A consumer device is disclosed. It includes a body, and a memory element coupled to the body, the memory storing a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag linking the first account and the second account.
Fig. 2(a)

Fig. 2(b)
Fig. 3
INTERACT WITH ACCESS DEVICE

SEND AUTH REQUEST MESSAGE WITH PREPAID ACCOUNT NUMBER, SUPPLEMENTAL ACCOUNT NUMBER, AND REFILL FLAG

RECEIVE AUTHORIZATION REQUEST MESSAGE

ARE THERE ENOUGH FUNDS IN THE PREPAID ACCOUNT TO PAY FOR THE TRANSACTION?

DOES THE REFILL FLAG INDICATE AUTOMATIC REFILL?

RELOAD PREPAID ACCOUNT USING SUPPLEMENTAL ACCOUNT

SEND AUTHORIZATION RESPONSE MESSAGE TO MERCHANT

SEND ALERT MESSAGE

SEND AUTHORIZATION REQUEST TO ISSUER OF PREPAID ACCOUNT

RECEIVE AUTHORIZATION RESPONSE MESSAGE

FORWARD AUTHORIZATION RESPONSE MESSAGE TO MERCHANT

Fig. 5
<table>
<thead>
<tr>
<th><strong>Prepaid Account Number</strong></th>
<th>1234561234561234</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Supplemental Account Number Used to Fund Prepaid Account</strong></td>
<td>2345672345672345</td>
</tr>
<tr>
<td><strong>Supplemental Account Type</strong></td>
<td>Debit Card</td>
</tr>
<tr>
<td><strong>Allow Automatic Refill?</strong></td>
<td>Y</td>
</tr>
<tr>
<td><strong>Send alert when prepaid account is filled?</strong></td>
<td>Y</td>
</tr>
</tbody>
</table>

*Fig. 6*
PORTABLE DEVICE INCLUDING ALTERABLE INDICATOR

CROSS-REFERENCES TO RELATED APPLICATIONS

[0001] This application claims priority to and is a non-provisional of U.S. provisional patent application No. 61/048,814, filed on Apr. 29, 2008, which is incorporated herein by reference in its entirety for all purposes.

BACKGROUND

[0002] There are a number of payment card programs that are used to control spending by teens. One such program is entitled Visa Buxx®. This program uses a prepaid, reloadable card that is created for teens. In the program, a parent enrolls their teen, then loads money onto the prepaid card. Parents retain complete control of the account associated with the prepaid card and can view the teen’s spending history at any time using a website. The website can be used to enroll teens, replenish value, check balances and transactions, view special offers and access money management tools. It offers several options to fund the prepaid card including credit cards and debit cards. A value reload feature on the website enables cardholders and/or parents to set their own loading and reloading schedule (with a valid funding account on file). Value reload options include immediate one-time, scheduled one-time, recurring scheduled and low balance.

[0003] Although the above-described program is useful, it could be improved. For example, the consumer may want to perform an off-line transaction. If the balance on the prepaid card is too low to conduct a purchase transaction for a particular item, the consumer may not be able to make the purchase. Further, in the above-described system, it is necessary for a parent to log onto a website to change the reload parameters associated with the reloadable card.

[0004] Embodiments of the invention address these and other problems, individually and collectively.

BRIEF SUMMARY

[0005] Embodiments of the invention are directed to consumer devices, methods and systems.

[0006] One embodiment of the invention is directed to a consumer device. It comprises a body, and a memory element coupled to the body. The memory element stores a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag linking the first account and the second account.

[0007] Another embodiment of the invention is directed to a method receiving, at a server computer, an authorization request message comprising a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag, wherein the alterable flag links the first account and the second account. The method also includes analyzing the authorization request message, and performing additional processing such as initiating the transfer of value from the second account to the first account if the alterable flag is in a transfer state.

[0008] Another embodiment of the invention is directed to a method comprising sending an authorization request message comprising a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag. The alterable flag may be capable of being in a transfer state or a non-transfer state, and links the first account and the second account. The authorization request message is sent to a server computer, wherein the server computer thereafter analyzes the authorization request message and performs additional processing. An example of additional processing may include initiating the transfer of value from the second account to the first account if the alterable flag is in a transfer state. The method also includes receiving an authorization response message from the server computer.

[0009] Embodiments of the invention are directed to these and other embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] FIG. 1 shows a block diagram of a system that can be used in some embodiments of the invention.

[0011] FIG. 2(a) shows a block diagram of a consumer device in the form of a phone.

[0012] FIG. 2(b) shows an illustration of a payment card.

[0013] FIG. 3 shows a block diagram of an access device according to an embodiment of the invention.

[0014] FIG. 4 shows a block diagram of a computer apparatus.

[0015] FIG. 5 shows a flowchart illustrating a method according to an embodiment of the invention.

[0016] FIG. 6 shows a screen shot of a user interface that can be used to input data in an embodiment of the invention.

DETAILED DESCRIPTION

[0017] One embodiment of the invention is directed to a consumer device comprising a body and a memory element coupled to the body. The memory element stores a first account identifier associated with a first account and a second account identifier associated with a second account. The first account identifier may be a prepaid account number associated with a prepaid account. The second account identifier may be a supplemental account number associated with a supplemental account such as a debit account, a credit account, or a checking account. The memory element may also store an alterable flag linking the first account and the second account. In some embodiments, the balance associated with at least the first account (e.g., the prepaid account) may also be stored in the memory element of the consumer device. The balance (or credit limit) associated with the second account may also be stored in the memory element of some embodiments of the invention.

[0018] The memory element may be in any suitable form. The memory element may include computer readable media, and may be semi-volatile or volatile in nature. It may also include one or more memory devices (e.g., one or more memory chips, magnetic strips, etc.). It may operate using any suitable mechanism including any suitable optical, magnetic, and/or electrical data storage mechanism.

[0019] The alterable flag may be in any suitable form and may be of any suitable length. For example, in one embodiment, the alterable flag may simply be a binary value that indicates whether or not the person in control of the second account allows for an automatic transfer of value from the second account to the first account under specified conditions (e.g., periodically, when the balance in the first account is low, etc.). In other embodiments, the alterable flag may be configured to provide more detailed instructions. For example, an alterable flag may be used to indicate that a first account is to be automatically refilled with value from a second account, and
may also indicate that the notification message is to be sent to the holder of the second account if the first account is refilled with value from the second account. In another embodiment, the alterable flag may indicate that one account number is to be used before another account number.

[0020] In some embodiments, the first account identifier, the second account identifier, and the alterable flag can be included in one or more data tags, which can be sent in authorization request messages. Embodiments of the invention include the use of data tags, assigned or enhanced, to be sent in a supplementary data field, for the purpose of moving additional data in authorization request messages. Exemplary data tags may include a user exclusive data tag, which can contain the first account identifier, the second account identifier, and the alterable flag. The user exclusive data tag can be a customer exclusive data tag. The data within these tags may be utilized alone or together, and in the clear or encrypted.

[0021] A “data tag” may include one or more data elements in any suitable form. In some embodiments, a data tag may include a tag identifier element, a length element, and a value element. The tag identifier element may be embodied by one or more characters, which indicate a characteristic of the data tag. For example, a customer exclusive data tag identifier element may indicate that its corresponding data tag is related to data that is specifically associated with the consumer. A length element may indicate the length of the value element in the data tag, or could indicate the length of the data tag itself. For example, a length element, which has the value “4” may indicate that the value element may have four characters. The length element advantageously indicates the size of its corresponding value element so that a computer apparatus that reads the data tag will know how large the data tag will be. Lastly, a value element can be a substantive value associated with the data tag. For example, a consumer’s debit card account number could be a substantive value. As an illustration, a data tag including a user’s debit card account number might be 88310223567890, “88” might be a tag identifier element indicating a supplemental account number, “10” might be an indication of the length of the value, “12345678790” might be a value corresponding to the debit account number. By using such data tags, standard authorization request messages may carry more complex data between an access device and an issuer than was previously possible.

[0021] Data tags are also described in U.S. patent application Ser. No. __, entitled “Form Factor Indicator” (Attorney Docket No. 16222U-041710US), __, entitled “Device Including User Exclusive Data Tag” (Attorney Docket No. 16222U-041720US), and __, entitled “Authorization System With Split Messaging” (Attorney Docket No. 16222U-041740US), which are all being filed on the same day as the present application. All of these applications are herein incorporated by reference in their entirety for all purposes.

[0022] Exemplary systems and methods are provided below.

[0023] I. Exemplary Systems

[0024] A system according to an embodiment of the invention is shown in FIG. 1.

[0025] FIG. 1 shows a system 20 that can be used in an embodiment of the invention.

[0026] FIG. 1 shows a consumer 30. Consumer 30 may be the primary person designated to use a consumer device 32. For example, consumer 30 may be a teenager. If the consumer device 32 is a prepaid device such as a prepaid card, consumer 30 may also be the person who is in primary control of using funds in a prepaid account that is associated with the prepaid card. A prepaid account number 32-2 is stored in a memory element 32(b) in the consumer device 32. The prepaid account is an example of a first account and the prepaid account number is an example of a first account identifier.

[0027] FIG. 1 also shows a consumer 31. Consumer 31 may be the person (e.g., a parent of the teenager) who is in primary control of a debit account associated with the debit account number 32-3 stored in the memory element 32(b) in the consumer device 32. The debit account number 32-3 and its associated debit account may be respective examples of a second account identifier and a second account associated with the second account number. The second account identifier may be an example of a supplemental account identifier.

[0028] Consumer 31 may also be the person who is authorized to control a state of the alterable flag 32-1 stored in the memory element 32(b). For example, the consumer 31 may be a parent who controls the spending of consumer 30 (who may be his teenager son) by initiating a change in the state of the alterable flag 32-1. In one embodiment, consumer 31 can do this by directly manipulating input elements (e.g., keys on a keypad) in the consumer device 32 to change the state of the alterable flag 32-1. A password or other authentication token may be required by the consumer device 32 before it will allow a person to change the alterable flag 32-1. In another embodiment, consumer 31 may use a computer terminal 62, which may communicate with a server computer in the payment processing network 26 via the Internet 72.

[0029] An exemplary screenshot of an interface that can allow a parent to change the state of the alterable flag 32-1 is shown in FIG. 6. It provides an area for a consumer to enter a prepaid account number, a supplemental account number, and a supplemental account type. There is also an area for a person to indicate whether or not an automatic re-fill or transfer of value from the supplemental account to the prepaid account should occur when the prepaid account has a balance of $0, and an area to indicate whether or not an alert should be sent when the refill occurs. This interface may be provided on the computer terminal 62, on a mobile phone 98, or on the consumer device 32 if the consumer device 32 can receive input data.

[0030] To conduct a purchase transaction, the consumer device 32 can interact with an access device 34, which may be located at a merchant 22. The merchant 22 and the acquirer 24 can communicate with one or more issuers (e.g., issuer A 28 and issuer B 38) via a payment processing network 26.

[0031] FIG. 1 also shows a telecommunication network 70 in communication with the payment processing network 26. The mobile phone 98, which may be operated by consumer A 30 or consumer B 31, may access the telecommunications network 26 via the telecommunications gateway 60. The mobile phone 98 may allow either consumer A 30 or consumer B 31 to receive messages relating to transactions conducted using the consumer device 32.

[0032] In some embodiments, the consumer device 32 may also be a mobile phone or may be capable of communicating with the payment processing network 26 via the telecommunications gateway 60 and the telecommunications network 70, via communication line 96.
As used herein, an “issuer” is typically a business entity (e.g., a bank) which maintains financial accounts for the consumer and often issues a portable consumer device such as a credit or debit card to the consumer. A “merchant” is typically an entity that engages in transactions and can sell goods or services. An “acquirer” is typically a business entity (e.g., a commercial bank) that has a business relationship with a particular merchant or other entity. Some entities can perform both issuer and acquirer functions. Embodiments of the invention encompass such single entity issuer-acquirers.

The consumer devices according to embodiments of the invention may be in any suitable form. In some embodiments, the consumer devices are portable in nature and may be portable consumer devices. Suitable portable consumer devices can be hand-held and compact so that they can fit into a consumer’s wallet and/or pocket (e.g., pocket-sized). They may include smart cards, ordinary credit or debit cards (with a magnetic strip and without a microprocessor), keychain devices (such as the Speedpass™ commercially available from Exxon-Mobil Corp.), etc. Other examples of portable consumer devices include cellular phones, personal digital assistants (PDAs), pagers, payment cards, security cards, access cards, smart cards, smart cards, transponders, and the like.

Each consumer device may comprise a body, and a memory comprising a memory element disposed on or within the body. The memory element stores a first account identifier associated with a first account and a second account identifier associated with a second account. The first account identifier may be a prepaid account number associated with a prepaid account. The second account identifier may be a debit card account identifier associated with a debit account. An alterable flag linking the first account and the second account is also stored in the memory element. In some embodiments, the balances associated with first account and the second account may also be stored on the consumer device. In addition, the consumer device may also include a processor coupled to the memory, where greater functionality and/or security are desired.

The payment processing network may include data processing subsystems, networks, and operations used to support and deliver authorization services, exception file services, and clearing and settlement services. An exemplary payment processing network may include VisaNet™. Payment processing networks such as VisaNet™ are able to process credit card transactions, debit card transactions, and other types of commercial transactions. VisaNet™, in particular, includes a VIP system (Visa Integrated Payments system) which processes authorization requests and a base II system which performs clearing and settlement services.

As noted above, the payment processing network may include a server computer. A server computer is typically a powerful computer or cluster of computers. For example, the server computer can be a large mainframe, a minicomputer cluster, or a group of servers functioning as a unit. In one example, the server computer may be a database server coupled to a Web server. The payment processing network may use any suitable wired or wireless network, including the Internet.

The computer readable medium comprises code or instructions, executable by the processor, for: receiving an authorization request message comprising a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag, wherein the alterable flag links the first account and the second account; analyzing the authorization request message; and performing additional processing depending upon the state of the alterable flag.

The merchant may also have, or may receive communications from, an access device that can interact with the portable consumer device. The access devices according to embodiments of the invention can be in any suitable form. Examples of access devices include point of sale (POS) devices, cellular phones, PDAs, personal computers (PCs), tablet PCs, handheld specialized readers, set-top boxes, electronic cash registers (ECRs), automated teller machines (ATMs), virtual cash registers (VCRs), kiosks, security systems, access systems, and the like.

If the access device is a point of sale terminal, any suitable point of sale terminal may be used including card readers. The card readers may include any suitable contact or contactless mode of operation. For example, exemplary card readers can include RF (radio frequency) antennas, magnetic stripe readers, etc. to interact with the portable consumer device.

Exemplary Consumer Devices, Access Devices, and Computer Apparatuses

FIG. 2(a) shows a block diagram of a phone that can be used in embodiments of the invention. It may correspond to the consumer device 32 or the mobile phone 98 in FIG. 1. Referring to FIG. 2(a), the exemplary wireless phone 32 may comprise a computer readable medium and a body. The computer readable medium 32(h) may be present within the body 32(b), or may be detachable from it. The computer readable medium 32(h) may be or may form part of a memory element. The body 32(h) may be in the form a plastic substrate, housing, or other structure. The computer readable medium 32(h) may be in the form of (or may be included in) a memory that stores data (e.g., prepaid account numbers, debit account numbers, credit card account numbers, alterable flags, etc.) and may be in any suitable form including a magnetic stripe, a memory chip, etc. The memory preferably stores information such as financial information, transit information (e.g., as in a subway or train pass), access information (e.g., as in access badges), etc. Financial information may include information such as bank account information, loyalty account information (e.g., a loyalty account number), a bank identification number (BIN), credit or debit card number information, account balance information, expiration date, consumer information such as name, date of birth, etc. Any of this information may be transmitted by the phone 32.

In some embodiments, information in the memory element may also be in the form of data tracks that are traditionally associated with credits cards. Such tracks include Track 1 and Track 2. Track 1 ("International Air Transport Association") stores more information than Track 2, and contains the cardholder’s name as well as account number and other discretionary data. This track is sometimes used by the airlines when securing reservations with a credit card. Track 2 ("American Banking Association") is currently most commonly used. This is the track that is read by ATMs and credit card checkers. The ABA (American Banking Association) designed the specifications of this track and all world banks must abide by it. It contains the cardholder’s account, encrypted PIN, plus other discretionary data.

The phone 32 may further include a contactless element 32(g), which is typically implemented in the form of a semiconductor chip (or other data storage element) with an
associated wireless transfer (e.g., data transmission) element, such as an antenna. Contactless element 32(g) is associated with (e.g., embedded within) phone 32 and data or control instructions transmitted via a cellular network may be applied to contactless element 32(g) by means of a contactless element interface (not shown). The contactless element interface functions to permit the exchange of data and/or control instructions between the mobile device circuitry (and hence the cellular network) and an optional contactless element 32(g).

[0045] Contactless element 32(g) is capable of transferring and receiving data using a near field communications ("NFC") capability (or near field communications medium) typically in accordance with a standardized protocol or data transfer mechanism (e.g., ISO 14443/NFC). Near field communications capability is a short-range communications capability, such as RFID, Bluetooth®, infra-red, or other data transfer capability that can be used to exchange data between the phone 32 and an interrogation device. Thus, the phone 32 is capable of communicating and transferring data and/or control instructions via both cellular network and near field communications capability.

[0046] The phone 32 may also include a processor 32(c) (e.g., a microprocessor) for processing the functions of the phone 32 and a display 32(d) to allow a consumer to see phone numbers and other information and messages. The phone 32 may further include input elements 32(e) to allow a consumer to input information into the device, a speaker 32(f) to allow the consumer to hear voice communication, music, etc., and a microphone 32(i) to allow the consumer to transmit her voice through the phone 32. The phone 32 may also include an antenna 32(a) for wireless data transfer (e.g., data transmission).

[0047] FIG. 4 shows a block diagram of an access device 34 according to the embodiment of the invention. The access device 34 comprises a processor 34(c) operatively coupled to a computer readable medium 34(d) (e.g., one or more memory chips, etc.), input elements 34(b)-3 such as buttons or the like, a reader 34(a) (e.g., a contactless reader, a magnetic stripe reader, etc.), an output device 34(e) (e.g., a display, a speaker, etc.) and a network interface 34(f). The computer readable medium may comprise instructions or code, executable by a processor. The instructions may include instructions for sending an authorization request message comprising a first account identifier associated with a first account, a second account identifier associated with a second account, and an alterable flag. The alterable flag links the first account and the second account. The authorization request message is sent to a server computer, and the server computer thereafter analyzes the authorization request message and performs additional processing based on the state of the alterable flag. The instructions may also include instructions for receiving an authorization response message from the server computer, instructions for providing receipts with the first and second account numbers, and instructions for updating data such as a balance on a portable consumer device.

[0048] The various participants and elements (e.g., the issuer, merchant, acquirer, payment processing network, etc.) in FIG. 1 may operate one or more computer apparatuses (e.g., a server computer) to facilitate the functions described herein. Any of the elements in FIG. 1 may use any suitable number of subsystems to facilitate the functions described herein. Examples of such subsystems or components are shown in FIG. 4. The subsystems shown in FIG. 4 are inter-connected via a system bus 775. Additional subsystems such as a printer 774, keyboard 778, fixed disk 779 (or other memory comprising computer readable media), monitor 776, which is coupled to display adapter 782, and others are shown. Peripherals and input/output (I/O) devices, which couple to I/O controller 771, can be connected to the computer system by any number of means known in the art, such as serial port 777. For example, serial port 777 or external interface 781 can be used to connect the computer apparatus to a wide area network such as the Internet, a mouse input device, or a scanner. The interconnection via system bus allows the central processor 773 to communicate with each subsystem and to control the execution of instructions from system memory 772 or the fixed disk 779, as well as the exchange of information between subsystems. The system memory 772 and/or the fixed disk 779 may embody a computer readable medium.

[0049] III. Exemplary Methods

[0050] Methods according to embodiments of the invention can be described with respect to FIGS. 1 and 5.

[0051] As noted above, the alterable flag 32-1 in the consumer device 32 can be changed by a consumer such as consumer B 31 at any suitable time and in any suitable manner. In one embodiment, consumer B 31 may use the computer terminal 62 to contact a website on a server computer in the payment processing network 26. On the website, consumer B 31 can indicate the desired state of the flag 32-1. After this occurs, the server computer may communicate with the consumer device 32 to change the state of the flag 32-1. In one example, if the consumer device 32 is capable of receiving external data from the telecommunications network 70, the server computer could send an instruction to change the flag 32-1 to the consumer device 32 via line 96. In another embodiment, consumer B 31 may directly manipulate input elements (e.g., buttons) on the consumer device 32 to change the state of the flag 32-1. This can be done without communicating with a back end server computer or system. In another embodiment, consumer B 31 may use input elements in the access device 34 to locally change the state of the flag when the consumer device 32 is proximate to the access device 34.

[0052] In one embodiment, the state of the alterable flag may indicate whether an automatic transfer of value from the second account to the first account is to occur. For example, a value of "0" may indicate that no transfer is to take place, whereas a value of "1" may indicate that a transfer of $100 from the second account to the first account if the balance in the first account reaches $0.

[0053] An illustration of how the consumer device 32 can be used in transaction can now be described with reference to FIGS. 1 and 5. The method comprises interacting with an access device 34 at a merchant 22 using a consumer device 32 such as a smartcard or a phone (step 202). This can be done when consumer A 30 (e.g., a teen) tries to purchase a good or service (e.g., a music player) at the merchant 22. The consumer device 32 comprises a first account identifier such as a prepaid account number 32-2 associated with a first account such as a prepaid account, and a second account identifier such as a debit card account number 32-2 associated with a second account such as a debit account. The portable consumer device 32 also comprises an alterable flag 32-1 that is capable of being in a transfer state or a non-transfer state. The alterable flag links the first prepaid account and the second...
debit account. It may also include balance data associated with the prepaid account number 32-2.

[0054] After the consumer device 32 interacts with the access device 34, the access device 34 receives the prepaid account number 32-2, the debit card account number 32-3, the prepaid account balance data, and the flag 32-1. It then generates an authorization request message with this information and information such as a merchant identifier and a purchase amount. The authorization request message is then forwarded to the payment processing network 26 via the acquirer 24 (step 206). It is then received at a server computer in the payment processing network 26 (step 206).

[0055] After the server computer at the payment processing network 26 receives the authorization request message, it analyzes it and then performs additional processing. For example, it may initiate the transfer of value from the second account to the first account if the alterable flag 32-1 is in a transfer state.

[0056] As a first step, the server computer in the payment processing network 26 may determine if there are enough funds in the prepaid account to pay for the transaction (step 208). If there are enough funds, then the server computer in the payment processing network 26 may forward the authorization request message to the issuer A 28 of the prepaid account (step 232). The issuer A 28 may then authorize or not authorize the payment request, and may thereafter generate and send an authorization response message back to the payment processing network 26. After the payment processing network 26 receives the response message (step 234), it may forward it to the merchant and then to the access device 34 (step 236).

[0057] If there are not enough funds in the prepaid account to pay for the transaction, then the server computer may determine if the flag 32-1 indicates that a transfer of value (or “refill”) from the debit account associated with the debit card number 32-3 is authorized or not (step 210). If it does not, then the authorization request message may be sent to the issuer A 28. The issuer A 28 may then send an authorization response message back to the merchant 22 and access device 34 indicating that the transaction is not authorized.

[0058] If the flag 32-1 does indicate that value may be transferred from the debit account to the prepaid account (i.e., that the prepaid account may be “re-filled”), then the server computer in the payment processing network may take steps to conclude the purchase transaction and initiate the transfer of funds from the debit account to the prepaid account (step 212). Illustratively, the purchase amount of the current purchase may be for $50 and the prepaid account may only have $25 in it. The maximum value that the prepaid account may be authorized to hold may be $100. The alterable flag may be in a “transfer” state, rather than a “non-transfer” state. A “transfer” state may be an instruction to transfer $75 from the debit account to the prepaid account if the balance falls to $0 in the prepaid account. In this example, the server computer in the payment processing network 26 may determine that it needs to send an authorization request message to the issuer A 28 of the prepaid account for $25 and the issuer B 38 of the debit account for $25 to complete the purchase transaction. The requested transfer of value may be completed by having the server in the payment processing network 26 transfer $50 from the debit account to the prepaid account. Alternatively, the server in the payment processing network 26 may first request that the issuer B 38 associated with the debit account authorize payment of $75 to the prepaid account held by the issuer A 28 so that the balance in the prepaid account will be re-filled to $100. The server in the payment processing network 26 may then send authorization request to issuer A 28 associated with the debit account for the purchase price of $50.

[0059] After the appropriate authorization request message is sent to the issuer A 28, the issuer A 28 may approve of the transaction and may send an authorization response message back to the merchant 22 and the access device 34 (step 214). When the access device 34 receives the authorization response message, the authorization response message may include data sufficient to update any account balance on the consumer device 32. The access device 34 may also output a receipt or the like for the consumer A 30. It may show the amount of money transferred from the debit account to the credit account, as well as the amount of the purchase and an authorization code for the purchase.

[0060] If desired, if the conditions of the alert flag 32-1 are satisfied (i.e., the transfer of value from the debit account to the prepaid account), then an alert message may be sent by the server computer in the payment processing network 26 to the phone 38 or computer terminal 62 notifying either consumer A 30 or consumer B 31 that the transfer of value has occurred. The alert may be in the form of an e-mail, SMS message, or any other suitable message. In some embodiments, the alert can be sent to consumer B 31 before the transfer of value takes place and the consumer B 31 may be in a position to authorize or not authorize the transfer of value from the debit account to the prepaid account.

[0061] At the end of the day, a clearing and settlement process may occur between the various issuers and acquirers in the system.

[0062] In the above-described embodiment, the debit account and the prepaid account reside at different issuers including issuer A 28 and issuer B 38. However, in other embodiments, they may reside at the same issuer.

[0063] The above-described process is an “on-line” process. The portable consumer device may also be effectively used to conduct off-line transactions.

[0064] An exemplary off-line process can be described with reference to FIG. 1. In an exemplary off-line process, the access device 34 would not be in communication with issuer A 28 or issuer B 38 when a purchase is made using the consumer device 32. The access device 34 could be, for example, a vending machine that is generally not in constant communication with the issuers A, B 28, 38, but may be in communication on an infrequent periodic basis (e.g., once per day). Other examples of off-line transactions include transit transactions. The transaction information can be uploaded to a central server in a batch mode.

[0065] Consumer A 30 may take the consumer device 32 to the access device 34 to make a purchase. The access device 34 receives the prepaid account number 32-2, the debit card account number 32-3, the prepaid account balance data, and the flag 32-1. The access device 34 can then determine if there is enough value in the prepaid account to make the current purchase. If there is not enough value, then the access device 34 can check the status of the flag 32-1 to see if it is possible to transfer value from the debit account to the prepaid account. If so, then the access device 34 can approve of the transaction and it, or a merchant associated with it, can provide the desired good or service to the consumer A 30. The access device 34 may update the account balance on the consumer device 32.
At a later point in time, the access device 34 may forward data regarding the transaction to the payment processing network 26 and to the appropriate issuers A, B, 28, 38 so that funds can be transferred as described in the above on-line example. For example, the transaction data may indicate that (1) the prepaid account had $50 in it, and that it needs to be filled with $100 from funds in the linked debit account, and (2) the issuer of the prepaid account thereafter needs to be contacted to deduct $50 from the prepaid account for the current purchase. The payment processing network 26 can communicate with the various issuers to accomplish this.

Embodiments of the invention have a number of advantages. First, as noted above, by storing an alterable flag and different account numbers in a consumer device, the account numbers can be linked so that spending by the holder of the consumer device can be controlled by another person. Second, embodiments of the invention can be used for both off-line and on-line transactions. Third, in some embodiments, the alterable flag may be changed by a consumer by directly manipulating a portable consumer device. It is not necessary for a consumer to contact a central server to change the state of the alterable flag. Fourth, if desired, a merchant or access device may determine that there is a supplemental account guaranteeing the transaction and it may immediately verify that the transaction can proceed without contacting an central server. Embodiments of the invention may have some, none, or all of these advantages.

Embodiments of the invention are not limited to the above-described embodiments. For example, although separate functional blocks are shown for an issuer, payment processing network, and acquirer, some entities perform (e.g., Discover, AMEX, etc.) all of these functions and may be included in embodiments of invention.

Specific details regarding some of the above-described aspects are provided below. The specific details of the specific aspects may be combined in any suitable manner without departing from the spirit and scope of embodiments of the invention.

It should be understood that the present invention as described above can be implemented in the form of control logic using computer software in a modular or integrated manner. Based on the disclosure and teachings provided herein, a person of ordinary skill in the art will know and appreciate other ways and/or methods to implement the present invention using hardware and a combination of hardware and software.

Any of the software components or functions described in this application, may be implemented as software code to be executed by a processor using any suitable computer language such as, for example, Java, C++, or Perl using, for example, conventional or object-oriented techniques. The software code may be stored as a series of instructions, or commands on a computer readable medium, such as a random access memory (RAM), a read only memory (ROM), a magnetic medium such as a hard-drive or a floppy disk, or an optical medium such as a CD-ROM. Any such computer readable medium may reside on or within a single computational apparatus, and may be present on or within different computational apparatuses within a system or network.

The above description is illustrative and is not restrictive. Many variations of the invention will become apparent to those skilled in the art upon review of the disclosure. The scope of the invention should, therefore, be determined not with reference to the above description, but instead should be determined with reference to the pending claims along with their full scope or equivalents.

A recitation of "a," "an" or "the" is intended to mean "one or more" unless specifically indicated to the contrary.

All patents, patent applications, publications, and descriptions mentioned above are herein incorporated by reference in their entirety for all purposes. None is admitted to be prior art.

What is claimed is:

1. A consumer device comprising:
   a body; and
   a memory element coupled to the body, the memory storing
   a first account identifier associated with a first account, a
   second account identifier associated with a second account, and an alterable flag linking the first account
   and the second account.

2. The consumer device of claim 1 wherein the consumer
device is a portable consumer device.

3. The consumer device of claim 1 wherein the consumer
device is a portable consumer device, wherein the portable
consumer device is a phone.

4. The consumer device of claim 1 wherein the first account
   identifier is a prepaid account number and the second account
   identifier is a debit or credit account number.

5. The consumer device of claim 1 wherein the memory
   element is in the form of a magnetic stripe or a memory chip.

6. A method comprising:
   receiving, at a server computer, an authorization request
   message comprising a first account identifier associated
   with a first account, a second account identifier associated
   with a second account, and an alterable flag, wherein the alterable flag links the first account and the
   second account;
   analyzing the authorization request message; and
   performing additional processing depending upon the state
   of the alterable flag.

7. The method of claim 6 wherein the authorization request
   message is associated with a purchase transaction and the first
   account identifier is a prepaid account number and the second
   account identifier is a debit or credit account number, and
   wherein additional processing includes initiating the transfer
   of value from the second account to the first account if the
   alterable flag is in a transfer state.

8. The method of claim 6 wherein the authorization request
   message is associated with a purchase transaction, and
   wherein the transfer of value includes automatically refilling
   the first account with a predetermined amount of money if the
   value amount in the first account is zero.

9. The method of claim 8 wherein the authorization request
   message is associated with a purchase transaction, and
   wherein the method further comprises:
   sending an authorization response message to a merchant.

10. The method of claim 6 wherein the authorization response
    message comprises an indication of the amount of money from the first account and the amount of money from
    the second account that are used to pay for the purchase.

11. A computer readable medium having a computer readable
    program code embodied therein, said computer readable
    program code adapted to be executed by a processor to
    implement a method according to claim 6.

12. A server computer comprising the computer readable
    medium of claim 11.
13. A method comprising:
sending an authorization request message comprising a
first account identifier associated with a first account, a
second account identifier associated with a second
account, and an alterable flag, wherein the alterable flag
links the first account and the second account, to a server
computer, wherein the server computer thereafter ana-
lyzes the authorization request message and performs
additional processing based on the alterable flag; and
receiving an authorization response message from the
server computer.

14. The method of claim 13 wherein the authorization
request message is associated with a purchase transaction and
the first account identifier is a prepaid account number and the
second account identifier is a debit or credit account number.

15. The method of claim 13 further comprising receiving
the first account identifier, the second account identifier, and
the alterable flag from a portable consumer device.

16. The method of 15 wherein the portable consumer
device is a phone or a card.

17. The method of claim 15 wherein the server computer
resides at an issuer.

18. A computer readable medium having a computer read-
able program code embodied therein, said computer readable
program code adapted to be executed by a processor to imple-
ment a method according to claim 13.

19. An access device comprising the computer readable
medium of claim 18.

20. A system comprising the access device of claim 18.