO.

A step in comparison with a right-to-access code which had this right-to-access code memorized.

A software code portion which performs a step which permits access of WARETTO to application which has the aforementioned right-to-access code and was installed in said secure element when the aforementioned right-to-access code corresponded with a right-to-access code memorized [aforementioned].

[Claim 15]

A secure element which it is a secure element which has an arithmetic and logic unit and a memory, and this secure element equips with the service manager computer program product according to claim 14.

[Claim 16]

A secure element from which it is the secure element according to claim 15 and which this secure element comprises as a SmartMX device.

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最終頁に続く

(54)【発明の名称】トラステッドアプリケーションに対するアクセス権を管理する方法、システム、トラステッドサービスマネジャー、サービスプロバイダ及びメモリ素子

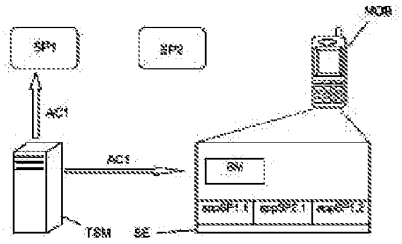

Fig. 2

[0001]　本発明は、SmartMX デバイスのようなセキュアエレメントに記憶されたサービスプロバイダのアプリケーションに対するサービスプロバイダのアクセスのトラステッドアプリケーションを許可する方法に関するものである。

[0002]　本発明は更に、少なくとも１つのサービスプロバイダと、少なくとも１つのトラステッドサービスマネジャーと、サービスプロバイダのアプリケーションを記憶するセキュアエレメントが設けられたＮＦＣ携帯電話とするのが好ましい複数のモバイル通信装置とを具える通信システムに関するものである。

[0003] 本発明は更に、トラステッドサービスマネジャーに関するものである。

[0004] 本発明は更に、サービスプロバイダに関するものである。

[0005] 本発明は更に、算術論理演算ユニット及びメモリを有するセキュアエレメント内に直接ローディングしうるサービスマネジャーコンピュータプログラムプロダクトに関するものである。

[0006] 本発明は更に、上述したサービスマネジャーコンピュータプログラムプロダクトを処理するようにしたセキュアエレメントに関するものである。

[0007] 自身のメモリ装置識別子を有するモバイル通信装置、例えば、ＮＸＰセミコンダクターズ社により開発されたMIFARE（登録商標）のクラッシックファミリー、すなわち、読み出し／書き込み機能を有し、１３．５６MHzの周波数レンジで動作する非接触スマートカードＩＣが知られている。最近、特に短距離無線通信（ＮＦＣ）機能を有する携帯電話及びその他のモバイル通信装置に用いるための、安全対策を強化したメモリ装置であるセキュアエレメントが開発されている。これらのセキュアエレメントは、“スマートカード”としても知られている。更に理解を深めるために、セキュアエレメントを代表する草分けであるSmartMX　デバイスを以下に説明する。SmartMX　（Memory eXtension）は、ＮＸＰセミコンダクターズ社が、マルチプルインタフェースのオプションのある又はない、信頼性の高いソリューションを必要とする安全性の高いスマートカードアプリケーションに対し設計したスマートカードのファミリーである。主要なアプリケーションは、電子政府、バンキング／ファイナンス、モバイル通信及び先進公共交通である。

[0008] SmartMX　アーキテクチャは、ＲＳＡ、ＥＣＣ、ＤＥＳ及びＡＥＳに対するコプロセッサを組み合わせ、Java（登録商標）　Open　Platform及びMULTOS（登録商標）を含むオペレーティングシステムの実行を可能にする。MIFAREプロトコルを、ユーザオペレーティングシステムにより実行される他の非接触伝送プロトコルと同時に起動するSmartMX　カードの機能は、単一のデュアルインタフェースコントローラに基づくスマートカードに関して、MIFAREに基づく現存のアプリケーション（例えば、発券業務）と、新たなサービスとの組み合わせを可能にする。SmartMX カードはMIFAREクラッシックデバイスをエミュレートし、これによりこのインタフェースを、設置されたいかなるMIFAREクラッシックインフラストラクチュアとも両立するようにしうる。何らかのプロトコル、特にMIFAREプロトコル及び自己規定の非接触伝送プロトコルを介して通信するのに非接触インタフェースを用いることができる。SmartMX は、最新技術のオペレーティングシステム及びＪＣＯＰ（Java Card Operating System）を含むオープンプラットホームソリューションを容易に実行しうるとともに、最大レベルの安全度と一緒に設定された最適な特徴を提供する。SmartMX は、ＤＰＡ、ＳＰＡ等のようなサイドチャネル攻撃に対処するある範囲の安全対策を含んでいる。真の衝突防止方法（acc. ISO/IEC 14443-3）は、複数のカードを同時に対処しうる。

[0009] ＧＳＭアソシエーション（ＧＳＭＡ）は、2007年　2月に、モバイルＮＦＣ（Near　Field　Communication）サービスの開発に含まれるエコシステムの関係者に対するオペレータコミュニティガイダンスを概説している白書を公表した。モバイルＮＦＣは、ＮＦＣ技術に基づいた、非接触サービスと携帯電話との組み合わせとして規定される。ハードウェアに基づく安全識別トークン（ＵＩＣＣ）を有する携帯電話は、ＮＦＣアプリケーションに対し理想的な環境を提供しうる。ＵＩＣＣは物理的なカードに代わることができ、従って、サービスプロバイダに対する経費を最適にし、より一層便利なサービスをユーザに提供しうるようになる。モバイルＮＦＣエコシステムには、種々の異なるエンティティが含まれる。これらのエンティティは以下の通りに規定される。

・　カスタマ：モバイル通信及びモバイルＮＦＣサービスに対しモバイルデバイスを使用する。カスタマはＭＮＯと契約し、モバイルＮＦＣサービスを利用する。

・　モバイルネットワークオペレータ（ＭＮＯ）：カスタマに全種類のモバイルサービスを提供し、特にＵＩＣＣ及びＮＦＣ端末且つオーバーザエアー（Over The Air：ＯＴＡ）輸送サービスを提供する。

・　サービスプロバイダ（ＳＰ）：カスタマに非接触サービスを提供する（ＳＰは例えば、銀行、公共輸送会社、ロイヤリティプログラムの所有者等である）。

・　リテーラー（小売店）／マーチャント（商人）：サービス依存により例えば、ＮＦＣ可能なＰＯＳ（Point of Sales）端末を動作させる。

・　トラステッドサービスマネジャー（ＴＳＭ）：サービスプロバイダのサービスをＭＮＯのカスタマベース（顧客基盤）に安全に提供し、管理する。

・　ハンドセット、ＮＦＣチップセット及びＵＩＣＣの製造者：モバイルＮＦＣ／通信装置及び関連のＵＩＣＣハードウェアを製造する。

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・　読取装置の製造者：ＮＦＣ読取装置を製造する。

・　アプリケーションの開発者：モバイルＮＦＣアプリケーションを設計するとともに開発する。

・　標準化機関及び産業フォーラム：ＮＦＣアプリケーション及びサービスの相互運用性、下位互換性及び未来開発を可能にするＮＦＣに対する世界標準規格を構築する。

[0010]　前記の白書における重要な決定の１つは、モバイルＮＦＣエコシステムが安定で、その中の全てのエンティティに値を与えるとともに、トラステッドサービスマネジャーの新たな役割を導入させることにより有効となれば、モバイルＮＦＣは有効となるということである。

[0011]　トラステッドサービスマネジャー（ＴＳＭ）の役割は、

・　サービスプロバイダがこれらのカスタマベースを、ＭＮＯを介してアクセスするために単一の接点を提供すること、及び

・　サービスプロバイダに代わってモバイルＮＦＣアプリケーションの安全なダウンロード及びライフサイクルを管理すること

である。

[0012]　ＴＳＭは、サービスのトランザクションステージに関与せず、従って、サービスプロバイダの現存するビジネスモデルが乱されないようになる。ＴＳＭは、国内市場の必要性及び状況に応じて、１つのＭＮＯ、ＭＮＯのコンソーシアム又は独立のトラステッドサードパーティにより管理しうる。１つの市場で動作するＴＳＭの個数は、国内市場の必要性及び状況に依存する。

[0013]　SmartMX カードのようなセキュアエレメントの特徴は、これらのセキュアエレメントがサービスマネジャーを有し、このサービスマネジャーが、アプリケーション及びサービスをセキュアエレメント内にインストールするのを制御するとともに、インストールされたアプリケーションが他のインストールされたアプリケーション及びサービスをアクセスするのを防止するプログラムであるということである。サービスマネジャーは、外部のトラステッドサービスマネジャーと連携する。インストールされるアプリケーション及びサービスは、サービスプロバイダにより提供されるものであり、インストールには、サービスプロバイダによるいかなる不正使用をも防止するためにトラステッドサービスマネジャーをプロキシとして使用する必要がある。インストールされたアプリケーションが、他のインストールされたアプリケーション及びサービスにアクセスするのを防止するためのセキュアエレメントのサービスマネジャーの機能は、安全の点から重要且つ必要であるが、これにより新たなＮＦＣサービスの開発を制限している。セキュアエレメントにおけるサービスマネジャーの機能により生ぜしめられる制限は、サービスプロバイダが、ＮＦＣ機能を有するモバイル通信装置のセキュアエレメント内に既にインストールされている自身のＮＦＣアプリケーション（クーポン、チケット等）の代わりに（ワレット（財布）又はトラステッドMIDlet（ミッドレット）としても知られている）自身のトラステッドアプリケーションを得ることを望む状況を考慮した場合に打撃となる。一般に、トラステッドアプリケーションは、例えば、セキュアエレメントに記憶されたアプリケーションをアクセスするのに限定された検知可能なアプリケーションプログラムインタフェースを用いる必要がある。この状態で起きることは、トラステッドアプリケーションがセキュアエレメントにあるＮＦＣアプリケーションにアクセスできないということである。その理由は、サービスマネジャーがこのアクセスを許可してはならない為である。その理由は、幾つかのサービスプロバイダがこれらの自身のＮＦＣアプリケーションを同じセキュアエレメントにインストールすることができるが、ある１つのサービスプロバイダが自身のワレットを介して、他のサービスプロバイダのインストールされたＮＦＣアプリケーションにアクセスしないようにする必要がある為である。

[0014]　本発明の目的は、既知のセキュアエレメントの欠点を解決するとともに、サービスプロバイダがセキュアエレメント内にワレットをインストールして、このセキュアエレメントがこれらのインストールされたアプリケーションにアクセスすることができ且つ他のサービスプロバイダのインストールされたアプリケーションに関する安全性を侵害することなしに同じサービスプロバイダのアプリケーションにのみアクセスしうるようにする方法を提供することにある。

[0015]　本発明によるアプリケーションに対するトラステッドアプリケーションのアクセスを許可する方法により上述した目的を達成するために、以下に規定する特徴の本発明による方法、すなわち、

SmartMX デバイスのようなセキュアエレメント内に記憶されたサービスプロバイダのアプリケーションに対するこのサービスプロバイダのアクセスの、ワレットとしても知られたトラステッドアプリケーションを許可する方法であって、前記セキュアエレメントは、一般に、記憶されたアプリケーションに対するワレットのアクセスを防止す

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るサービスマネジャーを有しているようにする前記方法において、この方法が、

前記サービスプロバイダにて、そのアプリケーションに対するこのサービスプロバイダのアクセスを許可するために、前記セキュアエレメント内のサービスマネジャーを制御する要求をトラステッドサービスマネジャーに送信するステップと、

このトラステッドサービスマネジャーにて、アクセス権コードを発生させるとともに、このアクセス権コードを前記サービスプロバイダと、前記セキュアエレメント内の前記サービスマネジャーとの双方に送信するステップと、

前記サービスプロバイダにて、ワレットを発生させ、このワレットにアクセス権コードを与え、このワレットを前記セキュアエレメントに送信するステップと

を具え、

前記ワレットは、前記セキュアエレメントにおけるこのワレットのサービスプロバイダのアプリケーションにアクセスしようとする場合に、アクセス権コードを有するサービスマネジャーに接続され、その時点でこのサービスマネジャーがそのサービスプロバイダのアプリケーションに対するワレットのアクセスを許可するようにする方法

を提供する。

[0016] 本発明による通信システムにより上述した目的を達成するために、以下に規定する特徴の本発明による通信システム、すなわち、

少なくとも１つのサービスプロバイダと、少なくとも１つのトラステッドサービスマネジャーと、ＮＦＣ携帯電話のような複数のモバイル通信装置とを有する通信システムであって、前記モバイル通信装置には、前記サービスプロバイダのアプリケーションに対するこのサービスプロバイダのアクセスの、ワレットとしても知られたトラステッドアプリケーションを許可するために、前記サービスプロバイダのアプリケーションを記憶するセキュアエレメントが設けられている当該通信システムにおいて、前記セキュアエレメントがサービスマネジャーを有し、前記サービスプロバイダと、前記トラステッドサービスマネジャーと、前記モバイル通信装置と、前記セキュアエレメントとが、上述した方法のステップを実行するための計算ユニット及びソフトウェアコード部分を有している通信システム

を提供する。

[0017] 本発明によるトラステッドサービスマネジャーにより上述した目的を達成するために、以下に規定する特徴の本発明によるトラステッドサービスマネジャー、すなわち、

サービスプロバイダから、セキュアエレメント内に記憶されたそのアプリケーションに対するこのサービスプロバイダのアクセスを許可するための要求を受けるようにしたトラステッドサービスマネジャーであって、前記セキュアエレメントが、一般に、記憶されたアプリケーションに対するアクセスを防止するサービスマネジャーを有しており、前記トラステッドサービスマネジャーはアクセス権コードを発生し、このアクセス権コードを前記サービスプロバイダと、前記セキュアエレメント内の前記サービスマネジャーとの双方に送信するようになっているトラステッドサービスマネジャー

を提供する。

[0018] 本発明によるサービスプロバイダにより上述した目的を達成するために、以下に規定する特徴の本発明によるサービスプロバイダ、すなわち、

モバイル通信装置内に配置されたSmartMX デバイスのようなセキュアエレメント内にアプリケーションを記憶するようにしたサービスプロバイダであって、このサービスプロバイダは更に、前記セキュアエレメント内のそのアプリケーションに対するアクセスを許可するための要求をトラステッドサービスマネジャーに送信し、このトラステッドサービスマネジャーからアクセス権コードを受信し、ワレットとしても知られたトラステッドアプリケーションを発生し、このトラステッドアプリケーションに前記アクセス権コードを与え、このトラステッドアプリケーションを前記セキュアエレメントに送信するようになっているサービスプロバイダ

を提供する。

[0019] 本発明によるサービスマネジャーコンピュータプログラムプロダクトにより上述した目的を達成するために、以下に規定する特徴の本発明によるサービスマネジャーコンピュータプログラムプロダクト、すなわち、

算術論理演算ユニット及びメモリを有するセキュアエレメント内に直接ローディングされるサービスマネジャ

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ーコンピュータプログラムプロダクトであって、このサービスマネジャーコンピュータプログラムプロダクトは、前記セキュアエレメントを起動する際に、アクセス権コードを受信して記憶するステップと、前記セキュアエレメント内にインストールされたワレットに接続するステップと、このワレットからアクセス権コードを受信するステップと、このアクセス権コードを記憶されたアクセス権コードと比較するステップと、前記アクセス権コードが前記記憶されたアクセス権コードと一致した場合に、前記アクセス権コードを有し前記セキュアエレメント内にインストールされたアプリケーションに対するワレットのアクセスを許可するステップとを実行するソフトウェアコード部分を有しているサービスマネジャーコンピュータプログラムプロダクト

を提供する。

[0020] 上述した目的を達成するために、SmartMX デバイスとするのが好ましい本発明によるセキュアエレメントが、算術論理演算ユニット及びメモリを有し、このセキュアエレメント内にローディングされた場合のサービスマネジャーコンピュータプログラムプロダクトを処理するようにする。

[0021] 本発明による特徴によれば、トラステッドアプリケーション（ワレット又はMIDlet）をセキュアエレメント内にインストールされたユーザに提供することができ、これらのトラステッドアプリケーションはサービスマネジャーによりこれらトラステッドアプリケーションの（これらトラステッドアプリケーションのみの）サービスプロバイダのアプリケーションにアクセスしうるようになり、この際他のサービスプロバイダに関する安全性を侵害することがないという利点が得られる。これらのアクセス権は、信頼性の高いインスタンスであるトラステッドサービスマネジャーにより与えられる。

[0022] 本発明の幾つかの例では、サービスプロバイダ及びトラステッドサービスマネジャーが、好ましいデータ伝送プロトコルをＨＴＴＰＳとしたインターネットのようなコンピュータネットワークを介して相互通信するようにする。これらの例によれば、データ伝送が、良好に規定され且つアクセス性の高いネットワークインフラストラクチュア及びサービスに依存するという利点が得られる。

[0023] 本発明の他の例では、トラステッドサービスマネジャーとサービスプロバイダとの双方又は何れか一方が、モバイルネットワークオペレータの、ショートメッセージサービスとするのが好ましいオーバーザエアーサービスを介して、モバイル通信装置内に配置されたセキュアエレメントと通信するようにする。これらの例によっても、データ伝送が、良好に規定され且つアクセス性の高いネットワークインフラストラクチュア及びサービスに依存するという利点が得られる。

[0024] 本発明の上述した及びその他の態様は、以下に詳細に説明する代表的な実施例から明らかとなるであろう。しかし、本発明はこの代表的な実施例に限定されるものではない。

[0026] 図１は、通信システム、例えば、前述したＧＳＭＡの白書に記載されているようなモバイルＮＦＣエコシステムを示す線図である。この通信システムは、２つのサービスプロバイダＳＰ１及びＳＰ２と、トラステッドサービスマネジャーＴＳＭと、複数のモバイル通信装置とを有しているが、図面には１つのみのモバイル通信装置ＭＯＢを示してある。サービスプロバイダＳＰ１及びＳＰ２は、モバイルネットワークオペレータにより与えられるオーバーザエアー（ＯＴＡ）サービスを介して、特に、ショートメッセージサービス（ＳＭＳ）のサービスを介して、又はコンピュータネットワーク及びワイヤレスサービス、例えば、ＮＦＣサービスを介して、又はこれらの双方を介してモバイル通信装置ＭＯＢと通信する。ＮＦＣサービスを実行するためのＮＦＣ端末は、モバイルネットワークオペレータにより与えることができる。同様に、トラステッドサービスマネジャーＴＳＭが、モバイルネットワークオペレータのオーバーザエアーサービス、例えば、ショートメッセージサービスを介してモバイル通信装置ＭＯＢと通信する。サービスプロバイダＳＰ１及びＳＰ２は、好ましいデータ伝送プロトコルがＨＴＴＰＳであるインターネットのようなコンピュータネットワークを介してトラステッドサービスマネジャーＴＳＭと通信する。

[0027] モバイル通信装置ＭＯＢは例えば、ＮＦＣ携帯電話として構成することができる。このＮＦＣ携帯電話は、安全対策が強化されているとともに自身の計算能力を有しているメモリ装置であるセキュアエレメントＳＥを具えている。セキュアエレメントＳＥは、複数のインタフェースオプションを有しうるSmartMX デバイスとして構成するのが有利である。SmartMX デバイスは、暗号化コプロセッサをも有しており、Javaオペレーティングシステムを含むオペレーティングシステムの実施を可能にする。セキュアエレメントＳＥは、サービスプロバイダＳＰ１及びＳＰ２により提供されるＮＦＣアプリケーションappSP1.1、appSP1.2、appSP2.1のインストールを管理するように構成されたコンピュータプログラムとして実現されたサービスマネジャーＳＭを有する。サービスマネジャーＳＭは、安全上の理由で、インストールされたアプリケーションが他のインストールされたアプリケーションにアクセスするのを阻止する。従って、たとえサービスプロバイダＳＰ１又はＳＰ２（本例におけるようにサービスプロバイダＳＰ１）が、モバイル通信装置ＭＯＢのセキュアエレメントＳＥ内にインストールされたそのアプリケーション（ク

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