US006622015B1

(12) **United States Patent**
Himmel et al.

(10) **Patent No.: US 6,622,015 B1**
(45) **Date of Patent: Sep. 16, 2003**

(54) **METHOD AND APPARATUS FOR USING ELECTRONIC DOCUMENTS WITHIN A SMART PHONE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/240,960**

(22) Filed: **Jan. 29, 1999**

(51) **Int. Cl.**[7] **H04M 3/42**

(52) **U.S. Cl.** **455/414**; 455/412; 455/422; 455/435

(58) **Field of Search** 455/410, 411, 455/418, 419, 450, 466, 412, 414, 435, 406, 558; 340/825.44, 825.27; 379/114.16, 91.01; 709/232, 231; 705/75, 76, 77, 26

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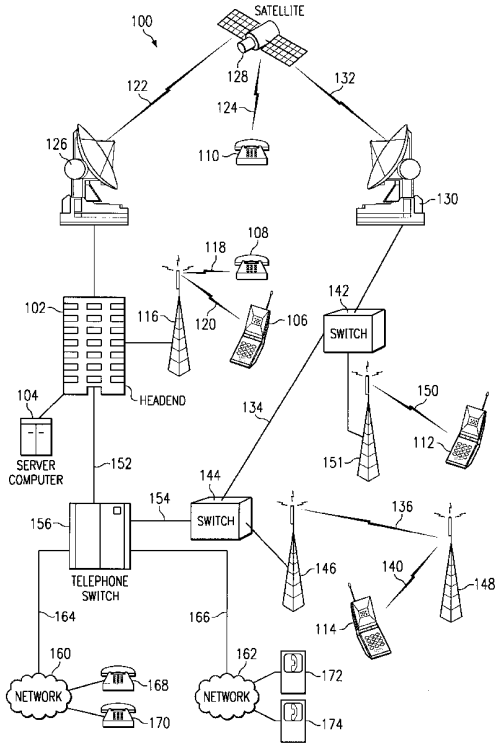
(74) *Attorney, Agent, or Firm*—Duke W. Yee; Jeffrey S. LaBaw; Stephen J. Walder, Jr.

(57) **ABSTRACT**

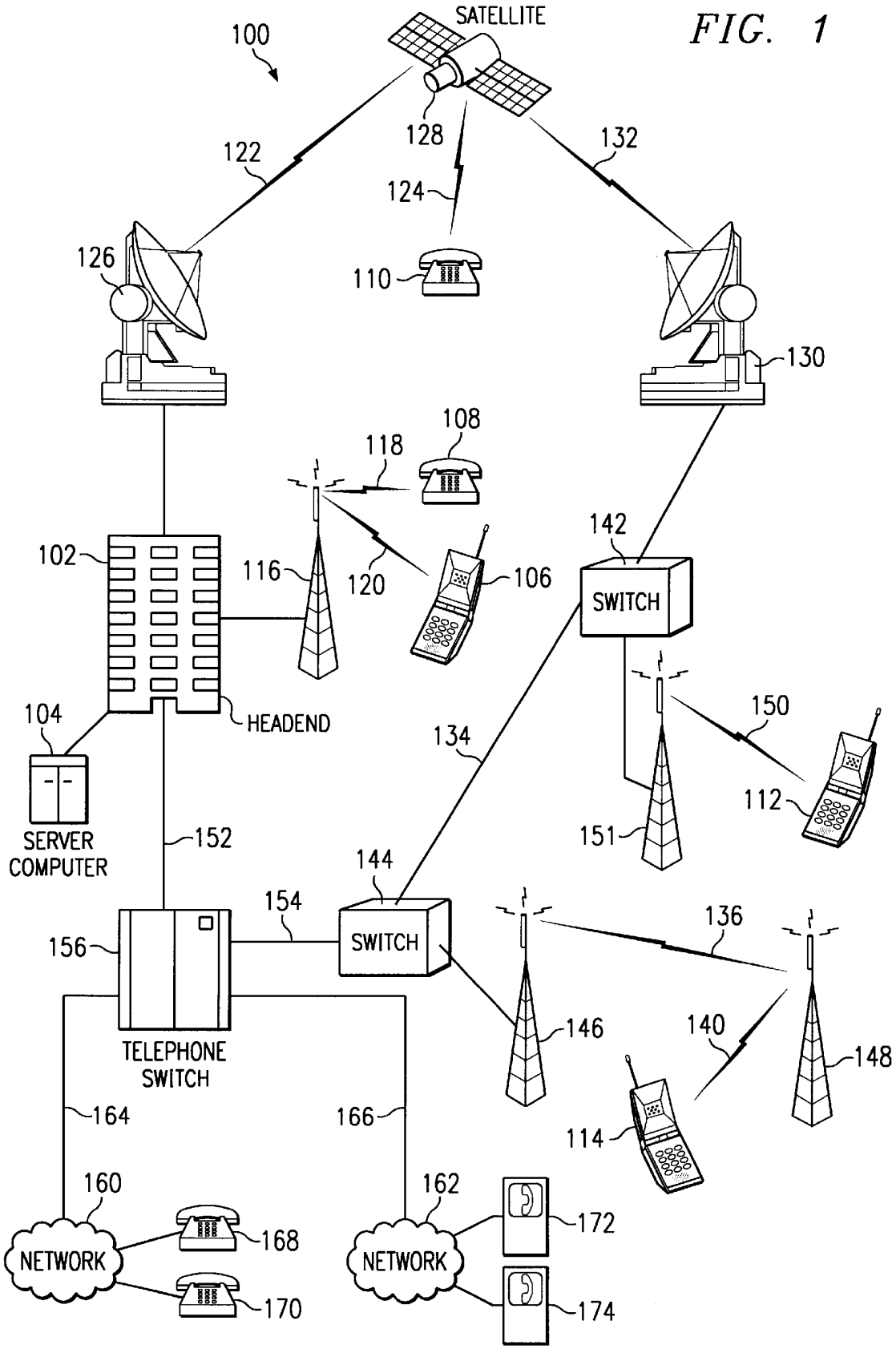
A method and apparatus for using electronic documents within a smart phone. A merchant, legal organization, or other entity provides an electronic document to a subscriber as proof of registration for a service or of legal entitlement. At the time of registration, the subscriber registers a phone number of a phone at which the subscriber desires to receive the issued electronic document. After the electronic document is created, the organization transmits the electronic document to the phone at the registered phone number. The receiving smart phone allows the subscriber to manage the electronic document within the smart phone.

25 Claims, 5 Drawing Sheets



Google Exhibit 1047
Google v. Mullen

FIG. 1


100
SATELLITE
128
122
124
132
126
110
130
108
118
102
116
120
106
142
SWITCH
104
HEADEND
150
134
112
SERVER COMPUTER
152
151
144
154
SWITCH
136
156
146
140
148
TELEPHONE SWITCH
164
166
114
160
162
172
NETWORK
168
NETWORK
170
174

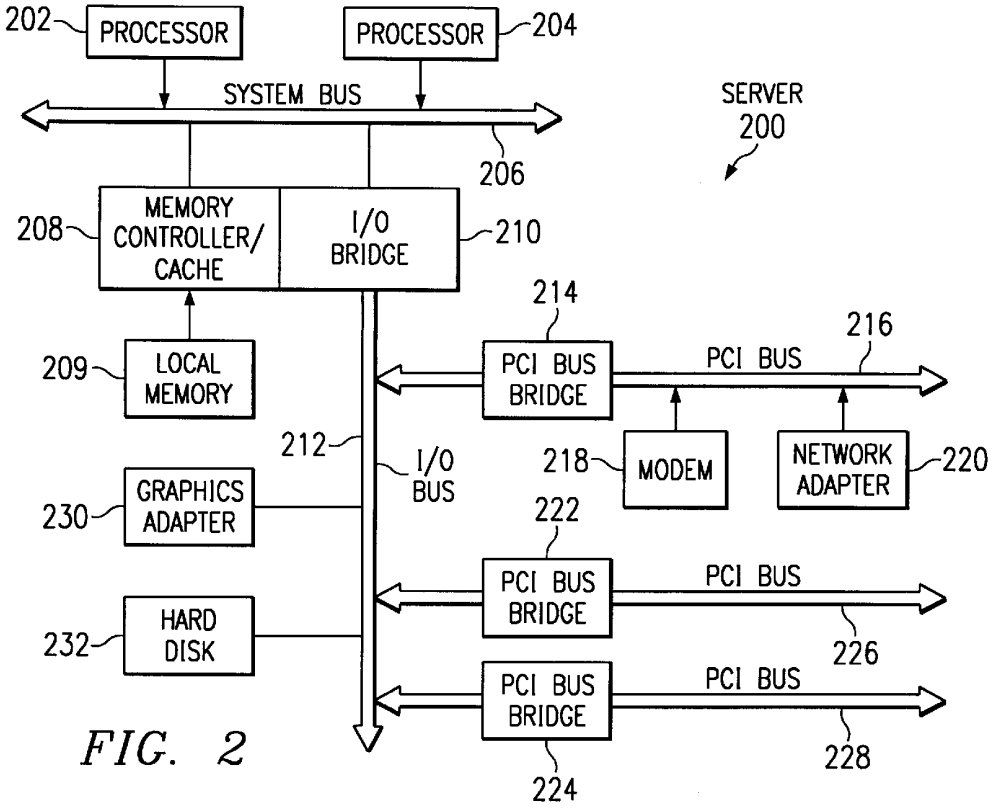

202
PROCESSOR
PROCESSOR
204
SYSTEM BUS
206
SERVER
200
208
MEMORY CONTROLLER/ CACHE
I/O BRIDGE
210
214
216
209
LOCAL MEMORY
PCI BUS BRIDGE
PCI BUS
212
I/O BUS
218
MODEM
NETWORK ADAPTER
220
230
GRAPHICS ADAPTER
222
PCI BUS BRIDGE
PCI BUS
226
232
HARD DISK
PCI BUS BRIDGE
PCI BUS
228
224

FIG. 2

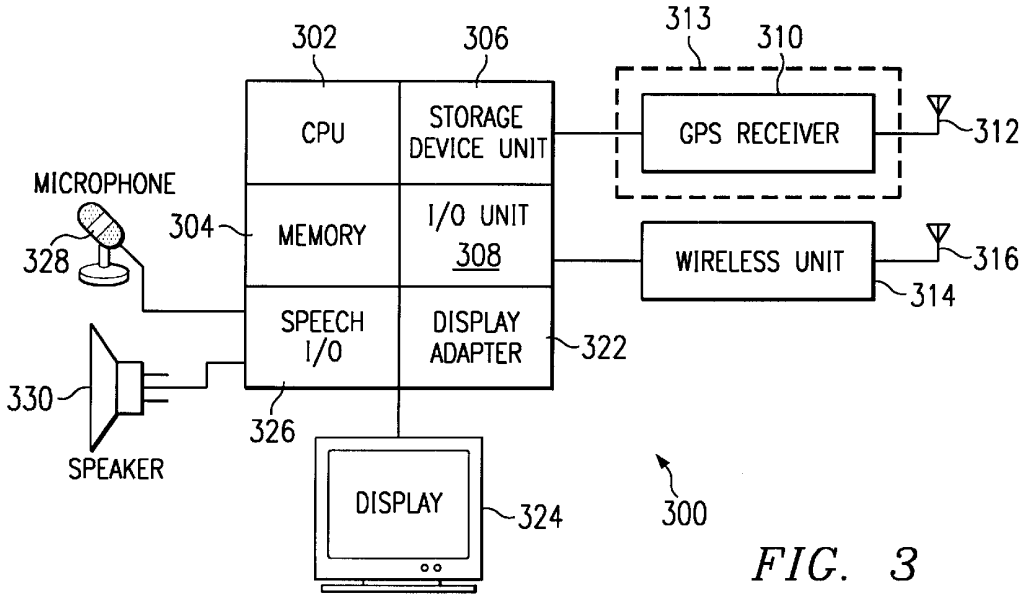

302
306
313
310
CPU
STORAGE DEVICE UNIT
GPS RECEIVER
312
MICROPHONE
328
304
MEMORY
I/O UNIT 308
WIRELESS UNIT
316
314
SPEECH I/O
DISPLAY ADAPTER
322
330
326
SPEAKER
DISPLAY
324
300

FIG. 3

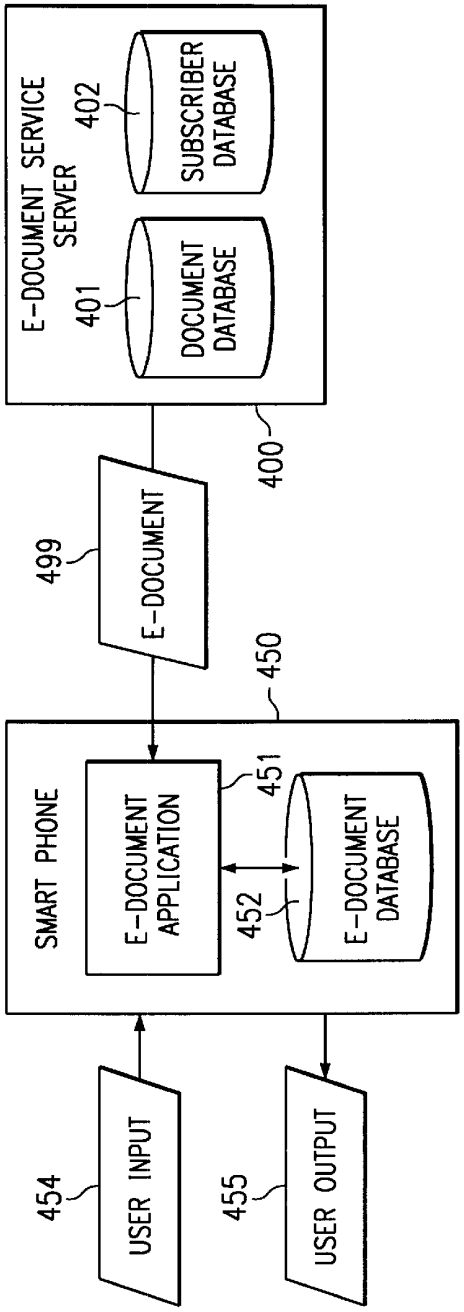

E-DOCUMENT SERVICE SERVER
400
401
DOCUMENT DATABASE
402
SUBSCRIBER DATABASE
499
E-DOCUMENT
450
SMART PHONE
E-DOCUMENT APPLICATION
451
452
E-DOCUMENT DATABASE
454
USER INPUT
455
USER OUTPUT

FIG. 4

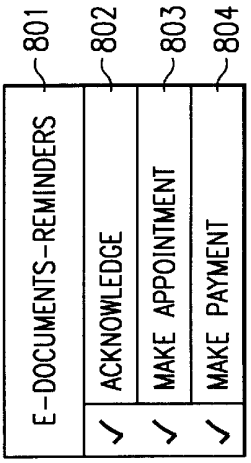

801
802
803
804
E-DOCUMENTS-REMINDERS
ACKNOWLEDGE
MAKE APPOINTMENT
MAKE PAYMENT
800

FIG. 8

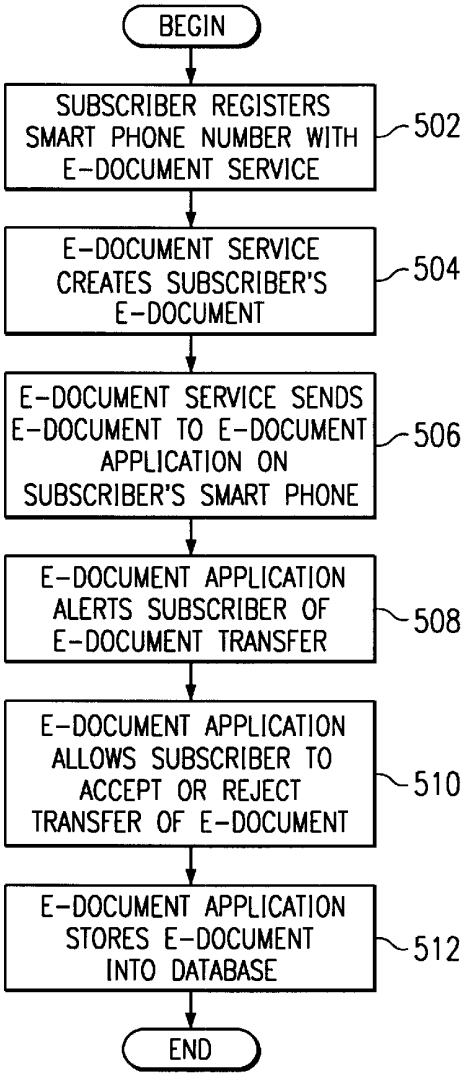

BEGIN
SUBSCRIBER REGISTERS SMART PHONE NUMBER WITH E-DOCUMENT SERVICE
502
E-DOCUMENT SERVICE CREATES SUBSCRIBER'S E-DOCUMENT
504
E-DOCUMENT SERVICE SENDS E-DOCUMENT TO E-DOCUMENT APPLICATION ON SUBSCRIBER'S SMART PHONE
506
E-DOCUMENT APPLICATION ALERTS SUBSCRIBER OF E-DOCUMENT TRANSFER
508
E-DOCUMENT APPLICATION ALLOWS SUBSCRIBER TO ACCEPT OR REJECT TRANSFER OF E-DOCUMENT
510
E-DOCUMENT APPLICATION STORES E-DOCUMENT INTO DATABASE
512
END

FIG. 5

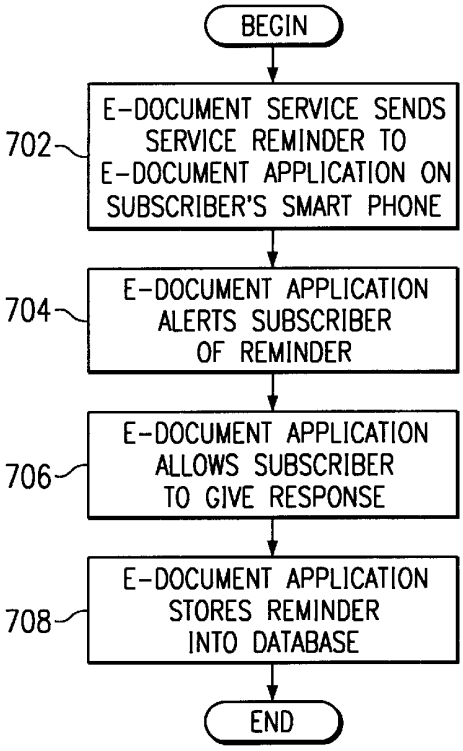

BEGIN
E-DOCUMENT SERVICE SENDS SERVICE REMINDER TO E-DOCUMENT APPLICATION ON SUBSCRIBER'S SMART PHONE
702
E-DOCUMENT APPLICATION ALERTS SUBSCRIBER OF REMINDER
704
E-DOCUMENT APPLICATION ALLOWS SUBSCRIBER TO GIVE RESPONSE
706
E-DOCUMENT APPLICATION STORES REMINDER INTO DATABASE
708
END

FIG. 7

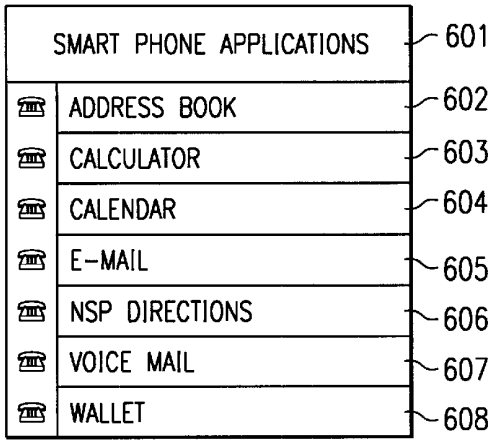


FIG. 6A

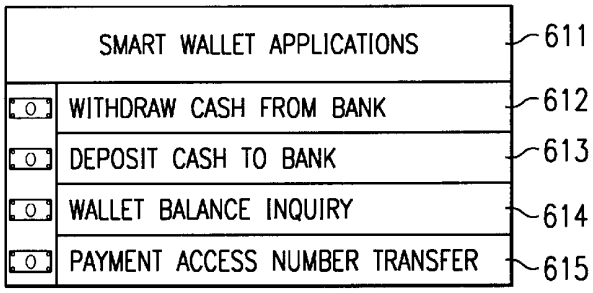


FIG. 6B

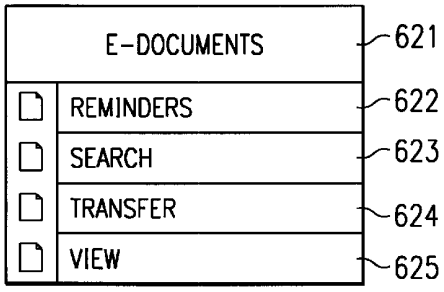


FIG. 6C

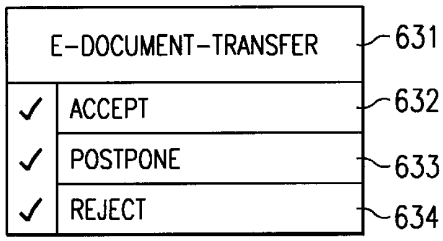


FIG. 6D

METHOD AND APPARATUS FOR USING ELECTRONIC DOCUMENTS WITHIN A SMART PHONE

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is related to application Ser. No. 09/240,958, filed Jan. 29, 1999, titled "Method and Apparatus for Transmitting and Tendering Electronic Cash Using a Smart Wallet," herein incorporated by reference.

BACKGROUND OF THE INVENTION

1. Technical Field

The present invention relates generally to an improved data processing system and, in particular, to an improved method and apparatus for providing data in a distributed data processing system. Still more particularly, the present invention relates to a method and apparatus for using electronic documents within a smart phone.

2. Description of Related Art

The use of computers has become more and more pervasive in society. This pervasiveness includes the integration of personal computer technology into phones. By utilizing computer technology, users or callers have access to computing functions and resources in a personal, portable device. In addition, it is envisioned that phone users would be able to use some of the same software elements in a phone that are used at home or in the office. Various applications have been developed and are being developed for use in phones. These applications generally include communication applications to help a user stay in touch with other persons at home or in the office, such as voice mail, e-mail, or two-way paging with short text messages. Some phones incorporate so-called personal information manager(PIM) technology, such as an address book or a calendar for scheduling personal events. PIMs on a phone, on a home PC, and on an office PC may be synchronized to keep all information consistent and current.

Another adopted computer technology for use on a phone is voice and speech recognition. Voice recognition technology is already well developed in multimedia desktop personal computers and, when incorporated into a phone, allows a phone user to easily control and interact with a telephone application, such as automatically dialing a phone number, while obviating the need for manual input. Phones are becoming so ubiquitous that many people carry their phones so that they have some means for being in constant communication contact with others. Examples of common use of portable phones include carrying and using a phone within an automobile or possibly carrying the phone while shopping in a mall.

An attempt has been made recently to use smart cards as a depository for identity information. A smart card is generally a small circuit board with built-in logic, firmware, and storage that provides the smart card with some kind of independent decision-making ability. Typically, a smart card is a credit-card-sized device that contains integrated circuits with limited amounts of "intelligence".

Smart cards are expected to be used as personal identification devices in a wide range of applications and hardware devices. In such an environment, it would be unnecessary to have a separate smart card for every particular application or hardware device. In such an environment, a single smart card could be used to identify a specific user and to provide user identification for a variety of devices. A user may insert a smart card containing personal information into a smart card reader or device that interfaces with a larger computing system.

By storing special software on a smart card, it has been envisioned that an owner of a smart card would possess an easily transportable physical device containing several abilities, e.g., a replacement for passwords and identity badges.

As the economy grows and jobs become more specialized, services have been created which provide conveniences for the public. When a customer registers for new service, the customer generally receives at least an account number but frequently also receives some type of card to provide visual proof that the customer should be granted a particular service. As these service cards proliferate, it becomes inconvenient to carry these cards at all times.

For example, it is not uncommon for a person to carry a card for the following services: frequent flyer programs with airlines, frequent buyer programs with grocery stores, movie rental stores, and discount price outlet stores. These cards are in addition to the more important legal documents which one usually carries in a wallet: health insurance card, automobile insurance card, Social Security card, and driver's license. In addition, many people carry the following financial-type documents: credit cards, phone cards, automated teller machine (ATM) cards, etc. It would not be uncommon for a person to also be carrying the following items: tickets to events, passes to amusement parks, telebroker cards, etc.

It would be convenient to incorporate electronic document technology for all these types of documents into a single electronic device. However, smart card technology has been developing very slowly, while personal phones have been improved and adopted very rapidly.

Therefore, it would be advantageous to have an improved method and apparatus for using electronic documents within a smart phone since the public already uses personal phones ubiquitously.

SUMMARY OF THE INVENTION

The present invention provides a method and apparatus for using electronic documents within a smart phone. A merchant, legal organization, or other entity provides an electronic document to a subscriber as proof of registration for a service or of legal entitlement. At the time of registration, the subscriber registers a phone number of a phone at which the subscriber desires to receive the issued electronic document. After the electronic document is created, the organization transmits the electronic document to the phone at the registered phone number. The receiving smart phone allows the subscriber to manage the electronic document within the smart phone.

BRIEF DESCRIPTION OF THE DRAWINGS

The novel features believed characteristic of the invention are set forth in the appended claims. The invention itself, however, as well as a preferred mode of use, further objectives and advantages thereof, will best be understood by reference to the following detailed description of an illustrative embodiment when read in conjunction with the accompanying drawings, wherein:

FIG. **1** is a diagram of a computing system in accordance with a preferred embodiment of the present invention;

FIG. **2** is a block diagram of a data processing system, which may be implemented as a server, in accordance with a preferred embodiment of the present invention;

FIG. **3** is a block diagram of a wireless phone computing platform in accordance with a preferred embodiment of the present invention;

FIG. **4** is a block diagram of an overall view of a data processing system for publishing and transmitting electronic documents;

FIG. **5** is a flowchart that depicts a method of creating and transmitting electronic documents;

FIGS. **6A–6D** are example displays of a user interface that may be provided to a user of a smart phone for managing e-documents;

FIG. **7** is a flowchart that depicts the use of reminders with associated e-documents; and

FIG. **8** is a diagram that depicts an example display of a user interface window for actions on reminders.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the figures and in particular with reference to FIG. **1**, a diagram of a computing system **100** is depicted in accordance with a preferred embodiment of the present invention. In this example, head-end **102** is connected to a server computer **104**, which is employed to collect data from various phones that may be present within computing system **100**. In particular, server computer **104** may communicate with various phone units **106–114** and **168–174**. These phones may contain a computing platform that may communicate with server **104** as so-called "smart phones". In this example, communications between various phone units may be accomplished through the standard telephone system, a cellular phone system, the Iridium™ satellite phone system, or other wireless systems.

Communication between server computer **104** and phone units **106–114** is accomplished in a number of different ways in this example. For example, radio tower **116** provides communications links **118** and **120** to phone units **108** and **106** respectively. Communications links **118** and **120** are radio frequency communications links generated between radio tower **116** and antennas located on phone units **106** and **108**. Phone unit **108** may be a dual-use phone that may be used with both a satellite and cell-phone tower. In addition, server **104** may communicate with phone unit **110** through communications links **122** and **124**. Communications link **122** is established between satellite disk **126** and satellite switch **128** with communications link **124** being established between satellite **128** and phone unit **110**. Communications links **122** and **124** are radio frequency based links generated by signals sent to satellite switch **128** from satellite dish **126** and from satellite switch **128** to phone unit **110**. In this example, radio tower **116** and satellite dish **126** are connected to head-end **102** and provide for transmissions originating from or passing through head-end **102**.

Further, signals may be sent from satellite switch **128** to satellite dish **130** via communications link **132**. From satellite dish **130**, information may be sent to phone unit **114** through communications links **134**, **136**, and **140**. Communications link **134** in this example is a link between switch **142** and switch **144**. In this manner, a path may be established from server computer **104** to phone unit **114** to create a path containing communications links **122**, **132**, **134**, **136**, and **140**. Communications link **134** is a physical link, which may be for example, coaxial cable, fiber optic cable, or a combination of the two. Each switch also has a "link", also called a "path", within the switch for routing data through the switch. An "input link" is the input or source portion of the link associated with the input into the switch, and an "output link" is the output or destination portion of the link associated with the output from the switch. Communications link **136** is established between radio towers **146** and **148**. Radio tower **146** is connected to switch **144** in FIG. **1**. Communications link **140** is established between radio tower **148** and phone unit **114**. Communications with mobile unit **112** may be established through a path containing communications links **122**, **132**, and **150**. Communications link **150** is established between radio tower **151** and phone unit **112**. In this example, satellite dish **130** and radio tower **151** are connected to switch **142**.

In addition, server computer **104** may use an alternate path to communicate with phone unit **114**. For example, a path through communications links **152**, **154**, **136**, and **140** may be employed to communicate with phone unit **114**. Links **152** and **154** are physical links in this example. Communications link **152** is established between head-end **102** and switch **156**, while communications link **154** is established between switch **156** and switch **144**. In this manner, data signals, such as multimedia data, which may include video, graphics, voice, and text may be sent between server computer **104** and phone units **106–114**. These data signals may also include GPS signal and navigation-type data.

In addition, computing system **100** also includes networks **160** and **162**, which are in communication with server computer **104**. Network **160** has a communications path to server computer **104** via communications links **164** and **152**. Network **162** communicates with server computer **104** through communications links **166** and **152**. Various phone facilities may be located within networks **160** and **162**. For example, in FIG. **1**, standard telephones **168** and **170** are located within network **160**, while phone booths **172** and **174** are located within network **162**. Of course, other facilities may be located within networks **160** or **162**, such as PCs using Internet telephony.

Information may be obtained from phones **168–174** and sent to server computer **104**. This information may include any information necessary for a navigation device to generate directions to or from these locations. Server **104** may poll networks **160** and **162** to obtain this information or the information may be pushed to server **104** from the networks.

Referring to FIG. **2**, a block diagram depicts a data processing system, which may be implemented as a server, such as server computer **104** in FIG. **1**, in accordance with a preferred embodiment of the present invention. Data processing system **200** may be a symmetric multiprocessor (SMP) system including a plurality of processors **202** and **204** connected to system bus **206**. Alternatively, a single processor system may be employed. Also connected to system bus **206** is memory controller/cache **208**, which provides an interface to local memory **209**. I/O bus bridge **210** is connected to system bus **206** and provides an interface to I/O bus **212**. Memory controller/cache **208** and I/O bus bridge **210** may be integrated as depicted.

Peripheral component interconnect (PCI) bus bridge **214** connected to I/O bus **212** provides an interface to PCI local bus **216**. A number of modems **318–220** may be connected to PCI bus **216**. Typical PCI bus implementations will support four PCI expansion slots or add-in connectors. Communications links to various mobile units illustrated in FIG. **1** may be provided through modem **218** and network adapter **220** connected to PCI local bus **216** through add-in boards.

Additional PCI bus bridges **222** and **224** provide interfaces for additional PCI buses **226** and **228**, from which

additional modems or network adapters may be supported. In this manner, server **200** allows connections to multiple networks computers. A memory-mapped graphics adapter **230** and hard disk **232** may also be connected to I/O bus **212** as depicted, either directly or indirectly.

Those of ordinary skill in the art will appreciate that the hardware depicted in FIG. **2** may vary. For example, other peripheral devices, such as an optical disk drive and the like, also may be used in addition to or in place of the hardware depicted. The depicted example is not meant to imply architectural limitations with respect to the present invention.

The data processing system depicted in FIG. **2** may be, for example, an IBM RISC/System 6000 system, a product of International Business Machines Corporation in Armonk, N.Y., running the Advanced Interactive Executive (AIX) operating system.

Turning next to FIG. **3**, a block diagram of a wireless phone computing platform is depicted in accordance with a preferred embodiment of the present invention. Computing platform **300** is located within a cell phone, mobile phone, satellite phone, or other type of digital smart phone. Computing platform **300** includes a CPU **302**, which may be an embedded processor or processor such as a Pentium processor from Intel Corporation. "Pentium" is a trademark of Intel Corporation. Computing platform **300** also includes memory **304**, which may take the form of random access memory (RAM) and/or read only memory (ROM).

Computing platform **300** also contains a storage device unit **306**. Storage device unit **306** may contain one or more portable storage devices, e.g., a hard disk drive, such as an IBM MicroDrive, or a flash memory card. Wireless phone computing platform **300** also includes an input/output (I/O) unit **308**, which provides connections to various I/O devices. In this example, a GPS receiver **310** is optionally included, as denoted by dotted line **313**, within wireless phone computing system **300** and receives signals through antenna **312**. Wireless unit **314** provides for two-way communications between computing unit **300** and another data processing system, such as server **104** in FIG. **1**, through antenna **316**.

Computing unit **300** also includes a display adapter **322**, which is connected to display **324**. This display may be a touch screen display or an LCD display. Computing unit **300** also includes a microphone **328** and a speaker **330** which provide a user, in addition to standard voice communication, with an ability to enter commands and receive responses through speech I/O unit **326** without having to constantly divert attention to display **324**.

With reference now to FIG. **4**, a block diagram depicts an overall view of a data processing system for publishing and transmitting electronic documents according to the method of the present invention. Smart phone **450** accepts user input **454** and provides user output **455** through a user interface that allows a user of smart phone **450**, acting as a subscriber of an e-document service, to browse and manage electronic documents stored on smart phone **450**. Smart phone **450** contains e-document database **452** that is accessed by e-document application **451** for storing and retrieving e-documents for the subscriber. E-document application **451** may be a Java™ application or applet executing on a Java Virtual Machine (JVM) on smart phone **450**, an application running under Windows™ CE, or similar application. E-document application **451** receives e-document **499** from e-document service server **400**. E-document application **451** also receives reminders for subscriber actions associated with e-document **499** from the e-document service. E-document service server **400** contains document database **401** and subscriber database **402** for storing and managing electronic documents created by the e-document service for its subscribers. Other databases not shown in the figure may be used by the e-document service in an enterprise data processing system.

Each merchant or provider of consumer services may become its own e-document service. Usually, a consumer or customer registers for a particular service in person and waits several minutes or longer to receive a document that provides proof of registration. For example, when a consumer registers at a discount buyers club, the consumer usually receives an identity card with a small picture. Rather than issuing a physical card, a consumer may receive an electronic document that serves the same purpose. In this case, the discount buyers club would issue an e-document in its capacity as an e-document service.

Alternatively, each merchant or provider or consumer services may contract with a third-party for its e-document service requirements. In this case, the consumer may register with a merchant or other organization yet receive his e-document from a third-party vendor. In the following examples, it is assumed that a merchant, a service provider, an individual, an organization, or a governmental agency may be considered to be an e-document service with respect to the capacity of issuing documents.

With reference now to FIG. **5**, a flowchart depicts a method of creating and transmitting electronic documents. At some point in time, a subscriber requires the services of the e-document service, and the subscriber registers the subscriber's smart phone number with the e-document service (step **502**). In response to the request for an electronic document, the e-document service creates the subscriber's e-document (step **504**). The e-document service sends e-document **499** to e-document application **451** on subscriber's smart phone **450** at the phone number supplied at the time of registration (step **506**). E-document application **451** alerts the subscriber to the attempted transfer of e-document **499** (step **508**). E-document application **451** allows the subscriber to accept or reject the transfer of e-document **499** (step **510**). E-document application **451** then stores e-document **499** into e-document database **452** if the subscriber accepts the e-document (step **512**).

For example, the e-document service may be a governmental agency that issues a driver's license. When one registers and passes an exam for a driver's license, one must provide personal information, such as an address, etc. At the same time, one may provide a smart phone number to which the driver's license, in the form of an e-document, should be transmitted. After the driver's license bureau has created the driver's license in the form of an e-document, it transmits the driver's license e-document to the subscriber's smart phone. The transmission of the e-document is both quicker and more secure than sending a physical document through regular postal mail.

With reference now to FIGS. **6A–6D**, diagrams show example displays of a user interface that may be provided to a user of a smart phone for managing e-documents. In FIG. **6A**, display **600** has title **601** of "Smart Phone Applications" showing the applications available to the user of smart phone **450**: Address Book **602**, Calculator **603**, Calendar **604**, E-Mail **605**, NSP Directions **606**, Voice Mail **607**, and Wallet **608**. The applications activated by the menus E-Mail **605** and Voice Mail **607** provide well-known communication tools. The applications activated by the menu items Address Book **602**, Calculator **603**, and Calendar **604** are

PIM applications similar to well-known personal information management applications. NSP Directions **606** is a navigation service provider application for obtaining directions between locations, such as that disclosed in U.S. application Ser. No. 09/240,965, "Method and Apparatus for Providing and Obtaining Routing Information Through Phone-Based Navigation", herein incorporated by reference.

In FIG. **6**B, display **610** shows menu **611** titled "Smart Wallet Application" that provides user access to electronic wallet applications that replicate functions similar to a traditional wallet. Cash **612**, Coupons **613**, E-documents **614**, and Pictures **615** store electronic items in databases within smart phone **450**. Cash **612** is an electronic cash application, such as that disclosed in U.S. application Ser. No. 09/240,958, "Method and Apparatus for Transmitting and Tendering Electronic Cash Using a Phone Wallet", herein incorporated by reference. Coupons **613** is an electronic coupon application for managing electronic coupons, such as that disclosed in U.S. application Ser. No. 09/240,963, "Method and Apparatus for Phone-Based Receipt and Redemption of electronic Coupons", herein incorporated by reference. Pictures **615** may provide a browser for viewing digital pictures.

In FIG. **6**C, display **620** shows menu **621** titled "E-documents". Reminder **622**, Search **623**, Transfer **624**, and View **625** provide various actions that may be performed on e-documents stored within e-document database **452**. Reminder **622** allows the subscriber of the e-documents to the view and manage subscriber reminders associated with the e-documents stored in e-document database **452**. Search **623** allows the subscriber to search through the stored e-documents. Transfer **624** allows the subscriber to transfer or retrieve an e-document from an e-document service. View **625** allows the subscriber to browse and view the e-documents stored on smart phone **450**.

View **625** and Pictures **615** may perform similar functions. Depending upon the manner in which the subscriber manages and categorizes the e-documents, View **625** may provide browsing functions for legal documents, such as a driver's license, while Pictures **615** provides browsing functions solely for digital pictures. However, the digital pictures may be received from an e-document service. For example, a consumer/subscriber may drop off a roll of film at a film developer, and at the same time, the customer may register his smart phone number. After the film is developed, the film developer, acting in its own capacity as an e-document service, may transmit scanned photos as e-documents to the consumer/subscriber. The consumer/subscriber may or may not accept the transmittal of the pictures as e-documents, yet the consumer/subscriber has been notified that the service has been completed.

In FIG. **6**D, display **630** shows menu **631** titled "E-Document-Transfer". Accept **632**, Postpone **633**, and Reject **634** provide various actions that may be applied to the immediate transfer of e-document **499** from e-document service server **400**. If the subscriber accepts the e-document, it is stored in e-document database **452**. Although it may be assumed that the subscriber has requested the e-document, the rejection option may provide a security feature so that the subscriber can reject e-documents that do not appear to be legitimate. In addition, there may be services that a subscriber later decides are undesirable, and the subscriber has the option of declining a previous registration.

With respect to FIG. **7**, a flowchart depicts the use of reminders with associated e-documents. E-document service server **400** sends a service reminder to e-document application **451** on subscriber's smart phone **450** (step **702**). E-document application **451** alerts the subscriber of the reminder (step **704**). E-document application **451** then allows the subscriber to input an appropriate response (step **706**). E-document application **451** then stores the reminder, if necessary, into e-document database **452** (step **708**).

With reference now to FIG. **8**, a diagram shows an example display of a user interface window for actions on reminders. Display **800** shows menu **801** titled "E-documents-Reminders". Acknowledge **802**, Make Appointment **803**, and Make Payment **804** provide various actions that may be applied to previously stored or incoming reminders. Acknowledge **802** allows the subscriber to merely acknowledge that the reminder has been received. Make Appointment **803** may initiate the execution of the application associated with Calendar **604** for making an appointment associated with a particular e-document. Make Payment **804** may initiate the execution of the application associated with Cash **612** for making a payment, or possibly regularly scheduled payments, for the completion of a service to which one has subscribed.

As a further example of the usefulness of e-documents, an individual may provide a smart phone number to another individual so an appointment or calendar event can be sent as an e-document. The owner of the smart phone may receive the calendar e-document from a friend as a reminder to attend a social event, or the owner of the smart phone may receive a reminder of a dentist appointment from a dentist. Calendar **604** can then enter the e-document into the calendar on the smart phone.

Many documents have associated dates by which time some related action should occur. For some services that have issued documents, a merchant will send a reminder notice by postal mail that the subscriber should perform some action by a specific time. With the method of the present invention, the e-document service has the ability to send a reminder to the same smart phone number to which the e-document service originally sent an e-document.

For example, a driver's license has an associated expiration data. However, one usually does not allow this data to lapse. A driver's license bureau, acting in its capacity as an e-document service, may send a reminder to a subscriber that the subscriber is due for a vision test before the subscriber's driver's license can be renewed.

As a security feature, if the phone is lost, smart phone **450** may have several different types of security features to ensure the safety of any valuable information within the phone. For example, E-document application **451** may have a special override feature that deletes or invalidates all of the e-documents on smart phone **450** when a special override e-document is sent to smart phone **450**.

The advantages provided by the electronic documents of the present invention are apparent with reference to the detailed description of the figures given above. In the electronic documents of the present invention, the subscriber is not inconvenienced by physically carrying multiple cards and documents for various services. The subscriber may carry as many electronic documents as the e-document application in the subscriber's smart phone will allow, and the e-document application automatically manages the e-document and also alerts the subscriber of reminders associated with the e-documents. Moreover, the management of the documents may be integrated into other applications residing on the smart phone, such as an electronic payment application or a calendar application. The electronic documents of the present invention ensure that a

subscriber can always carry documents with a smart phone that the subscriber would already be carrying otherwise. The subscriber also does not need to worry about losing the smart phone that may contain legal documents and electronic cash as electronic security features may be incorporated into the smart phone. These security features may also deter theft of the smart phone.

It is important to note that while the present invention has been described in the context of a fully functioning data processing system, those of ordinary skill in the art will appreciate that the processes of the present invention are capable of being distributed in the form of a computer readable medium of instructions and a variety of forms and that the present invention applies equally regardless of the particular type of signal bearing media actually used to carry out the distribution. Examples of computer readable media include recordable-type media such a floppy disc, a hard disk drive, a RAM, and CD-ROMs and transmission-type media such as digital and analog communications links.

The description of the present invention has been presented for purposes of illustration and description, but is not intended to be exhaustive or limited to the invention in the form disclosed. Many modifications and variations will be apparent to those of ordinary skill in the art. The embodiment was chosen and described in order to best explain the principles of the invention, the practical application, and to enable others of ordinary skill in the art to understand the invention for various embodiments with various modifications as are suited to the particular use contemplated.

What is claimed is:

1. A method for distributing an electronic personal identification card, the method comprising:

registering a wireless communication device which is to receive an electronic personal identification card, the electronic personal identification card including personal identification information which specifically identifies an individual user and which corresponds to a particular benefit or legal right provided to the individual user; and

sending the electronic personal identification card to the wireless communication device via a wireless communications link, wherein the electronic personal identification card is stored within a memory of the wireless communication device, wherein the method is performed in a communication systems and the particular benefit is a benefit that is provided to the user outside of the communication system.

2. The method of claim **1**, further comprising:

sending a reminder message to the wireless communication device, the reminder message being associated with the electronic personal identification card and including subject matter associated with the benefit or legal right provided to the individual user.

3. The method of claim **1**, wherein the electronic personal identification card is a license to engage in a particular activity.

4. The method of claim **1**, wherein the electronic personal identification card is a membership card that identifies the individual user as a part of a group of users that are each provided with the same benefit or legal right.

5. The method of claim **1**, wherein registering the wireless communication device includes receiving a phone number associated with the wireless communication device.

6. The method of claim **1** further comprising alerting a user of the wireless communication device of a receipt of the electronic personal identification card.

7. The method of claim **1** further comprising alerting a user of the wireless communication device of an attempted transfer of the electronic personal identification card to the wireless communication device.

8. The method of claim **1** further comprising providing a user of the wireless communication device with an ability to reject a transfer of the electronic personal identification card to the wireless communication device.

9. The method of claim **1** further comprising sending an electronic document to the wireless communication device that deletes or invalidates any electronic personal identification cards previously stored in the wireless communication device.

10. An apparatus for distributing an electronic personal identification card, comprising:

means for registering a wireless communication device which is to receive an electronic personal identification card, the electronic personal identification card including personal identification information which specifically identifies an individual user and which corresponds to a particular benefit or legal right provided to the individual user; and

means for sending the electronic personal identification card to the wireless communication device via a wireless communications link, wherein the electronic personal identification card is stored within a memory of the wireless communication device, wherein the method is performed in a communication systems and the particular benefit is a benefit that is provided to the user outside of the communication system.

11. The apparatus of claim **10**, further comprising:

means for sending a reminder message to the wireless communication device, the reminder message being associated with the electronic personal identification card and including subject matter associated with the benefit or legal right provided to the individual user.

12. The apparatus of claim **10**, wherein the electronic personal identification card is a license to engage in a particular activity.

13. The apparatus of claim **10**, wherein the electronic personal identification card is a membership card that identifies the individual user as a part of a group of users that are each provided with a same benefit or legal right.

14. The apparatus of claim **10**, wherein the means for registering the wireless communication device includes means for receiving a phone number associated with the wireless communication device.

15. The apparatus of claim **10**, further comprising means for alerting a user of the wireless communication device of an attempted transfer of the electronic personal identification card to the wireless communication device.

16. The apparatus of claim **10**, further comprising means for sending an electronic document to the wireless communication device that deletes or invalidates any electronic personal identification cards previously stored in the wireless communication device.

17. A computer program product in a computer readable medium for distributing an electronic personal identification card, comprising:

first instructions for registering a wireless communication device which is to receive an electronic personal identification card, the electronic personal identification card including personal identification information which specifically identifies an individual user and which corresponds to a particular benefit or legal right provided to the individual user; and

second instructions for sending the electronic personal identification card to the wireless communication

device via a wireless communications link, wherein the electronic personal identification card is stored within a memory of the wireless communication device, wherein the method is performed in a communication systems and the particular benefit is a benefit that is provided to the user outside of the communication system.

18. The computer program product of claim **17**, further comprising:

third instructions for sending a reminder message to the wireless communication device, the reminder message being associated with the electronic personal identification card and including subject matter associated with the benefit or legal right provided to the individual user.

19. The computer program product of claim **17**, wherein the electronic personal identification card is a license to engage in a particular activity.

20. The computer program product of claim **17**, wherein the electronic personal identification card is a membership card that identifies the individual user as a part of a group of users that are each provided with a same benefit or legal right.

21. The computer program product of claim **17**, wherein the first instructions for registering the wireless communication device include instructions for receiving a phone number associated with the wireless communication device.

22. The computer program product of claim **17**, further comprising third instructions for alerting a user of the wireless communication device of a receipt of the electronic personal identification card.

23. The computer program product of claim **17**, further comprising third instructions for alerting a user of the wireless communication device of an attempted transfer of the electronic personal identification card to the wireless communication device.

24. The computer program product of claim **17**, further comprising third instructions for providing a user of the wireless communication device with an ability to reject a transfer of the electronic personal identification card to the wireless communication device.

25. The computer program product of claim **17**, further comprising third instructions for sending an electronic document to the wireless communication device that deletes or invalidates any electronic personal identification cards previously stored in the wireless communication device.

* * * * *

UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO. : 6,622,015 B1
DATED : September 16, 2003
INVENTOR(S) : Himmel et al.

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

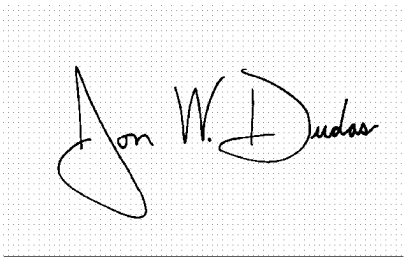
Column 6,
Line 18, after "provider", delete "or" and insert -- of --.

Column 8,
Lines 39-40, after "expiration", delete "data" aned insert -- date --.

Column 9,
Line 60, after "with", delete "the" and insert -- a --.

Signed and Sealed this

Twelfth Day of October, 2004



JON W. DUDAS
Director of the United States Patent and Trademark Office