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(12) **United States Patent**
Fisher

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(54) **PROXIMITY PAYMENT WITH COUPON REDEMPTION USING A SERVER AND AN IDENTIFICATION CODE**

(71) Applicant: **Michelle Fisher**, Marina Del Rey, CA (US)

(72) Inventor: **Michelle Fisher**, Marina Del Rey, CA (US)

(73) Assignee: **Michelle Fisher**, Marina Del Rey, CA (US)

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This patent is subject to a terminal disclaimer.

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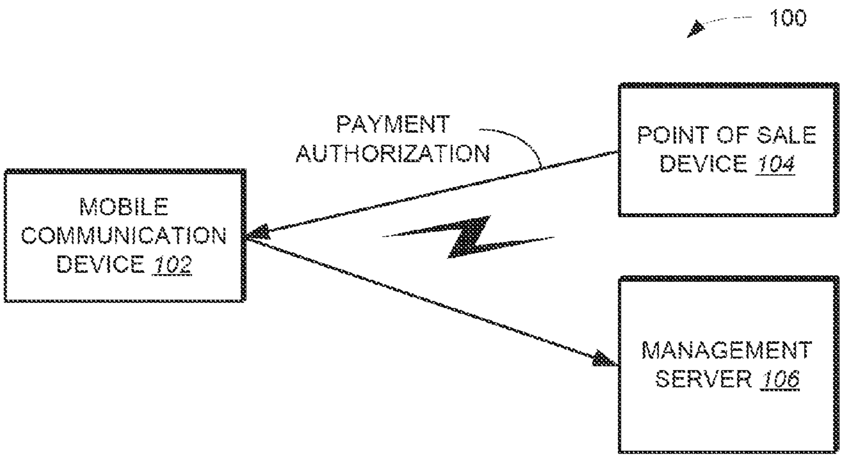
Primary Examiner — Olusegun Goyea

(57) **ABSTRACT**

The invention describes how a consumer can hold their NFC enabled device in proximity to an NFC enabled point-of-sale terminal and with a single "wave" or "tap" to automatically redeem coupons, pay for a purchase using a default payment card or a selected card, view receipts view reward point balances, and receive relevant coupons and other digital artifacts both before and after the purchase. The NFC enabled device includes a secure element with a payment application, payment credentials, and other digital artifacts such as coupons. The secure element can be internal to the mobile device, externally affixed to the mobile device, or inserted into a slot within the body of the mobile device.

19 Claims, 17 Drawing Sheets



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continuation of application No. 13/338,203, filed on Dec. 27, 2011, now Pat. No. 8,332,272, and a continuation of application No. 11/948,903, filed on Nov. 30, 2007, now Pat. No. 8,352,323, and a continuation of application No. 11/956,261, filed on Dec. 13, 2007, now Pat. No. 8,693,995, and a continuation of application No. 11/467,441, filed on Aug. 25, 2006, now abandoned, and a continuation of application No. 12/592,581, filed on Nov. 25, 2009, and a continuation of application No. 11/939,821, filed on Nov. 14, 2007, now Pat. No. 8,290,433, and a continuation of application No. 11/944,267, filed on Nov. 21, 2007, and a continuation of application No. 11/933,321, filed on Oct. 31, 2007, now Pat. No. 8,275,312, which is a continuation-in-part of application No. 11/467, 441.

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(58) **Field of Classification Search**

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See application file for complete search history.

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2009/0061884	A1*	3/2009	Rajan	G06Q 30/02 455/445
2009/0063312	A1*	3/2009	Hurst	G06Q 20/105 705/30
2009/0076912	A1*	3/2009	Rajan	G06Q 30/0267 705/14.64
2009/0088203	A1*	4/2009	Havens	G06K 7/10881 455/556.1
2009/0098825	A1	4/2009	Huomo	
2009/0104888	A1*	4/2009	Cox	G06F 21/31 455/410
2009/0106112	A1*	4/2009	Dalmia	G06Q 20/04 705/14.17
2009/0112747	A1*	4/2009	Mullen	G06Q 20/04 705/35
2009/0124234	A1*	5/2009	Fisher	G06Q 20/32 455/406
2009/0132362	A1*	5/2009	Fisher	G06Q 10/06 705/14.47
2009/0143104	A1*	6/2009	Loh	G06Q 20/32 455/558
2009/0144161	A1*	6/2009	Fisher	G06Q 20/20 705/16
2009/0177587	A1*	7/2009	Siegal	G06F 21/32 705/67
2009/0227281	A1*	9/2009	Hammad	G06K 19/07309 455/550.1
2010/0057619	A1*	3/2010	Weller	G06Q 20/02 705/67
2010/0063895	A1*	3/2010	Dominguez	G06Q 20/02 705/26.1
2010/0145835	A1*	6/2010	Davis	G06Q 20/10 705/30
2010/0252624	A1*	10/2010	Van de Velde	G06Q 20/18 235/382
2010/0312694	A1*	12/2010	Homeier-Beals	G06Q 20/10 705/39
2011/0055038	A1*	3/2011	Mengerink	G06Q 20/085 705/26.1
2011/0212751	A1*	9/2011	Havens	G06K 7/10881 455/556.1
2011/0320316	A1*	12/2011	Randazza	G06Q 20/02 705/26.43
2012/0030044	A1*	2/2012	Hurst	G06Q 20/105 705/18
2012/0150744	A1*	6/2012	Carlson	G06Q 20/02 705/44
2012/0215573	A1*	8/2012	Sussman	G06F 9/50 705/5
2012/0220314	A1*	8/2012	Altman	G06Q 30/0207 455/456.3
2012/0265677	A1*	10/2012	Rackley, III	G06Q 20/02 705/41
2013/0013501	A1*	1/2013	Rackley, III	G06Q 20/02 705/41
2013/0054470	A1*	2/2013	Campos	G06Q 20/36 705/67
2013/0212016	A1*	8/2013	Davis	G06Q 20/10 705/42

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U.S. Appl. No. 12/592,581, Office Action mailed Jun. 4, 2010, 20 p.

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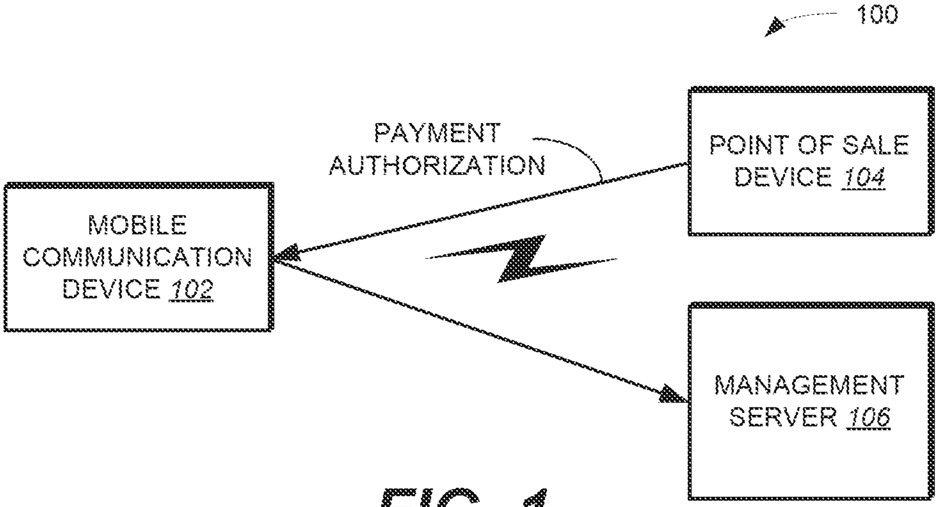

100
PAYMENT AUTHORIZATION
POINT OF SALE DEVICE 104
MOBILE COMMUNICATION DEVICE 102
MANAGEMENT SERVER 106

FIG. 1

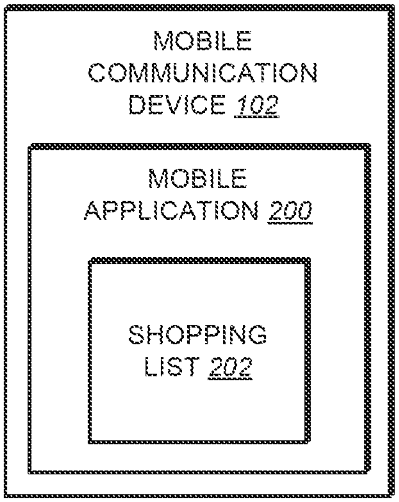

MOBILE COMMUNICATION DEVICE 102
MOBILE APPLICATION 200
SHOPPING LIST 202

FIG. 2

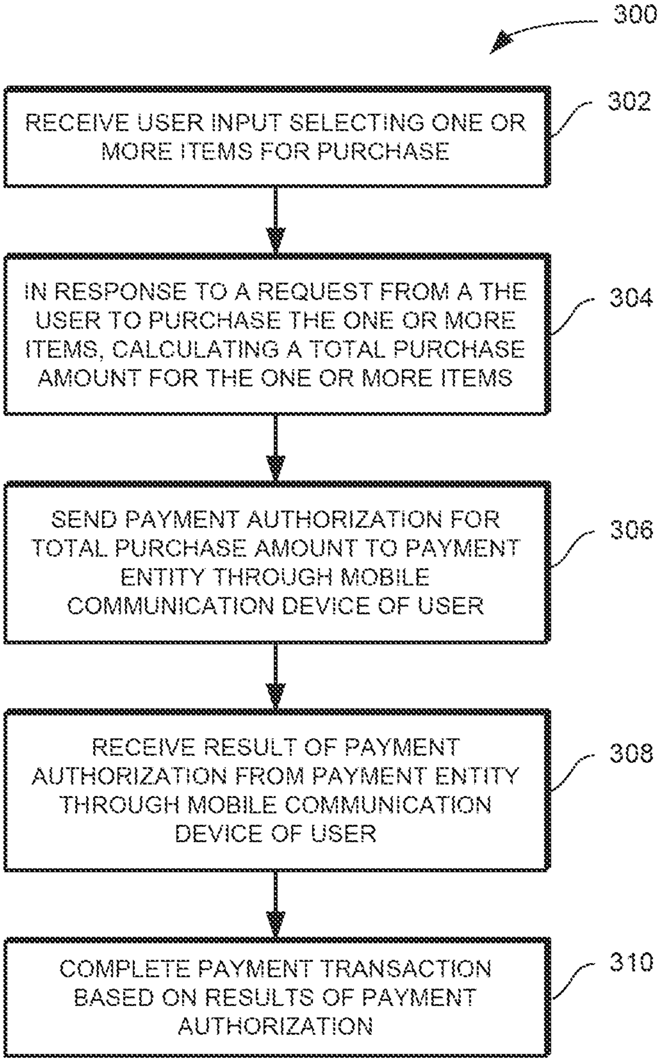

300
RECEIVE USER INPUT SELECTING ONE OR MORE ITEMS FOR PURCHASE
302
IN RESPONSE TO A REQUEST FROM A THE USER TO PURCHASE THE ONE OR MORE ITEMS, CALCULATING A TOTAL PURCHASE AMOUNT FOR THE ONE OR MORE ITEMS
304
SEND PAYMENT AUTHORIZATION FOR TOTAL PURCHASE AMOUNT TO PAYMENT ENTITY THROUGH MOBILE COMMUNICATION DEVICE OF USER
306
RECEIVE RESULT OF PAYMENT AUTHORIZATION FROM PAYMENT ENTITY THROUGH MOBILE COMMUNICATION DEVICE OF USER
308
COMPLETE PAYMENT TRANSACTION BASED ON RESULTS OF PAYMENT AUTHORIZATION
310

FIG. 3

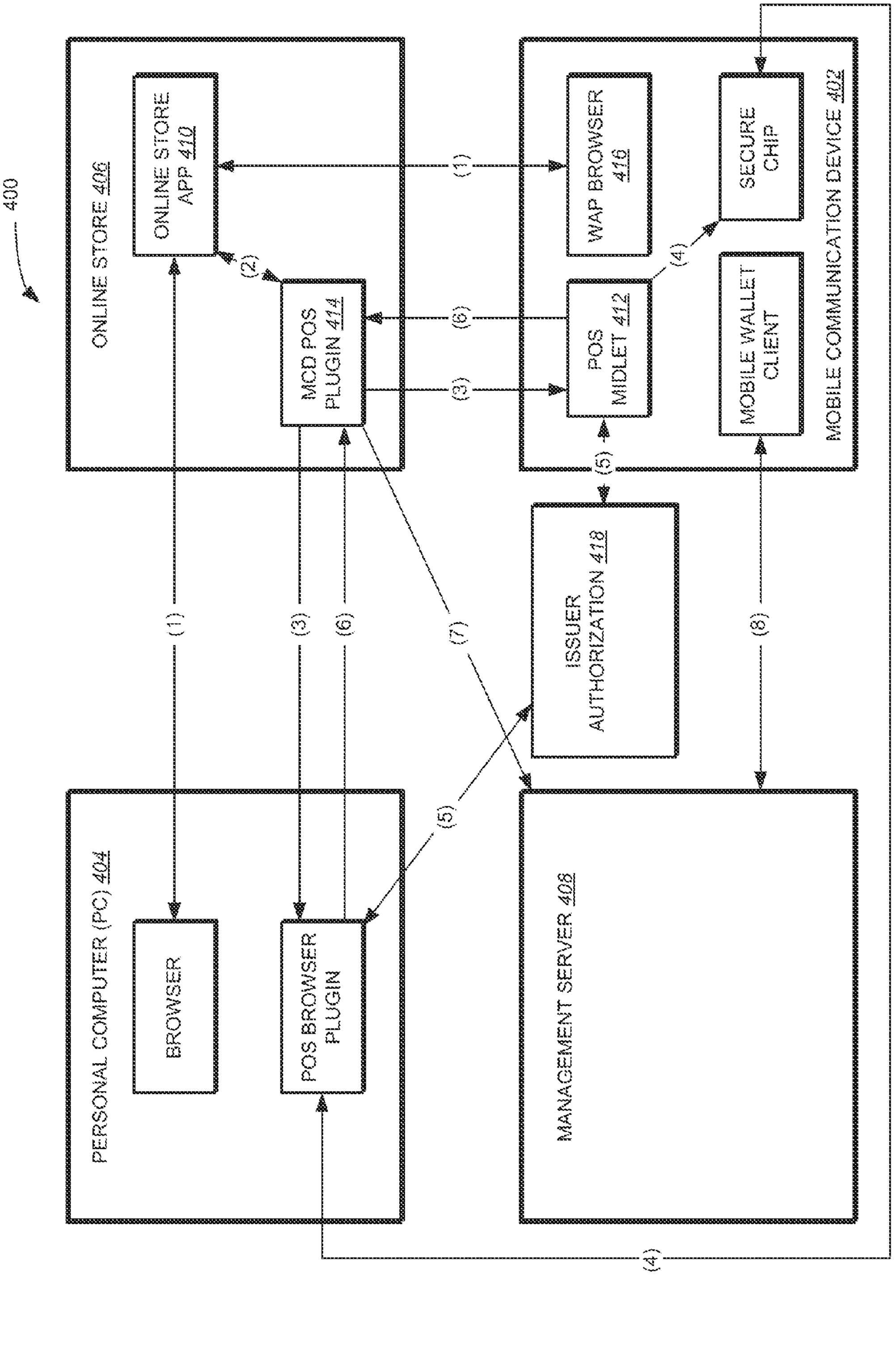

400
ONLINE STORE 406
ONLINE STORE APP 410
MCD POS PLUGIN 414
WAP BROWSER 416
SECURE CHIP
POS MIDLET 412
MOBILE WALLET CLIENT
MOBILE COMMUNICATION DEVICE 402
ISSUER AUTHORIZATION 418
PERSONAL COMPUTER (PC) 404
BROWSER
POS BROWSER PLUGIN
MANAGEMENT SERVER 408
(1)
(2)
(3)
(4)
(5)
(6)
(7)
(8)

FIG. 4

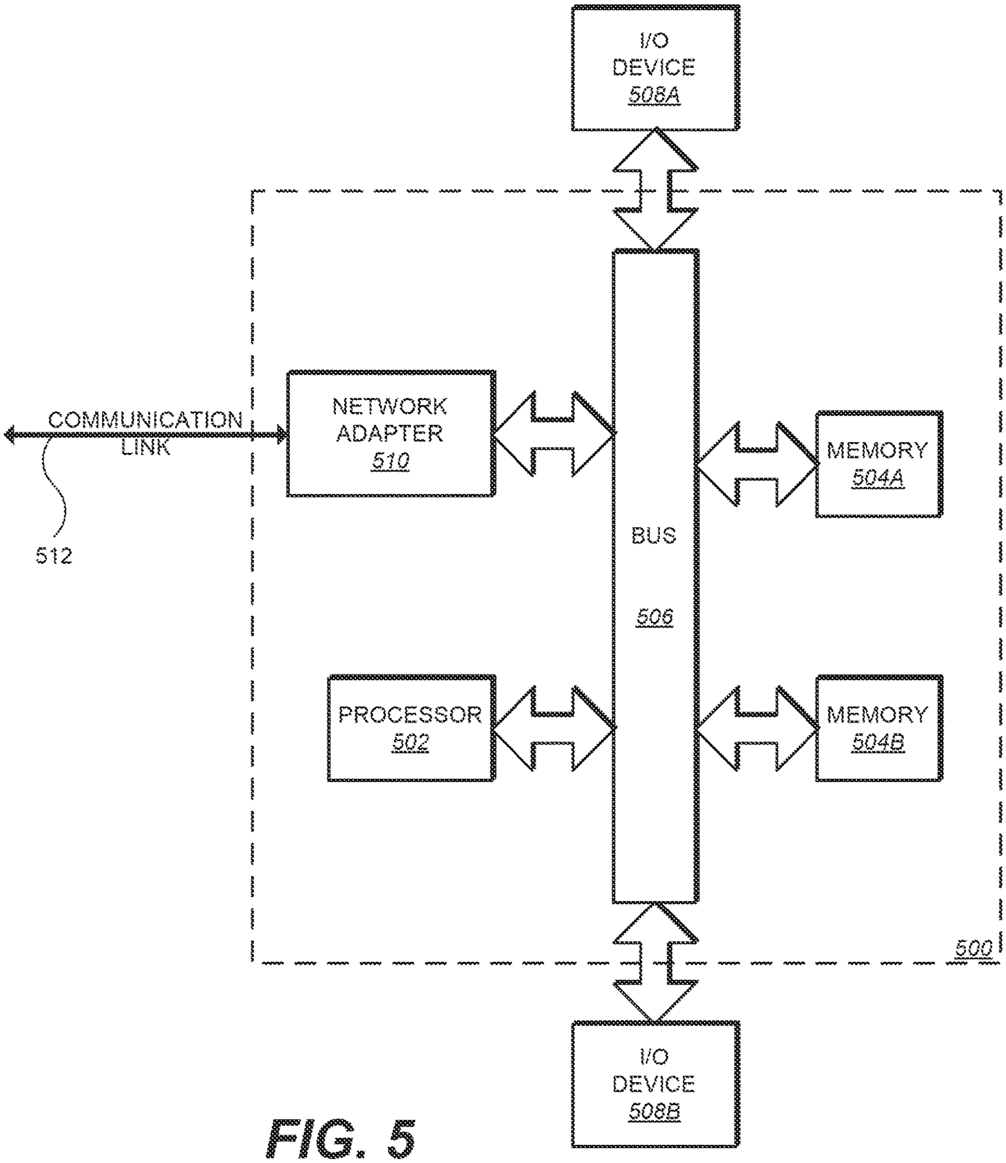

I/O DEVICE 508A
COMMUNICATION LINK
NETWORK ADAPTER 510
MEMORY 504A
BUS 506
512
PROCESSOR 502
MEMORY 504B
500
I/O DEVICE 508B

FIG. 5

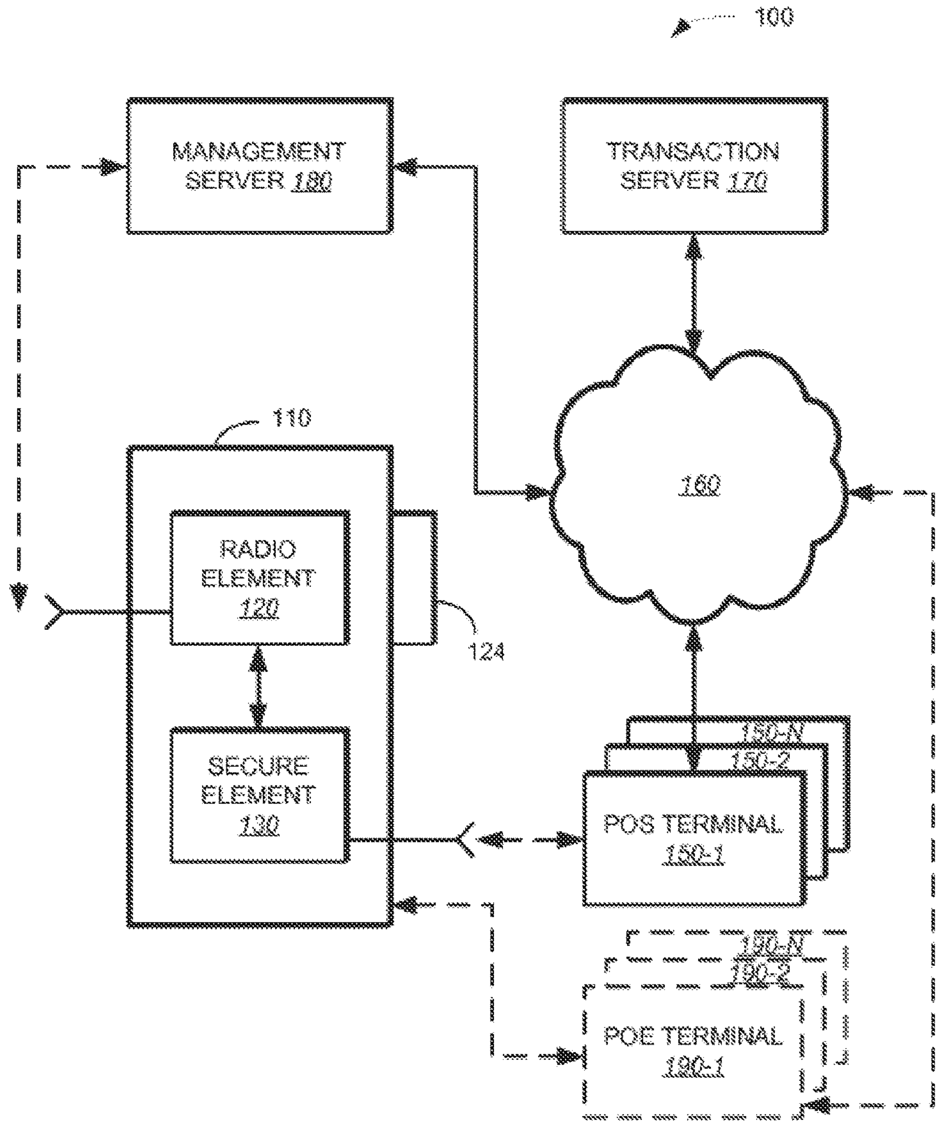

100
MANAGEMENT SERVER 180
TRANSACTION SERVER 170
110
160
RADIO ELEMENT 120
124
SECURE ELEMENT 130
150-N
150-2
POS TERMINAL 150-1
190-N
190-2
POE TERMINAL 190-1

FIGURE 6

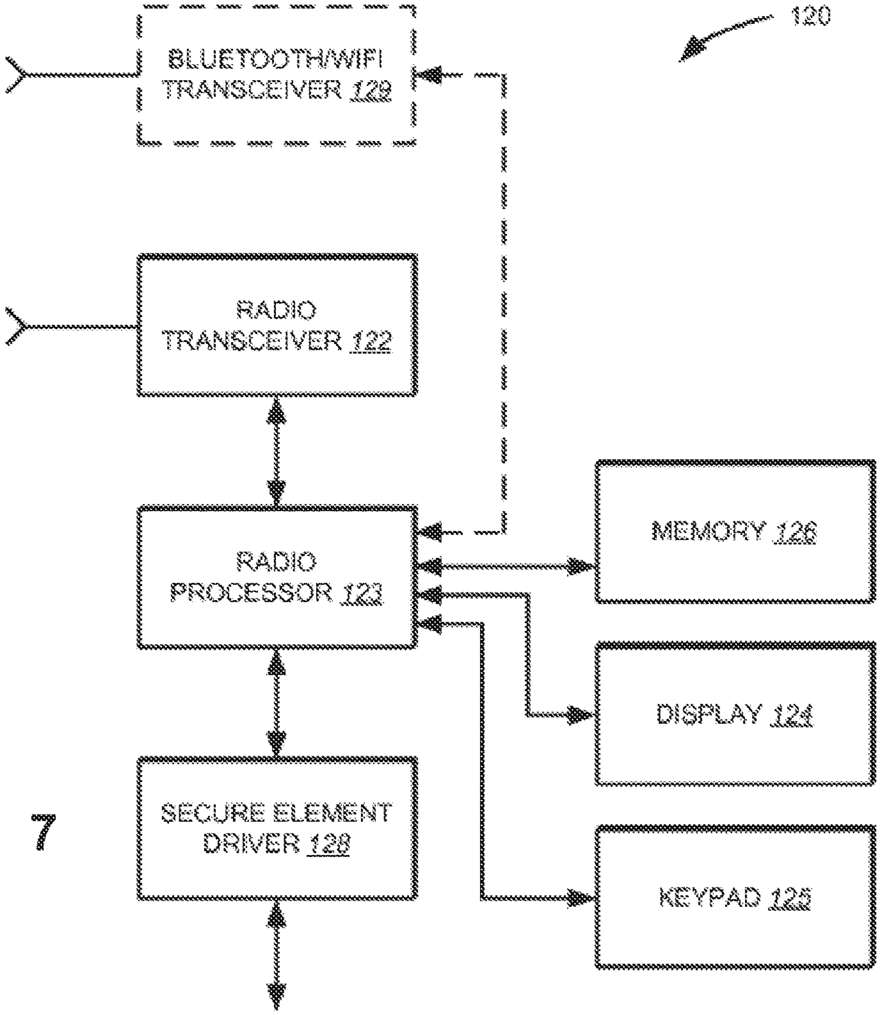

120
BLUETOOTH/WIFI TRANSCEIVER 129
RADIO TRANSCEIVER 122
RADIO PROCESSOR 123
SECURE ELEMENT DRIVER 128
MEMORY 126
DISPLAY 124
KEYPAD 125

FIG. 7

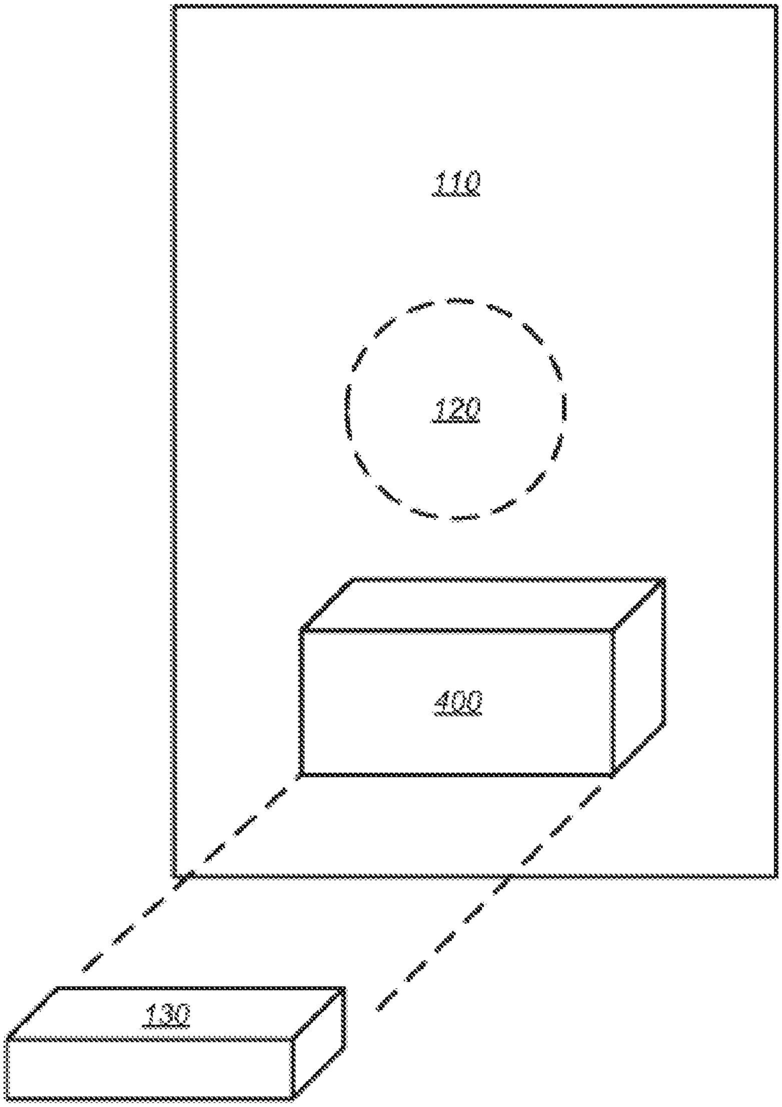


FIGURE 8

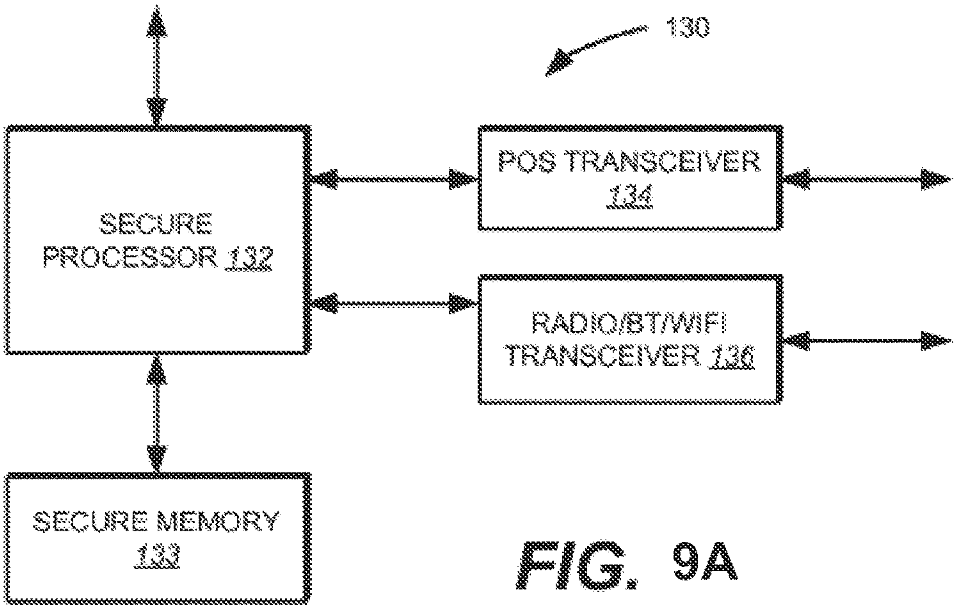

130
SECURE PROCESSOR 132
POS TRANSCEIVER 134
RADIO/BT/WIFI TRANSCEIVER 136
SECURE MEMORY 133

FIG. 9A

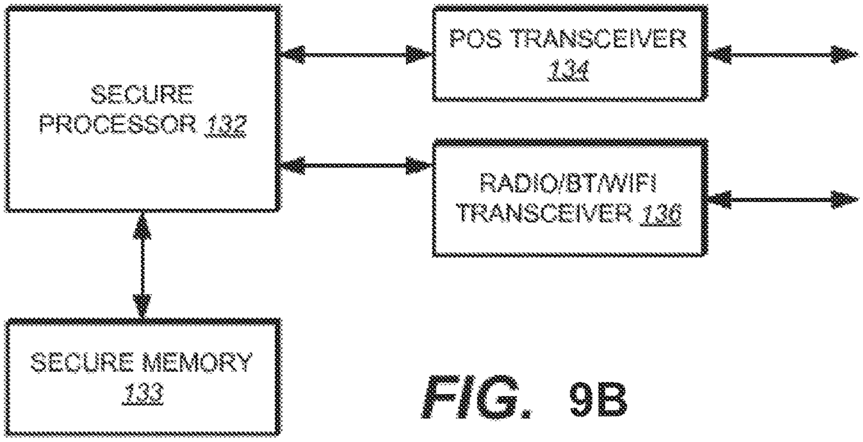


FIG. 9B

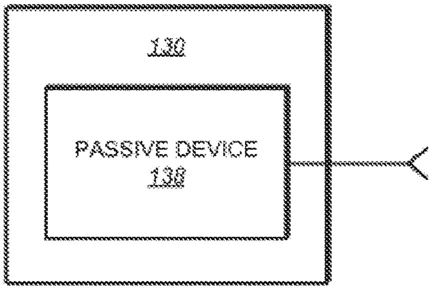


FIGURE 9C

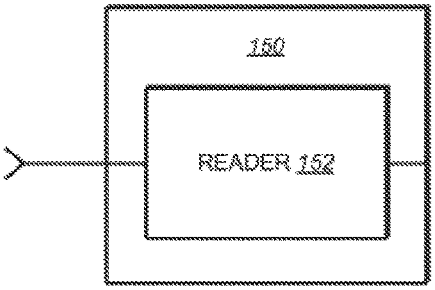


FIGURE 10

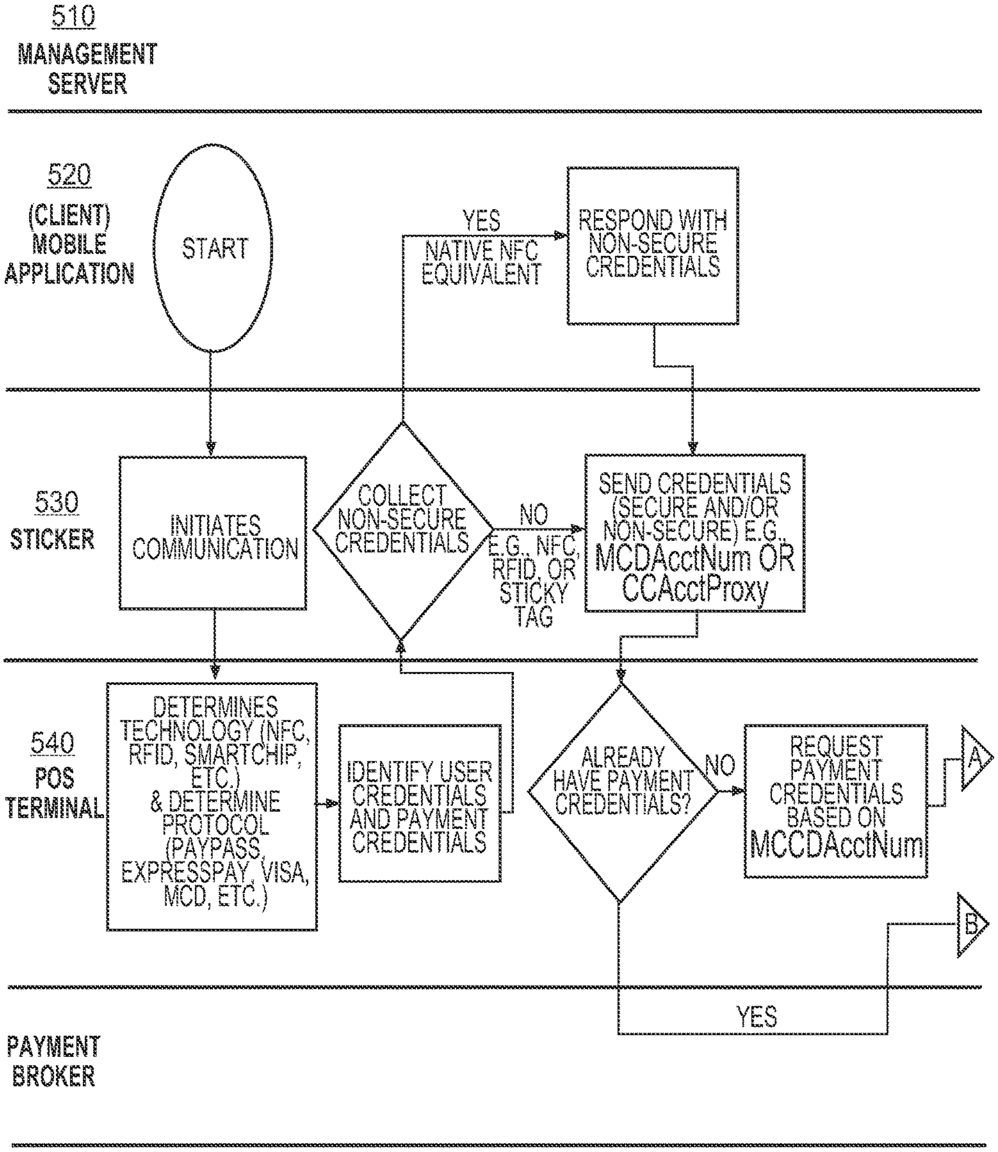

510
MANAGEMENT SERVER
520
(CLIENT) MOBILE APPLICATION
START
YES
NATIVE NFC EQUIVALENT
RESPOND WITH NON-SECURE CREDENTIALS
530
STICKER
INITIATES COMMUNICATION
COLLECT NON-SECURE CREDENTIALS
NO
E.G., NFC, RFID, OR STICKY TAG
SEND CREDENTIALS (SECURE AND/OR NON-SECURE) E.G., MCDAcctNum OR CCAcctProxy
540
POS TERMINAL
DETERMINES TECHNOLOGY (NFC, RFID, SMARTCHIP, ETC.) & DETERMINE PROTOCOL (PAYPASS, EXPRESSPAY, VISA, MCD, ETC.)
IDENTIFY USER CREDENTIALS AND PAYMENT CREDENTIALS
ALREADY HAVE PAYMENT CREDENTIALS?
NO
REQUEST PAYMENT CREDENTIALS BASED ON MCCDAcctNum
A
B
YES
PAYMENT BROKER

FIG. 11A

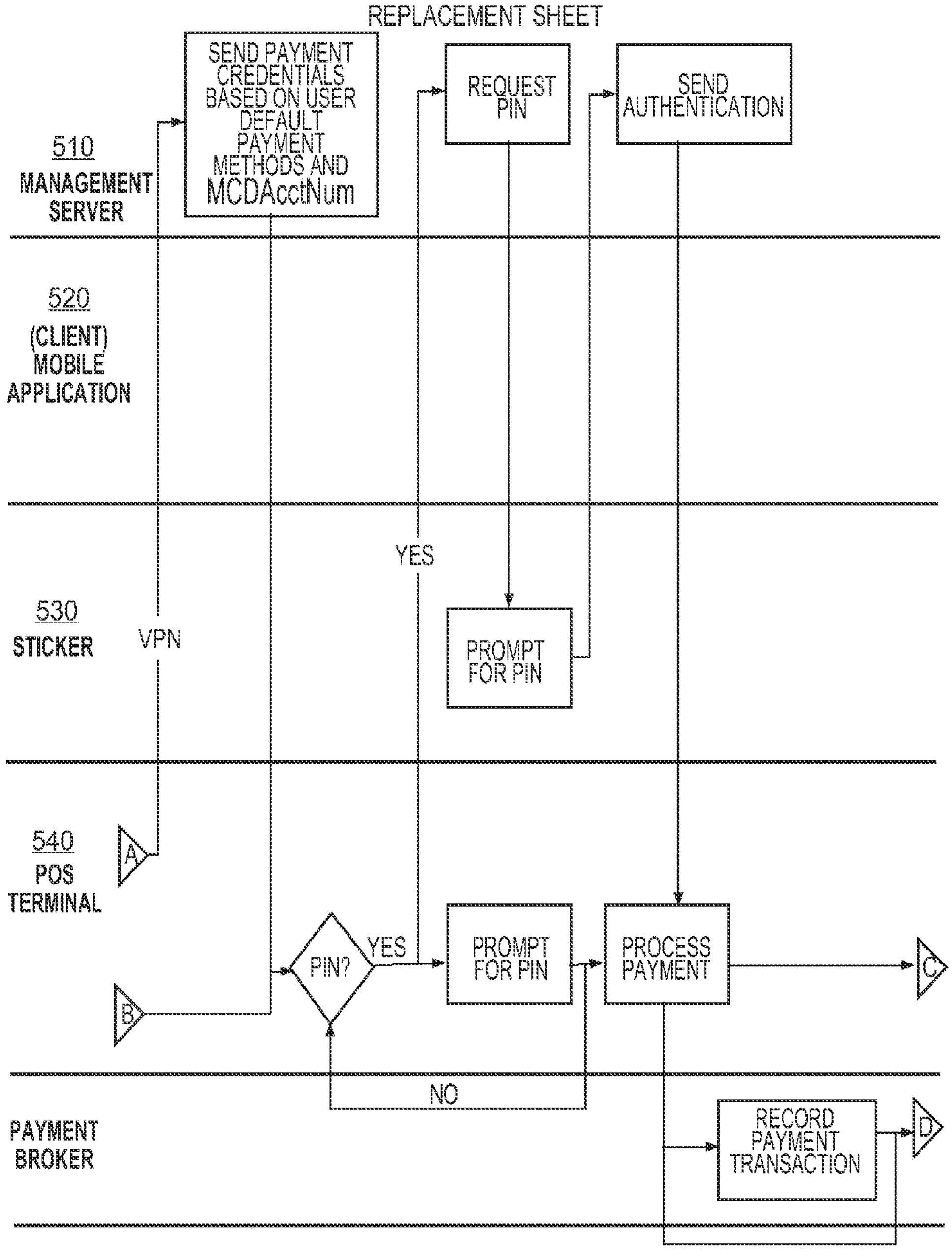

REPLACEMENT SHEET
510
MANAGEMENT SERVER
SEND PAYMENT CREDENTIALS BASED ON USER DEFAULT PAYMENT METHODS AND MCDAcctNum
REQUEST PIN
SEND AUTHENTICATION
520
(CLIENT) MOBILE APPLICATION
YES
530
STICKER
VPN
PROMPT FOR PIN
540
POS TERMINAL
A
B
PIN?
YES
PROMPT FOR PIN
PROCESS PAYMENT
C
NO
PAYMENT BROKER
RECORD PAYMENT TRANSACTION
D

FIG. 11B

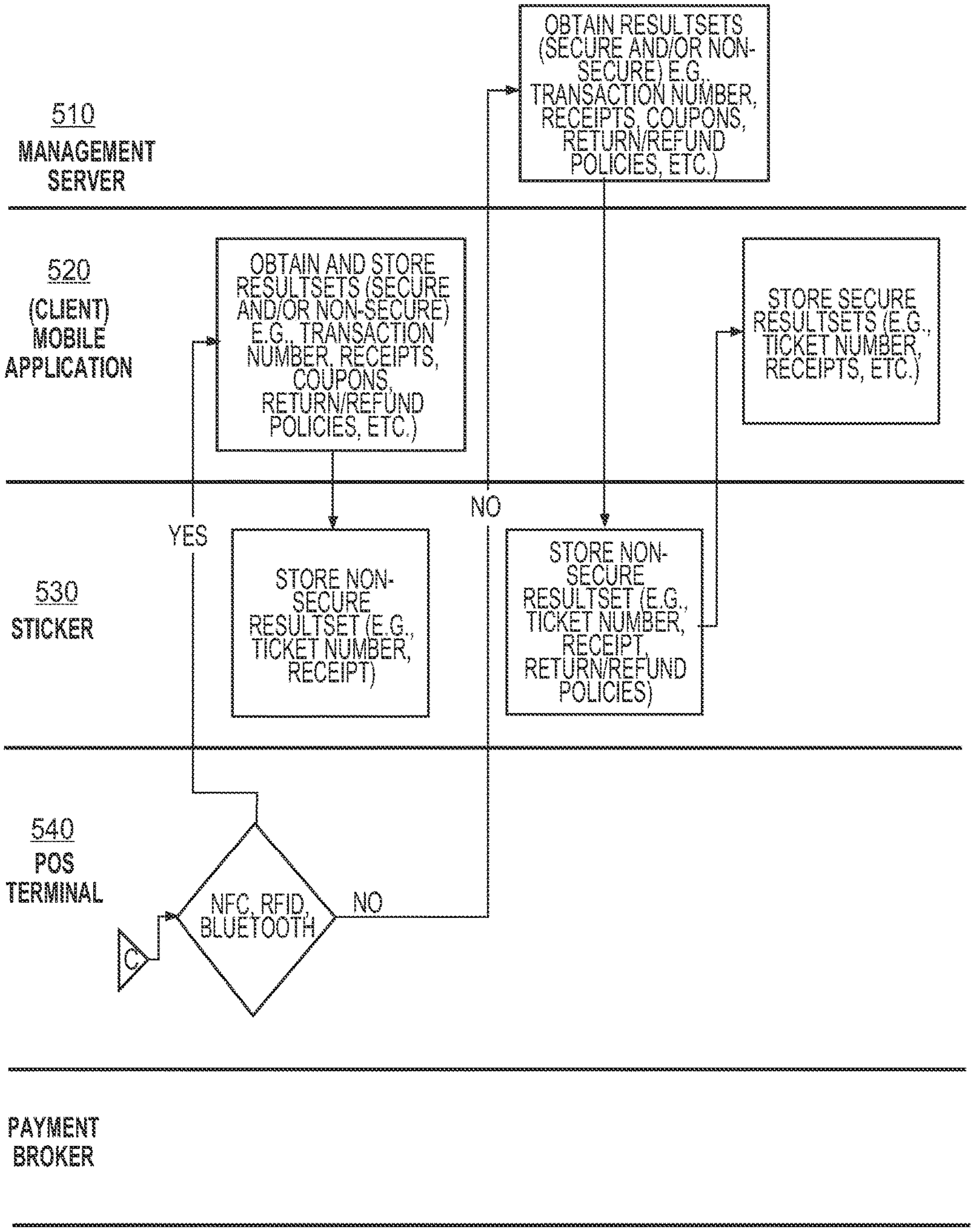

510
MANAGEMENT SERVER
OBTAIN RESULTSETS (SECURE AND/OR NON-SECURE) E.G., TRANSACTION NUMBER, RECEIPTS, COUPONS, RETURN/REFUND POLICIES, ETC.)
520
(CLIENT) MOBILE APPLICATION
OBTAIN AND STORE RESULTSETS (SECURE AND/OR NON-SECURE) E.G., TRANSACTION NUMBER, RECEIPTS, COUPONS, RETURN/REFUND POLICIES, ETC.)
STORE SECURE RESULTSETS (E.G., TICKET NUMBER, RECEIPTS, ETC.)
NO
YES
530
STICKER
STORE NON-SECURE RESULTSET (E.G., TICKET NUMBER, RECEIPT)
STORE NON-SECURE RESULTSET (E.G., TICKET NUMBER, RECEIPT, RETURN/REFUND POLICIES)
540
POS TERMINAL
C
NFC, RFID, BLUETOOTH
NO
PAYMENT BROKER

FIG. 11C

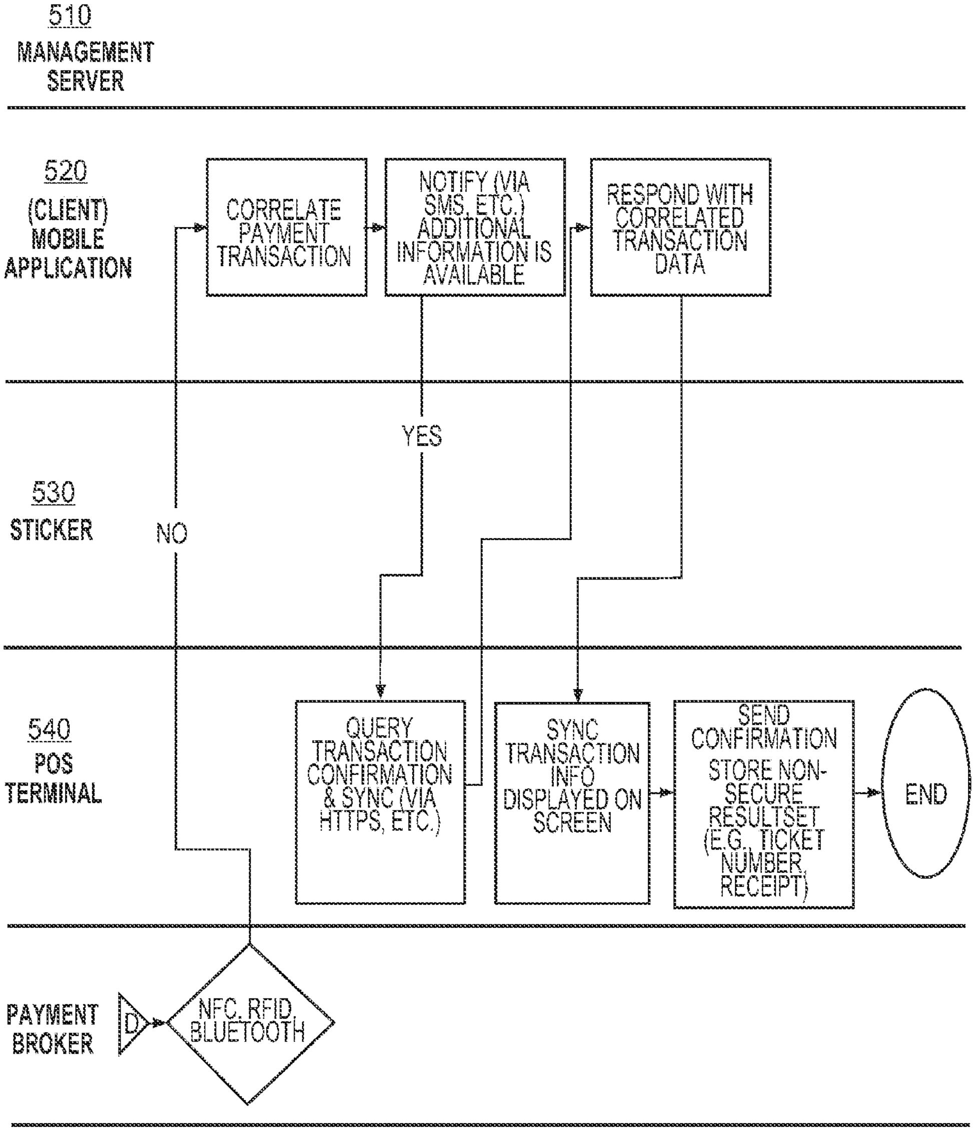

510
MANAGEMENT SERVER
520
(CLIENT) MOBILE APPLICATION
530
STICKER
540
POS TERMINAL
PAYMENT BROKER
CORRELATE PAYMENT TRANSACTION
NOTIFY (VIA SMS, ETC.) ADDITIONAL INFORMATION IS AVAILABLE
RESPOND WITH CORRELATED TRANSACTION DATA
YES
NO
QUERY TRANSACTION CONFIRMATION & SYNC (VIA HTTPS, ETC.)
SYNC TRANSACTION INFO DISPLAYED ON SCREEN
SEND CONFIRMATION
STORE NON-SECURE RESULTSET (E.G. TICKET NUMBER, RECEIPT)
END
D
NFC, RFID, BLUETOOTH

FIG. 11D

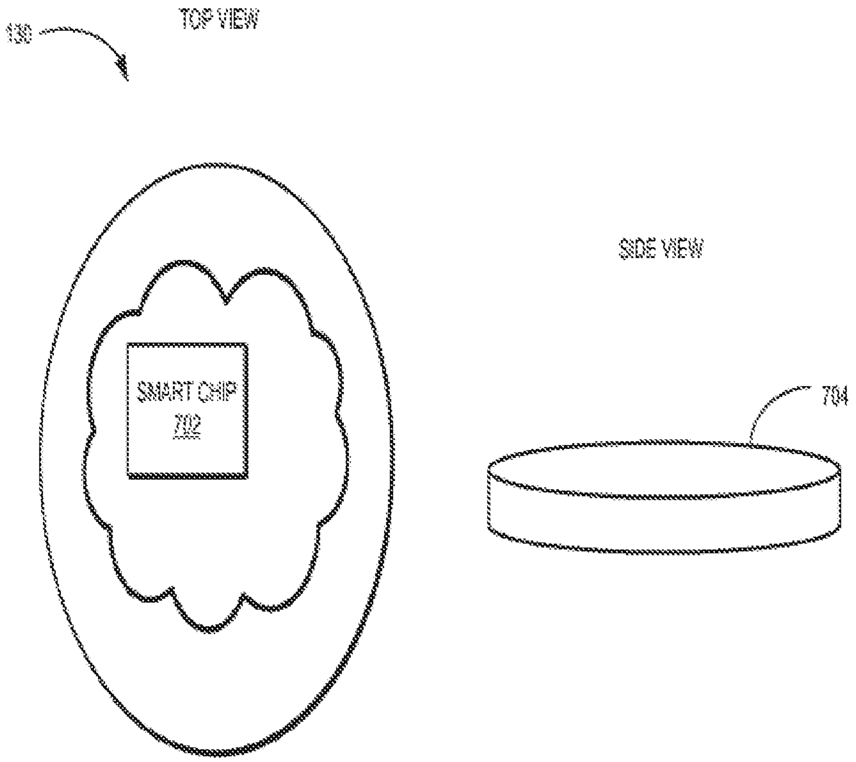


FIGURE 12

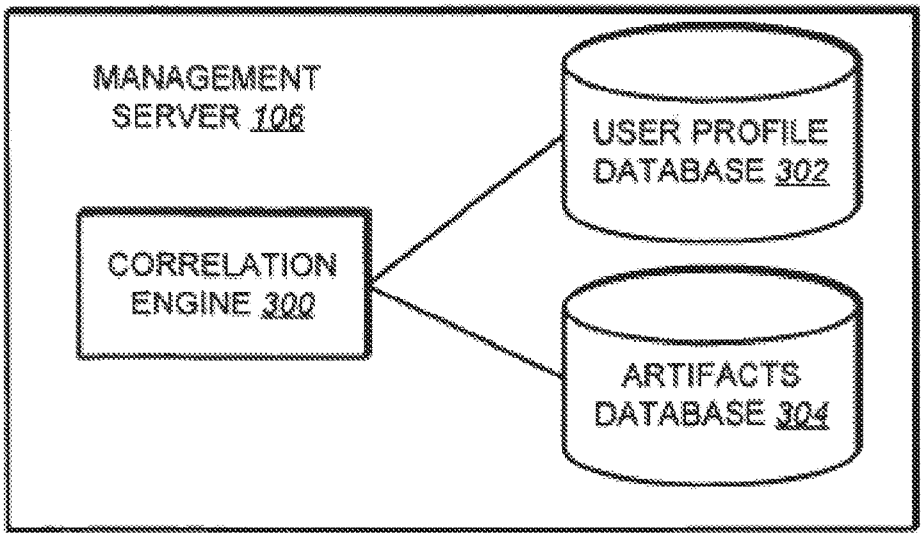
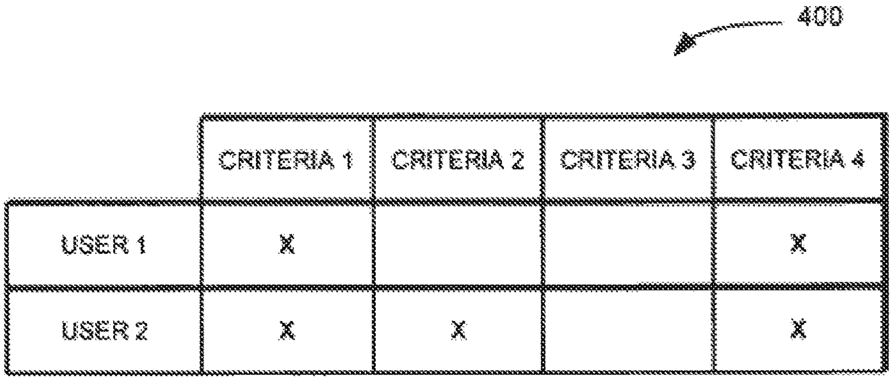


FIGURE 13



	CRITERIA 1	CRITERIA 2	CRITERIA 3	CRITERIA 4
USER 1	X			X
USER 2	X	X		X

FIGURE 14

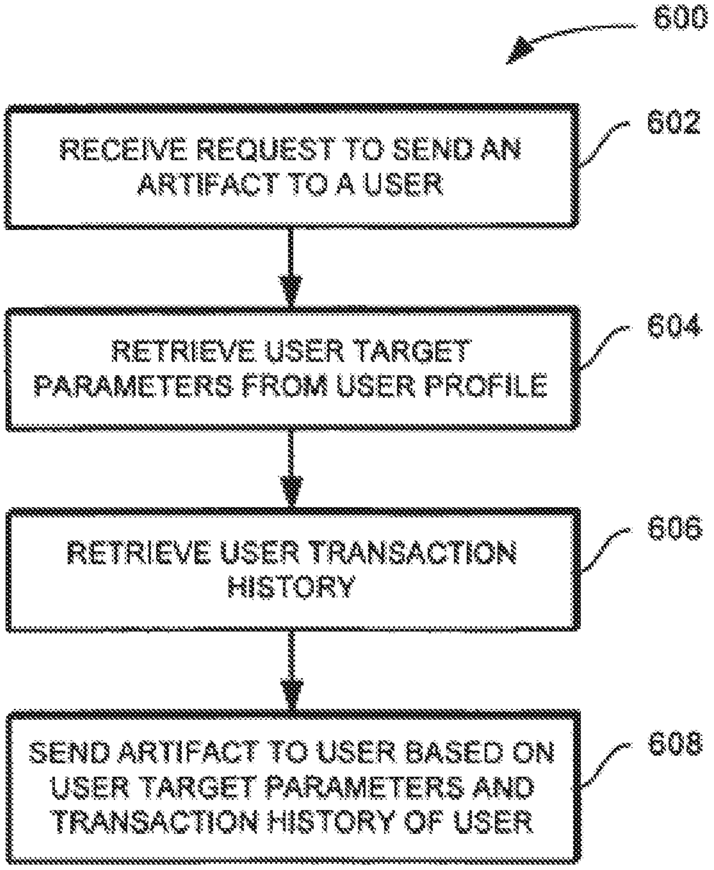

600
RECEIVE REQUEST TO SEND AN ARTIFACT TO A USER
602
RETRIEVE USER TARGET PARAMETERS FROM USER PROFILE
604
RETRIEVE USER TRANSACTION HISTORY
606
SEND ARTIFACT TO USER BASED ON USER TARGET PARAMETERS AND TRANSACTION HISTORY OF USER
608

FIGURE 15

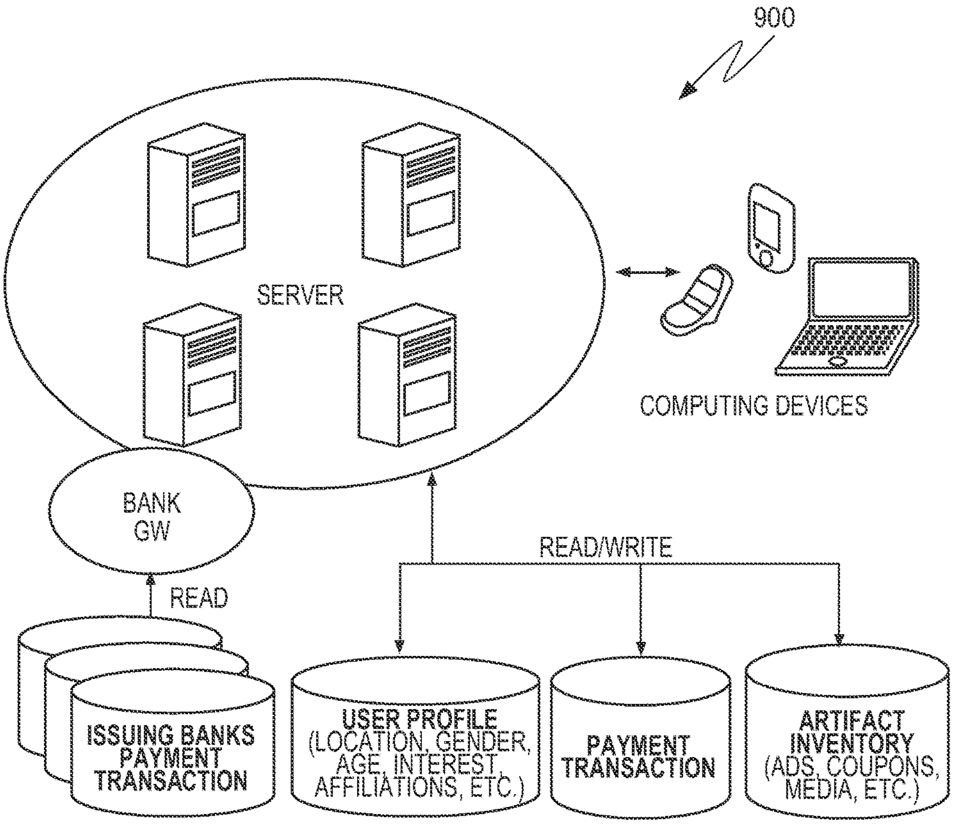

900
SERVER
COMPUTING DEVICES
BANK GW
READ
READ/WRITE
ISSUING BANKS PAYMENT TRANSACTION
USER PROFILE (LOCATION, GENDER, AGE, INTEREST, AFFILIATIONS, ETC.)
PAYMENT TRANSACTION
ARTIFACT INVENTORY (ADS, COUPONS, MEDIA, ETC.)

FIG. 16

PROXIMITY PAYMENT WITH COUPON REDEMPTION USING A SERVER AND AN IDENTIFICATION CODE

CROSS REFERENCE TO RELATED APPLICATIONS/PRIORITY CLAIMS

This application is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 13/680,303 entitled "Single Tap Transactions Using A Mobile Application", filed on Nov. 19, 2012, which is a continuation of and claims priority under 35 USC 120 U.S. patent application Ser. No. 13/338,203, entitled "Single Tap Transactions Using an NFC Enabled Mobile device" filed on Dec. 27, 2011, now U.S. Pat. No. 8,332,272 which is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/948,903 entitled "Method And System For Conducting An Online Payment Transaction Using A Mobile Communication Device", filed on Nov. 30, 2007, now U.S. Pat. No. 8,352,323; and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/956,261, entitled "Method and System for Delivering Customized Information To A Mobile Communication Device Based on User Affiliations" filed on Dec. 13, 2007, now U.S. Pat. No. 8,693,995; and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/467,441, entitled "Method and Apparatus For Completing A Transaction Using A Wireless Mobile Communication Channel and Another Communication Channel" filed on Aug. 26, 2006; and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 12/592,581, entitled "Method and Apparatus For Completing A Transaction Using A Wireless Mobile Communication Channel and Another Communication Channel", filed on Nov. 25, 2009; and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/939,821, entitled "Method and System for Securing Transactions Made Through a Mobile Communication Device" filed on Nov. 14, 2007 now U.S. Pat. No. 8,290,433; and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/944,267, entitled "Method And System For Delivering Information To A Mobile Communication Device Based On Consumer Transactions", filed on Nov. 21, 2007 and is a continuation of and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/933,321 entitled "Induction Triggered Transactions Using an External NFC Device", filed Oct. 31, 2007, now U.S. Pat. No. 8,275,312 which is a Continuation-in-part and claims priority under 35 USC 120 to U.S. patent application Ser. No. 11/467,441, entitled "Method and Apparatus For Completing A Transaction Using A Wireless Mobile Communication Channel and Another Communication Channel" filed on Aug. 26, 2006, the entirety all of which are incorporated herein by reference.

FIELD OF THE INVENTION

The present invention relates to data communications and wireless devices.

BACKGROUND OF THE INVENTION

Mobile communication devices—e.g., cellular phones, personal digital assistants, and the like—are increasingly being used to conduct payment transactions as described in U.S. patent application Ser. No. 11/933,351, entitled

"Method and System For Scheduling A Banking Transaction Through A Mobile Communication Device", and U.S. patent application Ser. No. 11/467,441, entitled "Method and Apparatus For Completing A Transaction Using A Wireless Mobile Communication Channel and Another Communication Channel, both of which are incorporated herein by reference. Such payment transactions can include, for example, purchasing goods and/or services, bill payments, and transferring funds between bank accounts.

BRIEF SUMMARY OF THE INVENTION

In general, this specification describes a method and system for conducting an online payment transaction through a point of sale device. The method includes receiving input from a user selecting an item for purchase through the point of sale device; calculating a total purchase amount for the item in response to a request from the user to purchase the item; and sending payment authorization for the total purchase amount from the point of sale device to a payment entity, in which the payment authorization is sent to the payment entity via a mobile communication device of the user. The method further includes receiving a result of the payment authorization from the payment entity through the mobile communication device; and completing the payment transaction based on the result of the payment authorization.

Particular implementations can include one or more of the following features. The point of sale device can be a desktop computer, a laptop computer, or a terminal. The mobile communication device can be a cellular phone, a wireless personal digital assistant (PDA), or a laptop computer. The cellular phone can be an NFC-enabled phone. Sending payment authorization for the total purchase amount from the point of sale device to a payment entity can include sending the payment authorization securely to the payment entity. The payment entity can be a person, a computer system, or a bank. The method can further include maintaining a shopping list on the mobile communication device of the user, in which the shopping list includes a listing of one or more items to be purchased by the user. The payment authorization can be an authorization for payment with a credit card, a debit card, or a prepaid card.

The details of one or more implementations are set forth in the accompanying drawings and the description below. Other features and advantages will be apparent from the description and drawings, and from the claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** illustrates a block diagram of a communication system including a wireless mobile communication device and a management server in accordance with one implementation.

FIG. **2** illustrates one implementation of the wireless mobile communication device of FIG. **1**.

FIG. **3** is a method for conducting a payment transaction using a point of sale device in accordance with one implementation.

FIG. **4** illustrates a block diagram of a communication system including a wireless mobile communication device and an online store in accordance with one implementation.

FIG. **5** is a block diagram of a data processing system suitable for storing and/or executing program code in accordance with one implementation.

FIG. **6** illustrates another implementation of the communication system including a wireless mobile communication device and a management server in accordance with one implementation.

FIG. **7** illustrates an implementation of the radio element of the device in FIG. **6**.

FIG. **8** illustrates one implementation of the wireless mobile communications device.

FIGS. **9**A-**9**C respectively illustrate an implementation of a secure element in the wireless mobile communications device of FIG. **1**.

FIG. **10** illustrates one implementation of a point of sale terminal.

FIGS. **11**A-**11**D illustrate a flowchart for conducting a transaction according to one implementation.

FIG. **12** illustrates one implementation of a secure element that is attachable to a wireless communications device.

FIG. **13** illustrates one implementation of the management server.

FIG. **14** illustrates one example of the user profile database **302** including user profiles for USER **1** and USER **2**

FIG. **15** illustrates one implementation of a method **600** for sending an artifact to a mobile communication device of a user.

FIG. **16** illustrates a block diagram of a communication system including a wireless mobile communication device and a management server in accordance with one implementation.

Like reference symbols in the various drawings indicate like elements.

DETAILED DESCRIPTION OF THE INVENTION

FIG. **1** illustrates one implementation of a communication system **100**. The communication system **100** includes a hand-held, wireless mobile communication device **102** a point-of-sale device **104** and a management server **106**. In one implementation, the mobile communication device **102** includes a mobile application (discussed in greater detail below) that permits a user of the mobile communication device **102** to conduct payment transactions. Payment transactions can include, for example, using contactless payment technology at a retail merchant point of sale (e.g., through point of sale device **104**), using mobile/internet commerce (e.g., purchase tickets and products, etc.), storage of payment information and other digital artifacts (e.g., receipts, tickets, coupons, etc.), storage of banking information (payment account numbers, security codes, PIN's, etc.), and accessing banking service (account balance, payment history, bill pay, fund transfer, etc.), and so on. The mobile communication device **102** can be a cellular phone, a wireless personal digital assistant (PDA), a laptop computer, or other wireless communication device. The point of sale device **104** can be a desktop computer, laptop computer, terminal, or other device that is configured to receive user input selecting items for purchase or other transaction.

In one implementation, authorizations for payment transactions that are made through the point of sale device **104** are sent from the point of sale device **104** to an issuer authorization (e.g., management server **106**) through the mobile communication device **102** (as shown in FIG. **1**). In one implementation, an issuer authorization is a payment entity that either approves or disapproves a payment transaction. An issuer authorization can be, e.g., a person, computer system, bank (or other third party). One potential benefit of having payment authorizations flow through the mobile communication device **102** is that sensitive user information (e.g. account numbers, pin numbers, and/or identity information) need only be sent from the mobile communication device **102** directly to an issuer authorization. Such operation reduces the potential for identity theft and/or fraudulent purchases made through a point of sale device. For example, (in one implementation) payment authorizations cannot be sent to an issuer authorization if the mobile communication device **102** is turned off.

FIG. **2** illustrates one implementation of the mobile communication device **102**. The mobile communication device **102** includes a mobile application **200** that (in one implementation) is provided to the mobile communication device **102** through a remote server (e.g., management server **106**). In one implementation, the mobile application is a Mobile Wallet application available from Mobile Candy Dish, Inc., of Alameda, Calif. In one implementation, the mobile application is a hosted service, as described in U.S. patent application Ser. No. 11/939,821, entitled “Method and System For Securing Transactions Made Through a Mobile Communication Device”, which is incorporated herein by reference. In one implementation, the mobile application **200** is configured to send requests to the management server for artifacts based on user input, e.g., received though a keypad (not shown) of the mobile communication device **102**. Requests to the management server **106** can also be automated, via proximity-based services, e.g., consumer tapping (or in close proximity) an LBS/contactless/RFID enabled phone against a smart poster (RFID/Bluetooth/LBS enabled, etc.), kiosk, or other device.

In one implementation, the mobile application **200** running on the mobile communication device **102** is configured to receive artifacts (e.g., advertisements, receipts, tickets, coupons, media, content, and so on) from the management server **106**. In one implementation, the management server **106** sends artifacts to the mobile application based on user profile information and/or a transaction history (or payment trends) associated with a user of the mobile communication device **102** as described in U.S. patent application Ser. No. 11/944,267, entitled “Method and System For Delivering Information To a Mobile Communication Device Based On Consumer Transactions”, which is incorporated herein by reference.

In one implementation, the mobile communication device **102** is an NFC-enabled phone. The mobile communication device **102** can be NFC-enabled, for example, through an embedded chip or a sticker that is affixed to the cellular phone, as described in U.S. application Ser. No. 11/933,321, entitled “Method and System For Adapting a Wireless Mobile Communication Device For Wireless Transactions”, which is incorporated herein by reference. In one implementation, the NFC chip (or sticker) on the cellular phone can be used in conjunction with a merchant's point of sale device as described in greater detail below.

For example, with reference to FIG. **4**, in one implementation, the NFC chip (or sticker) on the cellular phone can communicate with NFC chips that are installed on the front of PC's (TV's, Kiosks, or any other device) and serve as scanners/readers. In this implementation a mobile candy dish applet (e.g., MCD POS plugin **414**) is installed on the consumer's computer (e.g., PC **404**) which interfaces with the NFC chip on the PC. When a consumer (or user) is shopping online and they are ready to pay for their products, the consumer opens his mobile wallet and selects one of the payment methods (e.g., credit card, debit card, prepaid card, etc.) from their mobile wallet. If a default card has been selected already, this step is not necessary. The consumer then waves their phone over the NFC reader present on the PC **404**. The consumer's payment credentials are transferred from the phone to the merchant website (e.g., online store application **410**) using a communication protocol between the chip in the phone and the chip in the PC, which can be radio frequency for example. If the consumer has coupons in their mobile wallet the consumer can either elect to manually apply the coupon, save the coupon for a future use (against a larger purchase for example), or have the coupon automatically applied during the transaction and the transaction amount is updated. After the consumer enters any necessary validation information (e.g., pin) to provide a multi-factor authentication and confirms the transaction, the online purchase is processed as normal by the merchant's online processor. The mobile wallet can retrieve transaction data, account balance from the management server **408**.

In one implementation, the mobile communication device **102** is a non NFC-enabled phone. In this implementation, the consumer connects his phone to the PC **404** via some non radio frequency method (e.g., IR, Bluetooth, USB cable, etc.). When a consumer is shopping online and they are ready to pay for their products, the consumer opens his mobile wallet and selects one of the payment methods (e.g., credit card, debit card, prepaid card, etc.) from their mobile wallet. If a default card has been selected already, this step is not necessary. The consumer then pushes, e.g., a "Buy now" button and the consumer's payment credentials are transferred from the phone to the merchant website (e.g., online store application **410**) using the protocol between the phone and the PC **404** which can be radio frequency, for example. If the consumer has coupons in their mobile wallet the consumer can either elect to manually apply the coupon, save the coupon for a future use, or have the coupon automatically applied during the transaction and the transaction amount is updated. After the consumer enters any necessary validation information (e.g., pin) to provide multi-factor authentication and confirms the transaction, the online purchase is processed as normal by the merchant's online processor. The mobile wallet can retrieve transaction data and account balance from the management server **408**.

In one implementation, the management server **408** and merchant portal (e.g., online store **408**) are maintained by trusted parties and use an encrypted tunnel to transfer financial data. When the consumer is ready to pay for their online product, they enter their cell phone number on the merchant portal. The merchant portal (which has an MCD applet (e.g., MCD POS plugin **414**) installed on its server) securely connects to the management server **408** (that in one implementation is maintained by Mobile Candy Dish (MCD)). In one implementation, the management server **408** identifies the consumer through their cell phone number, and verifies the consumer's authenticity by sending a unique transaction code to the consumer mobile wallet on their cell phone. The consumer then enters this unique transaction code onto the merchant's web portal. The merchant portal sends this transaction number to the management server **408** for authentication. Upon authentication, the consumer's virtual wallet and payment methods (e.g., credit card, debit card, prepaid card, etc.) are securely retrieved from the management server **408** and are displayed to the consumer in a window on a website associated with the merchant portal. The consumer selects one of these payment methods to pay for their transaction. If a default card has been selected already, this step is not necessary. If the consumer has coupons in their mobile wallet the consumer can either elect to manually apply the coupon, save the coupon for a future use, or have the coupon automatically applied during the transaction and the transaction amount is updated. After the consumer enters any necessary validation information to provide a multi-factor authentication and confirms the transaction, the online purchase is processed as normal by the merchant's online processor. The mobile wallet can retrieve transaction data, account balance from the management server **408**.

Referring to FIG. **2**, in one implementation, the mobile application **200** maintains a shopping list **202** for a consumer. Accordingly, consumers have the ability to store their shopping list in their mobile wallet and add, delete, or change items on their shopping list either in offline or online mode. In one implementation, consumers are sent coupons based on items on their shopping list, preferences, previous shopping history, proximity to the physical retail store, or a combination of these parameters, as discussed in application Ser. No. 11/944,267, which is incorporated by reference above. If the consumer has coupons in their mobile wallet the consumer can either elect to manually apply the coupon, save the coupon for a future use, or have the coupon automatically applied during the transaction and the transaction amount is updated. When a consumer wants to order the items on their shopping list via an on online merchant (in contrast to a physical retail store), the consumer can logon to the merchant portal and electronically transmit their shopping list to the merchant portal either by waving their phone over NFC enabled PC's or some other connection such as IR, bluetooth, USB, or the like.

FIG. **3** illustrates a method **300** for conducting a payment transaction using a point of sale device (e.g., point of sale device **104**). User input is received selecting one or more items for purchase (e.g., at the point of sale device) (step **302**). In general, the transaction being made at the point of sale device can be any type of transaction that involves the exchange or transfer of funds—e.g., the transaction can be a payment transaction, a fund transfer, or other type of transaction. In response to a request from the user to purchase the one or more items, a total purchase amount for the one or more items is calculated (e.g., by the point of sale device) (step **304**). If the user has coupons in their mobile wallet the user can either manually apply the coupon or have the coupon automatically applied during the transaction and the transaction amount is updated. The user request to purchase an item can be received, e.g., by a user clicking on a "buy now" icon that is displayed on a graphical user interface of the point of sale device. Payment authorization for the total purchase amount is sent to a payment entity through a mobile communication device of the user (step **306**). A result of the payment authorization is received at the point of sale device from the payment entity via the mobile communication device (step **308**). The payment transaction is completed based on the result of the payment authorization (step **310**). If the payment transaction was authorized by the payment entity, then the sale of the items through the point of sale device is completed. Otherwise, if the payment transaction was not authorized by the payment entity, then the point of sale device terminates the payment transaction.

FIG. **4** illustrates an example payment transaction being made in a communication system **400** in accordance with one implementation. The communication system **400** includes a mobile communication device **402**, a personal computer (PC) **404**, an online store **406**, and a core (or datastore) **408**. As indicated by interaction (1), a user (or customer), using a phone (e.g., mobile communication device **402** or personal computer **404**), browses an online store website (online store application **410**) and finds an item that the customer wishes to purchase. This could also be a purchase made through a midlet application (POS midlet **412**) residing on the mobile communication device **402**. The user then goes to, e.g., a checkout of the online store **406** make a purchase. If the user has coupons in their mobile wallet the user can either manually apply the coupon or have the coupon automatically applied during the transaction and the transaction amount is updated. When it comes time to authorize the purchase, (in one implementation) the user is given an option to purchase with the mobile communication device **402**. In one implementation, the mobile communication device **402** is an NFC-equipped phone (or NFC phone).

In interaction (2), when the user chooses to purchase with the mobile communication device **402**, the online store application **410** sends the transaction information for authorization to the POS vendor plugin (e.g., MCD POS plugin **414**). In one implementation, the POS vendor plugin is installed in the merchant's online store and enables the merchant to accepts MCD Blaze payments as an alternative form of payment, similar to accepting credit cards for payment. As shown by interaction (3), the POS vendor plugin formats, encrypts, and cryptographically signs the purchase authorization request which is sent via a secure SSL link (e.g., HTTPS, Bluetooth, IR, USB, or other suitable protocol) established by the browser/web application **416** back to the mobile communication device **402**. As with the first scenario, all communications is over secure channels. (It may be required that the mobile wallet application be opened prior to beginning a phone online purchase.) The POS midlet **412** is a component of the mobile wallet application that executes PayPass or other payment authorization protocol between itself and the SE payment applications on the mobile communication device **402** (interaction (4)). The results of the request are sent back to the POS vendor plugin.

As shown by interaction (5), the POS midlet **412** then forwards the properly formatted authorization request to a payment entity (e.g., issuer authorization **418**) for authorization. The results of the request are then sent back to the POS component of the mobile wallet. Through interaction (6), the POS midlet **412** then forwards the results back to the MCD POS plugin **414** to complete the purchase. The MCD POS plugin **414** then forwards the purchase transaction information to the management server **408** for later customer viewing (interaction (7)). As indicated by interaction (8), users (or customers) will then be able to query the management server **408** and immediately obtain purchase information, either by phone or PC.

One or more of method steps described above can be performed by one or more programmable processors executing a computer program to perform functions by operating on input data and generating output. Generally, the invention can take the form of an entirely hardware embodiment, an entirely software embodiment or an embodiment containing both hardware and software elements. In one implementation, the invention is implemented in software, which includes but is not limited to firmware, resident software, microcode, etc. Furthermore, the invention can take the form of a computer program product accessible from a computer-usable or computer-readable medium providing program code for use by or in connection with a computer or any instruction execution system. For the purposes of this description, a computer-usable or computer readable medium can be any apparatus that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus, or device. The medium can be an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system (or apparatus or device) or a propagation medium. Examples of a computer-readable medium include a semiconductor or solid state memory, magnetic tape, a removable computer diskette, a random access memory (RAM), a read-only memory (ROM), a rigid magnetic disk and an optical disk. Current examples of optical disks include compact disk—read only memory (CD-ROM), compact disk—read/write (CD-R/W) and DVD.

FIG. **5** illustrates a data processing system **500** suitable for storing and/or executing program code. Data processing system **500** includes a processor **502** coupled to memory elements **504**A-B through a system bus **506**. In other implementations, data processing system **500** may include more than one processor and each processor may be coupled directly or indirectly to one or more memory elements through a system bus. Memory elements **504**A-B can include local memory employed during actual execution of the program code, bulk storage, and cache memories that provide temporary storage of at least some program code in order to reduce the number of times the code must be retrieved from bulk storage during execution. As shown, input/output or I/O devices **508**A-B (including, but not limited to, keyboards, displays, pointing devices, etc.) are coupled to data processing system **500**. I/O devices **508**A-B may be coupled to data processing system **500** directly or indirectly through intervening I/O controllers (not shown).

In one implementation, a network adapter **510** is coupled to data processing system **500** to enable data processing system **500** to become coupled to other data processing systems or remote printers or storage devices through communication link **512**. Communication link **512** can be a private or public network. Modems, cable modems, and Ethernet cards are just a few of the currently available types of network adapters.

The wireless mobile devices also include a near field communication (NFC) device, coupled with some type of transaction device having a code, such as a smart card that uses an RFID for identification purposes, allow for debit cards to securely make a simple transaction, such as purchasing a bus ticket, by simply waving the wireless mobile device near a reader installed on the bus, so that the bus fare is deducted from a total amount that is available stored on the smart card of the wireless mobile device, or by forwarding the fare to a server that can identify the identification code of the particular RFID and then subsequently charge the user. The system and method allow the user to complete a transaction using a wireless mobile communication channel and another communication channel, particularly another communication channel that provides for near field radio channels (NFC), as well as other communication channels, such as Bluetooth or WIFI. The system may have a hand-held mobile device that wirelessly communicates between a secure element and a radio element that are associated with the hand-held mobile device. The system also has a hand-held mobile device that has a secure element that is insertable into a body of the hand-held mobile device, to thereby allow for wired communication between the secure element and a radio element of the hand-held mobile device.

FIG. **6** illustrates another implementation of the communication system including a wireless mobile communication device and a management server in accordance with one implementation. One feature of the system **100** is the hand-held mobile device **110**. The mobile device **100** includes a radio element **120** and a secure element **130**. A display **124** is shown associated with the radio element **120**, and antennas, not labeled, are shown as associated with each of the radio element **120** and the secure element **130**, although it is noted that the illustration of antenna can physically be implemented in a manner that is different from the wireless antenna shown, such as by a stripe is passed along a reader, or some other transmission mechanism. Although elements **120** and **130** are shown as distinct and separate, and display **124** is shown as connected to the radio element **120**, it will be understood that other configurations are within the scope of the invention, in particular, a combination in which a single processor is used to execute the functions that are currently performed and described herein as being provided by both the radio element **120** and the secure element **130**, as described further herein. Further as illustrated in FIG. **6**. both the radio element **120** and the secure element **130** are internal to the mobile device **110** as illustrated, although in certain embodiments the secure element **130** can be external to the mobile device **110**, as described hereinafter. Also, various different functionalities can be included within the radio element **120** and the secure element **130**, as also described hereinafter.

The point-of-sale terminal **150** receives one of the transaction request signals from the mobile device **110** and transmits the one transaction request signal to the transaction server **170**, typically using a communication channel **160** such as the internet. The transaction server **170** that receives the one transaction request signal from the point-of-sale terminal **150** verifies the transaction, and forwards a transaction verification signal to the management server **180**. The management server **180** that receives the transaction verification signal, identifies the user corresponding thereto, and provides as one of the transaction signals, a first transaction response signal back to the mobile device **110**.

In one implementation, application programs running on the radio processor **123** are, e.g., BREW or J2ME applications and can encompass a broad array of application types. For example, current applications include games, enterprise applications, and multimedia applications. In one implementation, the radio processor **123** runs an application that provides movie and event information. Such an application can comprise ticketing applications, content, item and service purchase applications, and/or payment management applications (referred to herein also as "wallet applications"). In one implementation, the radio processor **123** also has the capability of recognizing secure communications, and transmits data which must be stored in a secure environment to the secure element driver **128** for transmission to the secure element **130**. In one implementation, in which both the radio element **120** and the secure element **130** are internal to the mobile communication device **110**, transmissions to the secure element **130** can take place using an internal wired communication channel. In one implementation, the radio processor **123** also has the capability of receiving data from the secure element **130**, e.g., using the internal wired communication channel. In one implementation, the secure element **130** and the radio element **120** communicate using signals described in the Java Card 2.1 Platform API Specification.

In one implementation, both the radio element **120** and the secure element **130** are disposed internally within a body of the mobile communication device **110**. For example, referring to FIG. **8**, the mobile communication device **110** is shown including a slot **400**, which allows for the insertion of a secure element **130** into the slot **400**. In this configuration, the secure element **130** can be purchased independently of the mobile communication device **110**. The secure element **130** can also be disposed into a slot that only provides for physical insertion and mechanical connection to the body of the mobile communication device **110**. In such an implementation, the secure element can include a transceiver that allows for the communication with the radio element **130** through a wireless local communication channel. The radio element **120** also is illustrated as optionally including another transceiver **129**, such as a Bluetooth or WIFI transceiver, which can transmit and receive signals with an external device and then communicate signals to and from the radio processor **123**. This additional communication channel allows for communications between other external devices, such as an external Bluetooth enabled smartcard, and provides an additional communication channel that is useful for certain transactions, as described further herein.

FIG. **9**A illustrates one implementation of the secure element **130** associated with the mobile communication device **110**. The secure element **130** can be a smart card. In one implementation, the secure element **130** includes a secure processor **132**, a secure memory **133**, and a POS transceiver **134** adapted to send transaction request signals and receive transaction response signals over a first communication channel. In one implementation, the secure processor **132** communicates via the secure element driver **128** with the radio processor **123** using signals as described in the Java Card 2.1 Platform API Specification. The transaction request signals and the transaction response signals associated with the transaction can include an identification code associated with the user, as well as information relative to the transaction, such as item, quantity, vendor, and so on. In one implementation, the POS transceiver **134** is an NFC device, which uses an NFC modem. The POS transceiver **134** can also be a Bluetooth, WIFI or other transceiver. In an implementation in which the POS transceiver is an NFC modem, such an NFC modem will typically have a set of registers that can be read/written by the secure processor **132**. These registers are in turn available for reading and writing over the RFID communications channel and serve as a shared memory between the secure processor **123** within the secure element **130** and the RFID reader that is associated with the POS terminal **150**. This communication is specified, for example, in the ISO 14443A/B standard. The secure element can optionally include a radio/Bluetooth/WIFI transceiver **136**, which can communicate with other devices, such as a transceiver associated with the radio processor **120** or for other external devices having those communication capabilities, thus allowing for more flexibility.

FIG. **9**B shows another implementation of a secure element **130**, in which the radio element **120** does not communicate with the secure element **130** through a secure element driver **128**. In this case, for example, the secure element **130** may be external to the mobile communication device **110** and as such is not connected to the radio element through the secure element driver **128**. In such an implementation, however, if the transceiver **136** as described above is included, and a similar transceiver **129** associated with the radio element **130** as described previously with respect to FIG. **7** is included, then this communication channel can be used to wirelessly obtain direct communications between the radio element **120** and the secure element **130**. This implementation allows for certain bidirectional communications with other devices, as well as with the radio element **120**, and as such more functionality and flexibility is achieved. This implementation is particularly useful since it establishes a direct local communication path with the radio element **120**, since there is not communications with the radio element **120** via the path of driver **128**.

FIG. **12** illustrates one implementation of a secure element **130** that can be attached (or affixed) externally to a wireless communication device (e.g., mobile communication device **110**). In one implementation, the secure element **130** has circular shape. The secure element **130** can have other suitable shapes—e.g., rectangular, triangular, and so on. In one implementation, the secure element **130** includes an embedded smart chip **702** that is capable of executing proximity services (e.g., services related to payments, ticketing, identification, sending coupons, etc.). In one implementation, the smart chip **702** is capable of 2-way wireless communication (e.g., RFID), NFC, Bluetooth, etc.) with a supporting 3rdParty terminal. In one implementation, the 2-way communication is performed using a communication protocol that is different from a communication protocol through which the mobile communication device sends or receives voice and/or data signals. Multiple application protocols (NFC, MiFare, etc.) can be supported. In one implementation, the smart chip **702** is programmable. Accordingly, different application (for payments, ticketing, identification, coupons, etc.) can be developed, downloaded to the smart chip, and commissioned. Thus in operation, in response to the secure element **130** being placed in close proximity with a suitable terminal, the terminal will trigger (via application protocol) an appropriate application stored in the smart chip, and the smart chip will respond appropriately with the terminal.

In one implementation, the mobile application **910** provides banking and money management service, which includes (but is not limited to):

Registration: User creates new MW Lite account with PIN (PIN and user info can be stored in user/profile database **306**)

Security & Encryption: Sensitive information may optionally by encrypted using 3rdParty or native phone tools (Bouncy Castle, etc.). Encryption (Public/Private) keys may be managed or proxy'd by Server which may additionally be out-sourced to 3rdparty Key Management vendor.

Install & Configuration (I&C): Refers to setting up proxies to

payment accounts (virtual, credit, debit & banking)

Payees (BillPay, PayAnyone, etc.) and associated rules

Specify default payment account to debit fund transfers/unloading

Specify default payment account to credit fund transfers/loading

Activation of 3rdParty Services (Account Balance, Bill Pay, Fund Transfer, Funds Loading, Funds Unloading)

It is assumed Client application is pre-installed or downloaded to mobile device.

I&C to be performed via Kiosk, ATM, 3rdParty/Carrier Web Portal, MCD Web Portal, on mobile device, or other suitable device.

Loading Funds

Banking or financial data

Account balance

Transaction history

Bill Pay—Biller Direct

Fund Transfer—Intra Bank; Me-2-Me

Fund Transfer—Inter Bank; Me-2-Me

Fund Transfer—Inter Bank; Me-2-You (based on Bank Routing/Account#)

Fund Transfer—Inter Bank; Me-2-You (based on WalletID)

Fund Transfer—Inter Bank; Me-2-You (based on ACH Check). A.k.a. Bill Pay Anyone

Load Fund

Unload Funds (ATM Withdrawal, etc.)

Sync: Ensures server-side objects are downloaded to client and locally cached. This includes payment accounts, payees, payment rules, server-side cached account info (account balance, Last-N transaction history), etc.

This info will be cached on Client.

Users can create transaction either in ONLINE or OFFLINE (no network connectivity) mode

Initiating/Triggering Banking Services:

Storage: Storage of Users MWLite info, User's payment account info (credentials, account balance, history, etc.); Banking Payment History (BillPay, Fund Transfer, Fund Loads, Fund Unloads, etc.) Scenarios/Features

In one implementation, a mobile communication device creates task/objects either while connected with a Server (online-mode) or when no connection is available (offline-mode). Tasks/objects are specific to mobile banking service and include for example: schedule (or cancel) a fund transfer transaction, schedule (or cancel) a bill pay transaction, and manage other banking transactions. In addition, digital artifacts (coupons, tickets, etc.) that possess a state (or status) (e.g., Assigned, Saves, Redeemed, Deleted, etc.) can undergo changes on the mobile communication device. Given these tasks/objects associated to Banking Services and Digital Artifacts has 'states' that can be changed in either an online-mode or offline-mode, the Server has to be refreshed/updated either in real-time (online-mode) or in batch (offline-mode).

Using the client (or mobile application), a user can store digital artifacts (e.g., coupons, tickets, etc.) on a mobile communication device. These digital artifacts are objects that are consumed by a 3rdParty, e.g., a ticket can be redeemed at a theater, and a coupon can be redeemed at the Point-Of-Sale of a retail merchant. Hence, this is a 3-way sync: 1) mobile communication device with server, 2. mobile communication device with 3rdParty Merchant, and 3) server with 3rdParty Merchant. For user's convenience, redemption of digital artifacts by a 3rdParty must be enabled in an environment with or without network access. For example, a user with an electronic ticket on a mobile communication device may wish to redeem an eTicket at a theater. However, if there is no network access inside the theater, the user will still need access the eTicket on the client. In ONLINE mode, the client will cache (local store) the eTicket (and any other digital artifact.) In the theater, the client (in OFFLINE mode) will be able to redeem the eTicket and update the state of the eTicket on the mobile communication device (e.g., change state from 'valid' to 'redeemed'). This prevents the user from re-using the eTicket. At some point when the mobile communication device re-acquires network connectivity, the client will then negotiate with the server and any artifacts with a state change (e.g., 'valid' to 'redeemed', etc.) on the client are then uploaded to the server (e.g., either in batch mode or one task at a time).

The point of sale terminal **150** illustrated in FIG. **10** is conventional, in that it has the capability of electronically reading information from a device equipped to transmit information in a format that it reads. Thus, the reader **152** within the point of sale terminal **150** can be of one or many types. If the point of sale terminal reader **152** includes the provision for NFC communications, then simply bringing the secure element **130** with the NFC transceiver will cause initiation of a transaction and the transmission of the identification code associated with the secure element **130** and thus the user.

FIGS. **11**A-**11**D illustrate a flowchart of a transaction in accordance with one implementation, and the various steps that are included in the transaction, with reference to which of the various devices are implementing this step. Referring to FIG. **11**A, a user first waves a mobile communication device **530** (e.g., a NFC device or device having an attached sticker) across (or near) a POS terminal **540**. The POS terminal **540** identifies the technology associated with the mobile communication device, a payment method, user credentials, and payment credentials. Irrespective if t mobile communication device is a NFC-Phone or includes an attached sticker, the mobile communication device sends to the POS Terminal **540** payment credentials including optional credentials (e.g., WalletID). As shown in FIG. **6**B, using optional credentials (e.g., WalletID), contact is made with a transaction server **510** to request payment credentials. The POS terminal **540** determines if a security code prompt (e.g., a PIN) is needed? If yes, a prompt is made for the security code (PIN) on the POS terminal **540** and the process continues with processing of the payment. Otherwise, the POS terminal **540** simply proceeds with processing of the payment. As an alternative, the POS terminal **540** can integrate via the back office to a management server **510** and trigger a PIN prompt on the mobile communication device. In such a case, the user can enter the PIN on the mobile communication device (instead of through the POS terminal **540**). The POS terminal **540** hands processing to a payment broker.

Referring to FIG. **11**C, assuming the POS terminal **540** was capable of 2-way communication, if the POS terminal **540** determines that the mobile communication device is a NFC Phone, the POS terminal **540** can write digital artifacts (e.g., eReceipts, eTickets, eCoupons, etc.) to the mobile communication device. Non-secure data is stored in the mobile communication device. Otherwise, the POS terminal **540** sends optional digital artifacts to the management server **510**. As part of an out-of-band sync between the management server **510** and the mobile communication device, the non-secure digital artifacts are downloaded and stored in the mobile communication device. Secure digital artifacts are downloaded to the mobile communication device and stored on a secure element of the mobile communication device (if possible).

The two transaction workflows that have been specifically discussed above are the credit card and ticketing workflows. Other transaction flows can also be implemented. Debit card and cash card transactions are similar to credit card transactions, with variations being implemented to account for the differences that exist in those types of transactions, which types of transactions are well understood. Coupons can be implemented with the invention, in much the same manner as tickets, though coupons can be transmitted without there being payment. Many of the transaction types noted herein will, as is apparent, require communication between the secure element **130** and the radio element **120**. As such, due to that requirement, a significant part of the preceding discussion has been directed to how to implement that communication, particularly for mobile communication devices **110** that are not manufactured to allow for such communications.

An example of a typical transaction requiring such communication between the secure element **130** and the radio element **120** is one in which the POS terminal **150** allows for the transfer of detailed purchase information from the POS terminal **150** to the secure element **130**, as well as transactional information from the POS terminal **150** and/or the transaction server **170** to the management server **180**. The management server **180** can then also communicate with the radio element **120** via the radio channel. This allows for the matching and reconciliation of detailed purchase information and, if the transaction fails, failure details can be matched to the purchase information, and forwarded in real-time to the user via the radio element **120**. In one implementation, there is included the provision for different phones to communicate the results of a transaction, particularly using the POS transceiver or one of the Bluetooth/Wifi transceivers. In this implementation, after a transaction has been completed with one of the mobile communication devices **110***a*, another mobile communication device **110***b* can receive information regarding the transaction completed. Thus, for instance, if mobile communication device **110***a* purchases two tickets, one of the tickets can be transmitted to the mobile communication device **110***b* by each using a POS transceiver or one of the Bluetooth/Wifi transceivers.

FIG. **16** illustrates a block diagram of a communication system including a wireless mobile communication device and a management server in accordance with one implementation.

FIG. **13** illustrates one implementation of the management server **106**. As shown in FIG. **13**, the management server **106** includes a correlation engine **300**, a user profile database **302**, and an artifacts database **304**. The correlation engine **300** can correlate user profile information (e.g., location, gender, age, interest, affiliations, etc.) stored in the user profile database **302** with other data (historical payment transactions, real-time payment transactions, etc.) stored in the artifacts database **304**, and/or location of a user to provide more relevant targeting parameters for which to target, identify and distribute relevant artifacts to a user. In one implementation, the management server **106** is a server that is maintained by Mobile Candy Dish, Inc.

In one implementation, the user profile database **302** is continually updated with information pertaining to the user—e.g., location, payment history, transaction history, and the like. In addition, the artifacts database **304** can be continually updated with new artifacts that can be sent to users—e.g., users that are subscribed to, e.g., the Mobile Wallet application. For example, metadata can be associated to artifacts stored in the artifacts database **304**. The metadata can be leveraged to trigger a secondary call-to-action, e.g., to encourage user behavior. For example, it may be desired for a user to enter an email address, accept coupon/rewards, opt-in for alerts and notification, etc. When an artifact is sent to a user, the metadata associated with the artifact can provide the additional dynamic next steps (e.g., through a user interface screen) to provoke the desired user action.

FIG. **14** illustrates one example of the user profile database **302** including user profiles for USER **1** and USER **2**. As discussed above, in one implementation, the user profile database is continually updated based on transactions of a user. Accordingly, the user profile database **302** includes a plurality of targeting parameter fields—e.g., targeting parameter fields 1-4—that define targeting parameters that have been satisfied by (or apply to) a user. That is, USER **1** satisfies targeting parameters **1** and **4**, while USER **2** satisfies targeting parameters **1**, **2**, and **4**. In general, the user profile database **302** includes other fields (not shown) for storing other attributes associated with users—e.g., personal information. The artifacts database **304** can similarly include targeting parameters that correspond to each artifact. And in one implementation, the correlation engine **300** (FIG. **3**) performs correlations between user-data targeting parameters and content targeting parameters in order to match relevant artifacts/content to a specific user profile based on various content distribution rules.

FIG. **15** illustrates one implementation of a method **600** for sending an artifact to a mobile communication device of a user. A request to send an artifact to a user is received (e.g., by correlation engine **300**) (step **306**). The request can be a request generated from a user or be an automated request generated from a point-of-sale device, kiosk, or other device. In general, the artifact can be an advertisements, receipt, ticket, coupon, media, content, and so on. User target parameters from a user profile of the user are retrieved (e.g., by correlation engine **300**) (step **604**). A transaction history of the user is retrieved (e.g., by correlation engine **300**) (step **606**). An artifact is sent (from the management server) to the user based on the user target parameters and the transaction history of the user (step **608**).

FIG. **16** illustrates one implementation of a communication system **900**. The communication system **900** includes computing devices and a management server (designated "server"). The management server includes a correlation engine, a query manager, a user profile manager, and an inventory controller. The management controller is in communication with a user profile database, a payment transaction history database, and an artifact inventory database. The management server is also in communication with a bank so that raw data may be downloaded from banks and stored in local storage. In one implementation, data-mining and reporting tools are leveraged by the management server to define aggregated reports. Additionally, aggregated data may be downloaded from banks that provide/support data-mining and ad-hoc reporting tools.

In operation, a user opens an application (e.g., a web-browser) on a computing device (a mobile communication device). The application queries the management Server for an artifact, providing pageId (scene identifier) and userId, where the pageId can represent a specific screen, scene or real-estate property. The query can be initiated/triggered via following mechanisms, but not limited to: Browsing a particular screen/web-page that specify unique real-estate; leveraging proximity services (NFC/Contactless, etc.) that specify unique code or identifier; geographic location (LBS, Bluetooth, etc.). The management server collects targeting Meta Data based on the user's userId. The management server leverages multiple data sources including, but not limited to: user profiles (e.g., for location, gender, age, interest, affiliations, etc.); payment transactions (e.g., for top 5 spend categories, upcoming bill pay transactions, merchants, etc.). Leveraging payment transactions and banking transactions provides a good future trending of a user's behavior, including a level of importance/relevancy. Mining this data (for spend category, merchant, price level, etc.) provides a rich set of attributes that better describes a user's retail preference. The management server queries the artifact inventory against query parameters based on targeting meta data. If multiple matches are determine, the correlation engine uses predetermined business rules and identifies and returns a URL (Universal Resource Locator) to a unique artifact. The user (or consumer) can use the application running on the mobile communication device to retrieve artifact/content based on the provided URL.

In general, while effort is made to minimize storage of sensitive user information and data in a memory of a mobile communication device, in one implementation, some data is stored in the memory of a mobile communication device due to reasons of performance, usability and user experience. For example, data may need to be stored on a mobile communication device in the following circumstances. Payment credentials, coupons, tickets, and so on may have to be stored on the secure element of an NFC phone. Account balance, banking payment history, etc., may be locally cached on a mobile communication device. In one implementation, a user can opt-in to save payment method security codes in the client (or mobile application) for convenience. Tickets and/or coupons may be locally cached so that a user can redeem the tickets and/or coupons in an offline mode. For example, a mobile communication device may be offline in a situation in which network connectivity inside a building is degraded, and storing a ticket and/or coupon in a local cache of the mobile communication device permits the user to access the ticket or coupon.

In one implementation, while a client is open, a user has access to transaction data. In such an implementation, users who may misplace a mobile communication device while the client is open may expose the user to risk of information theft. Therefore, in one implementation, mobile application (or client) shuts down after a period of inactivity. Additional tasks that can be associated with the shutdown procedure can include, but is not limited to, temporarily shutting down a secure element (of the mobile communication device) to prevent NFC payments, NFC coupon redemption, and NFC ticket redemption.

Rewards/Loyalty/Coupons—

A user can keep track of reward/loyalty cards—e.g., frequently flyer account number, rental car reward membership, hotel reward membership, and the like—through the rewards module. In one implementation, a user can view, in real-time, a summary of all rewards (e.g., points accumulated) directly on a cellular phone. A user can also search for and store coupons on their mobile communication device for use during, e.g., a contactless purchase.

Although the present invention has been particularly described with reference to implementations discussed above, various changes, modifications and substitutes are can be made. Accordingly, it will be appreciated that in numerous instances some features of the invention can be employed without a corresponding use of other features. Further, variations can be made in the number and arrangement of components illustrated in the figures discussed above.

While the foregoing has been with reference to a particular embodiment of the invention, it will be appreciated by those skilled in the art that changes in this embodiment may be made without departing from the principles and spirit of the disclosure, the scope of which is defined by the appended claims.

The invention claimed is:

1. A method of processing a Near Field Communication (NFC) payment transaction comprising:

receiving at a management server an identification code and a coupon from an NFC terminal, and further wherein the NFC terminal receives the identification code and the coupon from a secure element in response to a near field communication inductive signal by the NFC terminal to the secure element which triggers, a secure element processor to execute an NFC application and transmit, via a secure element transceiver, the identification code and the coupon to the NFC terminal using the NFC application, and further wherein the NFC terminal automatically applies the coupon to the near field communication payment transaction, wherein the secure element processor, a secure element memory, and the secure element transceiver are included in the secure element permanently embedded within the body of a mobile device, the mobile device comprising a mobile device memory, a mobile device processor, and a mobile device transceiver;

transmitting, from the management server, transaction information including a payment method corresponding to the identification code to a transaction server for processing the NFC payment transaction; and

after the NFC payment transaction has processed, receiving, at the management server, a transaction verification from the transaction server, wherein the transaction verification indicates that the NFC payment transaction has been processed.

2. The method of claim **1**, further wherein a digital artifact is delivered from the management server to the mobile device through the mobile device transceiver.

3. The method of claim **2**, wherein the digital artifact comprises an advertisement, receipt, ticket, media, metadata and/or content.

4. The method of claim **2**, wherein the digital artifact is sent to the mobile device based on personal information and transactions related information stored at the management server.

5. The method of claim **4**, wherein personal information includes user location, gender, age, interest, userid, and/or affiliations.

6. The method of claim **4**, wherein transaction related information comprises information related to historical payment transactions, information related to real-time payment transactions, information related to banking transactions, information related to bill pay, information related to merchants, information related to price-level, information related to spend categories, information related to contactless transactions made using the mobile device, information related to interact commerce, information related to storage of banking information, accessing account balance, information related to accessing payment history, information related to accessing funds transfer, information related to storage of tickets, information related to storage of receipts, information related to storage of coupons, information related to transactions made by the user but not conducted through the mobile device, and/or information related to transactions downloaded from banks.

7. The method of claim **2**, wherein the digital artifact is sent to the mobile device based on movement of the mobile device into close proximity of a smart poster, a radio frequency identification (RFID) device, a Bluetooth device, or a location-based service device.

8. The method of claim **2**, wherein the digital artifact is received through a near field communication transceiver at the secure element after purchase from the NFC terminal, wherein the digital artifact comprises a receipt, coupon, ticket, and/or return/refund policy.

9. A management server that processes a near field communication (NFC) payment transaction comprising:

a management server interface that receives an identification code and a coupon from an NFC terminal, and further wherein the NFC terminal receives the identification code and the coupon from a secure element in response to a near field communication inductive signal by the NFC terminal to the secure element which triggers a secure element processor to execute an NFC application which transmits, via a secure element transceiver, the identification code and the coupon to the NFC terminal using the NFC application, and further wherein the NFC terminal automatically applies the coupon to the near field communication payment transaction, wherein the secure element processor, a secure element memory, and the secure element transceiver are included in the secure element permanently embedded within the body of a mobile device, the mobile device comprising a mobile device memory, a mobile device processor, and a mobile device transceiver; and

a management server processor that

transmits transaction information including a payment method corresponding to the identification code to a transaction server for processing the NFC payment transaction; and

after the NFC payment transaction has processed, receives a transaction verification from the transaction server, wherein the transaction verification indicates that the near field communication payment transaction has been processed.

10. The method of claim **1**, wherein the payment method is a credit card.

11. The method of claim **1**, wherein the payment method is a debit card.

12. The method of claim **2**, wherein the digital artifact includes metadata operable to trigger a secondary call-to-action.

13. The management server of claim **9**, wherein the payment method is a credit card.

14. The management server of claim **9**, wherein the payment method is a debit card.

15. The management server of claim **9**, further wherein a digital artifact is delivered from the management server to the mobile device through the mobile device transceiver.

16. The management server of claim **15**, wherein the digital artifact comprises an advertisement, receipt, ticket, media, metadata and/or content.

17. The management server of claim **15**, wherein the digital artifact includes metadata operable to trigger a secondary call-to-action.

18. The method of claim **1**, wherein the payment method is a cash card.

19. The management server of claim **9**, wherein the payment method is a cash card.

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