METHOD AND SYSTEM FOR ELECTRONIC MANAGEMENT OF CHANGE FROM CASH PURCHASES

A method and system for performing a cash transaction. A first request is received from a customer to perform a first transaction having a first transaction amount. A cash payment is received from the customer, the cash payment being in excess of the first transaction amount. A first account is created for the customer. The first account is associated with a first location. The first account is then associated with a device that identifies the customer. The first account is credited with the first amount in excess of the first transaction amount. A second request is received at the first location from the customer to perform a second transaction. The second request includes a request to apply the first amount to the second transaction. The device is inspected to verify the first amount; and applying a second amount to the second transaction, the second amount based on the first amount.
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[0001] This application claims priority from U.S. Provisional Patent Application Serial Number 60/822,890 filed August 18, 2006, which is incorporated herein by reference in its entirety.

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FIELD OF THE INVENTION

[0003] The present invention relates to systems and methods for tracking and managing purchases at a retail point of sale, and more particularly, to systems and methods for tracking and managing change from cash purchases at a retail point of sale.

BACKGROUND OF THE INVENTION

[0004] Many consumers still prefer to conduct retail transactions using cash. However, due to inflation, one drawback of cash is the management of the change from the transaction and particularly the coinage. Coinage is heavy and bulky, and due to inflation, does not have enough value to make it relevant in most transactions, even trivial transactions like purchasing candy or bus fares.

SUMMARY OF THE INVENTION

[0005] In one embodiment, the invention is a method of performing a cash transaction at a first location. A first request is received from a customer to perform a first transaction having a first transaction amount. A cash payment is received from the customer, the cash payment being in excess of the first transaction amount. A first account is created for the customer. The first account is associated with the first location. The first account is then associated with a machine-readable device that identifies the customer. The first account
is credited with the first amount in excess of the first transaction amount; A second request is received at the first location from the customer to perform a second transaction. The second request includes a request to apply the first amount to the second transaction. The machine-readable device is inspected to verify the first amount; and applying a second amount to the second transaction, the second amount based on the first amount.

[0006] In another embodiment, the invention is a money transaction system. The system includes a device storing identification information. The system also includes a first device reader adapted to inspect the device and determine a first cash balance associated with the device. The first cash balance represents an amount of money owed to an owner of the device from prior transactions between the owner of the device and an operator of the first device reader. The system further includes a second device reader adapted to inspect the device and determine a second cash balance associated with the device. The second cash balance represents an amount of money owed to an owner of the device from prior transactions between the owner of the device and an operator of the second device reader.

[0007] In another embodiment, the invention is a money transaction system. The system includes a computing device managing at least one cash account. Every cash account is associated with a device and a current balance. The system further includes a plurality of devices, which are each associated with a different cash account. The system further includes at least one device reader at a point of sale. The device reader is capable of inspecting a device and, via interaction with the computing system, determining the current balance of the cash account associated with the device.

[0008] In yet another embodiment, the invention is a money transaction system. The system includes a computing system managing at least one cash account. Each cash account is associated with a device and a current balance. The system further includes a plurality of smart devices, each smart device including data identifying a cash balance associated with a different cash account. The system further includes at least one device reader at a point of sale, the device reader capable of inspecting a smart device and
determining the current balance of the cash account associated with the smart device from the data.

**BRIEF DESCRIPTION OF THE DRAWINGS**

[0009] The foregoing and other objects, features, and advantages of the invention will be apparent from the following more particular description of preferred embodiments as illustrated in the accompanying drawings, in which reference characters refer to the same parts throughout the various views. The drawings are not necessarily to scale, emphasis instead being placed upon illustrating principles of the invention.

[0010] FIG. 1 is a diagram embodiment of a system architecture that may be used to track account balances in different stores with one card.

**DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT**

[0011] The present invention is described below with reference to diagrams of methods and systems to manage and track change from cash purchases at a retail point of sale. It is understood that each block of the illustrations may be implemented by means of analog or digital hardware and computer program instructions.

[0012] These computer program instructions may be provided to a processor of a general purpose computer, special purpose computer, ASIC, or other programmable data processing apparatus, such that the instructions, which execute via the processor of the computer or other programmable data processing apparatus, implements the functions/acts specified in the block diagrams or operational block or blocks.

[0013] Save The Change is a program designed for retailers to now offer cash or credit paying customers the ability to have any change from a single transaction be put on a Save the Change Card (Account) instead of receiving actual, physical change back. The consumer may also be asked if they want to round up any transaction to the nearest dollar and use that change to be put on a Save The Change Card/Account. This card will function as a stored value instrument and provide the customer the ability to access the change put on the account from the previous transaction at a later date to be determined by the consumer. This solution will eliminate the need for change as we know it.
[0014] With this card, consumers will no longer have to carry change but can accumulate their change from any participating Save The Change retailer onto a single card. That card can be a store branded card where the change balance kept on the card can be used just in that store or the card may also function as means to aggregate change from any participating retailers and then be spent at one of those retailers instead of it being store-centric.

[0015] Once a transaction has been completed and a customer has opted to put the change balance on their Save The Change Card, the retailer will hold that money in its own account. When a consumer returns to that store and has reached the checkout counter with their items for purchase, the cashier will scan the consumers card prior to the transaction taking place. Depending on the embodiment, the card can either be scanned using a bar code reader, RFID or swiped from a magnetic stripe on card. The data which sits on the card for that specific card number will then be read and deduct the balance of change from the card. When the total is tallied for the transaction, the consumer will then again have the option of putting any change which is due back on their Save The Change card. Consumers will have the option to accumulate change over a period of transactions to a larger sum to be used later for a purchase or they may opt to use their card for each transaction.

[0016] In some cases, the retailer may wish to create an incentive/loyalty program around this transaction which could offer the consumer even greater value than just the balance of change on their card. The retailer could match all or a portion of the change collected as a way of enticing customers to be a part of the program and to build customer loyalty (increased foot traffic and increased sales per visit). The loyalty program would be promoted by the retailer via a variety of means including in-store POP promotions, retailer flyers, retailer national advertising and other PR. For retailers with existing card based loyalty programs, the functionality of the Save The Change Card could be added as a feature. In such case, the card administrator will manage such a program and dynamically facilitate said transaction.
The card administrator will charge the retailer a processing fee for each transaction related to the processing of monies being put on the card and for monies being transacted off the card. The card administrator has the option of just charging a processing fee either on the loading of that card or the use of that card (deduction of monies off that card).

The owner of the money saved by the retailer are of the consumer until such time that there is inactivity on the card and the retailer and/or the administrator is permitted to charge a maintenance/management fee of the account as determined by state regulations.

In a scenario where the change is aggregated onto a single card that can be used at all participating retailers, the card administrator will manage those funds. In the scenario where the change is limited to the specific store where it was accumulated, the retailer may act as the administrator and manage those funds. Note that one card may be utilized in multiple different stores and points of sale, and a different account balance may be maintained for each of the different stores and points of sale. This makes the system very versatile as the customer need only carry one card, rather than a different card associated with each store or point of sale.

In an embodiment, at any time, the consumer will be able to go to a website and look at their account activity as well as check balances for each store in which they have a Save The Change Card/Account or aggregate amount on a single card/account.

In an embodiment, the technology will enable a seamless interface with the retailers’ current payment processing infrastructure and/or point of sale systems. The customer may also add funds to the card/account via an online account or at the checkout counter. The card could also be used on the web at the participating retailers’ web sites.

FIG. 1 illustrates an embodiment of a system architecture that may be used to track account balances in different stores with one card. In the embodiment shown, each store is provided with a card reader or other suitable reading device. The reading device is then in communication with the computing system of the card administrator, which maintains a separate account balance associated with the card for each store. Such
account balances may be stored in separate databases administered by the different stores or may be in a combined database.

[0023] The discussion above utilized a card as the exemplary device through which the customer's account is identified and the customer receives and accesses the change received. In an embodiment, such cards may comply with the ISO 7810 card standard used for credit cards throughout the world. ISO 7810 is an international standard that defines three formats for identity or identification cards, ID-1, ID-2, and ID-3.

[0024] The ID-1 format specifies a size of 85.60 x 53.98 mm (3.370 x 2.125 in). It is commonly used for banking cards (ATM cards, credit cards, debit cards, etc.). It is today also used for driving licenses in many countries (including the United States and European Union), retail loyalty cards, and it is one fairly common format for business cards.

[0025] The ID-2 format specifies a size of 105 x 74 mm (4.134 x 2.913 in). This size is the A7 format. The ID-2 format is used, for example, by the German Personalausweis (Identity document). This slightly larger format provides enough space for a clearly recognizable facial photo, but is still small enough to be carried in a wallet.

[0026] ID-3 specifies a size of 125 x 88 mm (4.921 x 3.465 in). This size is the B7 format. This format is used worldwide for passports and visas.

[0027] In addition to the ISO 7810 standard, a card or identification device may comply with one or more of the following standards:

- ICAO Document 9303 defines the format of machine-readable travel documents, the optical character recognition lines found on the bottom of most passports and visas.
- ISO 7813 defines additional characteristics of ID-1 plastic banking cards, for example a thickness of 0.76 mm and corners rounded with a radius of 3.18 mm.
• ISO 7811 defines traditional techniques for recording data on ID-1 identification cards, namely embossed characters and several different magnetic recording formats.
• ISO 7816 defines ID-I identification cards with an embedded chip (smartcard) and contact surfaces for power, clock, reset and serial-data signals.

[0028] ISO 14443 defines identification cards with an embedded chip (proximity card) and a magnetic loop antenna that operates at 13.56 MHz (RFID). More recent International Civil Aviation Organization (ICAO) standards for machine-readable travel documents specify a cryptographically signed file format and authentication protocol for storing biometric features (photos of face, fingerprint and/or iris) in ISO 14443 RFID chips.

[0029] However, the systems of the disclosure is not so limited to cards and card-type devices and other types of devices or means may be used instead of a physical card device. For example, in another embodiment, personal biometrics may be used instead of a physical card or other, discrete identification device. For the purposes of this disclosure, essentially any device or means of identifying a customer to the card administrator may be used, including cell phones, smart cards, and personal biometrics. For example, a new account may be created based on a fingerprint, retinal scan or other identifying biometric. RFID chips embedding in something owned by the customer may also be used.

[0030] In addition, such identification means and devices may be pre-existing devices already associated with the customer. For example, as discussed above many state driver's licenses now include a magnetic stripe containing the relevant driver license information. As such, in an embodiment the Save The Change system may use the driver's license as the Save The Change card. In an embodiment, upon first use the owner of the driver's license would swipe the card in a card reader and a new Save The Change account would be created and populated with the user's information and change to be credited to the account. A personal identification number (PIN) may also be
selected at this time to ensure that, should the card be stolen, the thief cannot access the stored monies. In this embodiment, data is not saved to the driver's license, but rather stored on the card administrator's systems for future access.

[0031] In another embodiment, a pre-existing card with updateable information may be used. For example, some cities now use smart cards or other devices for mass transit payments or toll payments. In an embodiment, the same system used to track these payments is used as the Save The Card administrator. Thus, when a customer receives change, the customer may elect to have the change credited to the user's mass transit account. The retail outlet would need the proper equipment to interface with the mass transit device and the administrator of the device. Likewise, the user's mass transit account may then be used as a payment device in stores supporting the Save The Change system.

[0032] As mentioned above, a mobile telephone may also be used. The account may or may not be the same billing account associated with the mobile telephone service provider. Instead the mobile device number (e.g., the telephone number) or identification capabilities (many mobile device now incorporate RFID or other unique electronic identification means) may be used to associate the phone's owner with a cash account and its balance.

[0033] While the invention has been described in detail and with reference to specific embodiments thereof, it will be apparent to those skilled in the art that various changes and modifications can be made therein without departing from the spirit and scope thereof. Thus, it is intended that the present invention cover the modifications and variations of this invention provided they come within the scope of the appended claims and their equivalents.
CLAIMS

I claim:

1. A money transaction system, comprising:
   a device storing identification information;
   a first device reader adapted to inspect the device and determine therefrom a first cash balance associated with the device, the first cash balance representing an amount of money owed to an owner of the device from at least one previous transaction between the owner and an operator of the first device reader; and
   a second device reader adapted to inspect the device and determine therefrom a second cash balance associated with the device, the second cash balance representing an amount of money owed to the owner of the device from at least one previous transaction between the owner and an operator of the second device reader.

2. The system of claim 1, wherein the device is a card complying with the ISO 7810 standard.

3. The system of claim 1, wherein the device is adapted to receive and store data identifying a plurality of cash balances and data associating each cash balance with a different device reader.

4. The system of claim 1, further comprising:
a computing device adapted to communicate with each of the device readers, the computing device storing data associating the identification information with the first cash balance and the second cash balance.

5. A money transaction system, comprising:

a computing device managing at least one cash account, each cash account being associated with a device and a current balance;

a plurality of devices, each associated with a different cash account; and

at least one device reader at a point of sale, the device reader capable of inspecting a device and, via interaction with the computing system, determining the current balance of the cash account associated with the device.

6. A money transaction system, comprising:

a computing system managing at least one cash account, each cash account being associated with a device and a current balance;

a plurality of smart devices, each smart device including data identifying a cash balance associated with a different cash account; and

at least one device reader at a point of sale, the device reader capable of inspecting a smart device and determining the current balance of the cash account associated with the smart device from the data.

7. A method of performing a cash transaction at a first location, comprising:

receiving a first request from a customer to perform a first transaction having a first transaction amount;
receiving a cash payment from a customer, the cash payment including a first amount in excess of the first transaction amount;
creating a first account for the customer, the first account associated with the first location;
associating the first account with a machine-readable device that identifies the customer;
crediting the first account with the first amount in excess of the first transaction amount;
receiving a second request, at the first location, from the customer to perform a second transaction, the second request including a request to apply the first amount to the second transaction; and
inspecting the machine-readable device to verify the first amount; and
applying a second amount to the second transaction, the second amount based on the first amount.

8. The method of claim 7, further comprising:

determining that a special awards offer is in effect; and

calculating the second amount based on the first amount and the special awards offer.

9. The method of claim 7, further comprising:

receiving, at a second location, a third request from a customer to perform a third transaction having a third transaction amount;
receiving a cash payment from a customer, the cash payment including a third amount in excess of a third transaction amount;
creating a second account for the customer, the second account associated with
the second location;

associating the second account with the machine-readable device that identifies
the customer; and

crediting the second account with the third amount in excess of the third
transaction amount.