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[Continued on next page]

(54) Title: SYSTEM AND METHODS FOR DIGITIZING AND MANAGING PHYSICAL CURRENCY

(57) Abstract: A system and associated methods for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, are disclosed. In at least one embodiment, upon one of the users desiring to enter into a financial transaction with one of the vendors, a grand total to be paid by the user is calculated. Additionally, upon the user electing to pay using physical currency and tendering an amount having a value greater than an outstanding portion of the grand total, allowing the user to elect and receive at least a portion of the change owed to the user in the form of electronic funds by converting the elected portion of the change into electronic funds and transferring the electronic funds to a user account associated with the user.
as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
SYSTEM AND METHODS FOR DIGITIZING AND MANAGING PHYSICAL CURRENCY

BACKGROUND

[0001] The subject of this provisional patent application relates generally to currency management, and more particularly to a system and associated methods for digitizing and managing physical currency.

[0002] Applicant(s) hereby incorporate herein by reference any and all patents and published patent applications cited or referred to in this application.

[0003] By way of background, customers who choose to use physical currency (i.e., paper bills and/or coins) to make a "cash purchase" of goods or services from a seller oftentimes do not have the necessary amounts and denominations of physical currency to cover the exact value of those goods or services (including any applicable taxes). In such situations, the customer provides the seller with an amount of physical currency having a value that is greater than the value of the goods or services to be purchased, and the seller, in turn, provides the customer with an amount of currency equal to the amount by which the customer has overpaid (commonly referred to as "change"). In some such situations, the amount of change to be given to the customer cannot be provided in paper bills alone - for example, in the United States, where the lowest paper bill denomination is one dollar, any fraction of a dollar must be provided to the customer in coins. Thus, sellers must be prepared to accommodate these potential purchasing scenarios by always maintaining (and accounting for) an amount of coin currency on the seller's premises.

[0004] Additionally, while customers typically put their paper currency back into circulation (through making further purchases), the same is not always true for coin currency - primarily because customers are less inclined to carry the relatively bulkier and heavier coin currency on their person as compared to the relatively thinner and lighter paper currency. Instead, coin currency is often left at home to be stored and periodically deposited at a bank or otherwise exchanged for paper currency. Because of the way customers manage their coin currency versus paper currency, a seller's need for coin currency is dependent on providers of coin currency, such as their bank or federal depository, as opposed to relying on customers purchasing with coins and re-circulating coins back to sellers. As a result of coin currency's manageability issues, and unlike paper currency, a significant portion of coin change received by a customer from a cash purchase ends up discarded, unsecured, unused, forgotten, lost, misplaced or stored out of economic circulation.
Accordingly, there is a need for an efficient and convenient system for allowing customers to maintain and utilize their coin currency more efficiently and conveniently which, in turn, will help to keep such coin currency out of lost, misplaced, forgotten and/or non-circulated storage.

Aspects of the present invention fulfill these needs and provide further related advantages as described in the following summary.

SUMMARY

Aspects of the present invention teach certain benefits in construction and use which give rise to the exemplary advantages described below.

The present invention solves the problems described above by providing a system and associated methods for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds. In at least one embodiment, upon one of the users desiring to enter into a financial transaction with one of the vendors, a grand total to be paid by the user is calculated. Additionally, upon the user electing to pay at least a portion of the grand total using physical currency and tendering an amount having a value greater than an outstanding portion of the grand total, allowing the user to elect and receive at least a portion of the change owed to the user in the form of electronic funds by converting the elected portion of the change into electronic funds and transferring the electronic funds from a vendor account associated with the vendor to a user account associated with the user.

Other features and advantages of aspects of the present invention will become apparent from the following more detailed description, taken in conjunction with the accompanying drawings, which illustrate, by way of example, the principles of aspects of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings illustrate aspects of the present invention. In such drawings:

Figure 1 is a simplified schematic view of an exemplary currency management system, in accordance with at least one embodiment;
[001.2] Figures 2 and 3 are perspective views of an exemplary currency transfer terminal, in accordance with at least one embodiment; and

[001.3] Figures 4-6 are flow diagrams of an exemplary method for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, in accordance with at least one embodiment.

[001.4] The above described drawing figures illustrate aspects of the invention in at least one of its exemplary embodiments, which are further defined in detail in the following description. Features, elements, and aspects of the invention that are referenced by the same numerals in different figures represent the same, equivalent, or similar features, elements, or aspects, in accordance with one or more embodiments.

DETAILED DESCRIPTION

[001.5] Turning now to Fig. 1, there is shown a simplified schematic view of an exemplary currency management system 20 configured for digitizing physical currency (i.e., converting paper- and/or coin-based money in a desired currency into digital or electronic funds) in the possession of - or otherwise owed to - an at least one user, and subsequently managing that digitized currency. In at least one embodiment, the system 20 provides a central computing system 22, an at least one user device 24 associated with the at least one user, an at least one vendor device 26 associated with an at least one vendor, and an at least one vendor terminal 28 in communication with the at least one vendor device 26. As discussed further below, in at least one embodiment, the computing system 22 is in selective communication with each of the at least one user device 24 and at least one vendor device 26, the computing system 22 being configured for receiving and processing data related to at least one of the at least one user and at least one vendor. Additionally, in at least one embodiment, the at least one user device 24 is also in selective communication with the at least one vendor device 26 via the at least one vendor terminal 28. In at least one embodiment, where the at least one vendor device 26 is interconnected with a standalone coin dispenser 30 (rather than storing any coin currency in a traditional cash drawer 32), the at least one vendor terminal 28 is in communication with the coin dispenser 30 as well. Additionally, in at least one embodiment, an at least one database 34 is in communication with the computing system 22 and configured for selectively storing said data related to at least one of the at least one user and at least one vendor. In at least one embodiment, the computing system 22 and database 34 are one and the same - as such, it is intended that those terms as used herein are to be interchangeable with one another. In at least one embodiment, the computing system 22 and database 34 are omitted, such that the
system 20 and associated methods described herein are implemented solely through the at least one user device 24 and the at least one vendor device 26.

[0016] At the outset, it should be noted that communication between each of the computing system 22, at least one user device 24, at least one vendor device 26, at least one vendor terminal 28, and at least one database 34 may be achieved using any wired- or wireless-based communication protocol (or combination of protocols) now known or later developed. As such, the present invention should not be read as being limited to any one particular type of communication protocol, even though certain exemplary protocols may be mentioned herein for illustrative purposes. It should also be noted that the terms "user device" and "vendor device" are intended to include any type of computing or electronic device now known or later developed, such as desktop computers, mobile phones, smartphones, laptop computers, tablet computers, personal data assistants, gaming devices, POS systems, vending machines, unattended terminals, access control devices, point of interaction ("POI") systems, etc. It should also be noted that in at least one embodiment, the term "vendor" is intended to generally include any type of entity from which the at least one user may desire to purchase goods, services, or any other benefit now known or later conceived, including but not limited to manufacturers, merchants, retailers, service providers, lenders, facility access managers, website owners, non-commercial or ad hoc sellers, etc. Similarly, it should also be noted that the term "mobile device" is intended to include any type of computing or electronic device now known or later developed - such as mobile phones, smartphones, laptop computers, tablet computers, personal data assistants, gaming devices, etc. - capable of being used in a mobile fashion. As such, the present invention should not be read as being limited to use with any one particular type of computing or electronic device, even though certain exemplary devices may be mentioned or shown herein for illustrative purposes.

[0017] With continued reference to Fig. 1, in the exemplary embodiment, each of the computing system 22, at least one user device 24, at least one vendor device 26, and at least one vendor terminal 28 contains the hardware and software necessary to carry out the exemplary methods for digitizing physical currency in the possession of - or otherwise owed to - the at least one user, and subsequently managing that digitized currency, as described herein. Furthermore, in at least one embodiment, the computing system 22 comprises a plurality of computing devices selectively working in concert with one another to carry out the exemplary methods for digitizing physical currency in the possession of - or otherwise owed to - the at least one user, and subsequently managing that digitized currency, as described herein. In at least one embodiment, the at least one user device 24 provides a user application 36 residing locally in memory 38 on the user device 24, the user application 36 being configured for selectively communicating with each of the at least one vendor device 26 - via
the at least one vendor terminal 28 - for digitizing physical currency, as well as the computing system 22 for managing the digitized currency, among other functions described herein. In at least one embodiment, the at least one vendor device 26 provides a vendor application 40 residing locally in memory 42 on the vendor device 26, the vendor application 40 being configured for selectively communicating with each of the at least one user device 24 - via the at least one vendor terminal 28 - for digitizing physical currency, as well as the computing system 22 for managing the digitized currency, among other functions described herein. In at least one alternate embodiment, the vendor application 40 resides locally in memory on the vendor terminal 28. Accordingly, then, in at least one embodiment, each of the at least one user device 24 is in the possession of a user who is desirous of digitizing and managing an amount of physical currency that they possess or are otherwise owed; and each of the at least one vendor device 26 and vendor terminal 28 is in the possession of a vendor who is desirous of digitizing the user's physical currency and/or allowing the user to purchase from the vendor select goods, services, or any other benefit now known or later conceived, using digitized currency. It should be noted that the term "memory" is intended to include any type of electronic storage medium (or combination of storage mediums) now known or later developed, such as local hard drives, RAM, flash memory, secure digital ("SD") cards, external storage devices, network or cloud storage devices, integrated circuits, etc.

[0018] Furthermore, the various components of one or more of the at least one user device 24 and vendor device 26 may reside in memory on a single computing device, or may separately reside on two or more computing devices in communication with one another. In at least one embodiment, the functionality provided by one or both of the user application 34 and vendor application 40 resides remotely in memory on the computing system 22 and/or database 26, with each user device 24 and vendor device 26 capable of accessing said functionality via an online portal hosted by the computing system 22 and/or database 34, either in addition to or in lieu of the respective user application 36 and vendor application 40 residing locally in memory 38 and 42 on the at least one user device 24 and vendor device 26, respectively. It should be noted that, for simplicity purposes, the functionality provided by each of the respective user application 36 and vendor application 40 will be described herein as such - even though certain embodiments may combine said functionality into a single universal application and/or provide said functionality through an online portal.

[0019] With continued reference to Fig. 1, in at least one embodiment, as discussed further below, each of the at least one user device 24 and vendor terminal 28 provides an at least one wireless transceiver 44 and 46 for enabling wireless communication therebetween, as discussed further below. Given that the at least one vendor terminal 28 is in communication with the associated at least one vendor device 26, the at least one user device 24 is capable of
indirectly communicating with the at least one vendor device 26. In at least one alternate embodiment, the vendor terminal 28 may be omitted, such that the at least one vendor device 26 provides the at least one wireless transceiver 46 for enabling wireless communication with the at least one user device 24. In at least one embodiment, the wireless transceivers 44 and 46 are configured for utilizing near field communication ("NFC"). In at least one alternate embodiment, the wireless transceivers 44 and 46 are configured for utilizing Bluetooth. In still further embodiments, the wireless transceivers 44 and 46 may be configured for utilizing any other wireless-based communication protocol (or combination of protocols) now known or later developed. Additionally, in at least one embodiment, each user device 24 and vendor device 26 provides an at least one display screen 48 for providing an at least one graphical user interface to assist the respective user and vendor in possession of each said device 24 and 26 to utilize the various functions provided by the system 20.

[0020] In at least one embodiment, as best shown in Figs. 2 and 3, the at least one vendor terminal 28 is a standalone device that is in communication with the vendor device 26 either wirelessly or via a wire 50. In at least one alternate embodiment, rather than being a standalone device, the vendor terminal 28 may be directly integrated with or otherwise physically attached to the vendor device 26. With continued reference to Figs. 2 and 3, in at least one embodiment, the vendor terminal 28 provides a housing 52 within which the wireless transceiver 46 is positioned. Additionally, in at least one embodiment, the housing 52 provides an at least one speaker 54 positioned and configured for producing audible signals, cues or notifications associated with the various functions provided by the system 20, as discussed further below. Similarly, in at least one embodiment, the housing 52 provides an at least one indicator light 56 positioned and configured for producing various colors and/or patterns of light associated with the various functions provided by the system 20, as discussed further below. In at least one embodiment, the housing 52 provides a support surface 58 sized and shaped for allowing the at least one user device 24 to be removably positioned thereon (Fig. 3) - in either a portrait or a landscape orientation - thereby improving the reliability of the wireless communication between the wireless transceiver 46 of the vendor terminal 28 and the wireless transceiver 44 of the user device 24. In at least one such embodiment, the support surface 58 is inclined for creating a relatively better viewing angle for the at least one display screen 48 of the user device 24 when the user device 24 is positioned thereon. Additionally, in at least one such embodiment, a bottom edge 60 of the support surface 58 provides a support ledge 62 extending substantially perpendicularly from the support surface 58 and configured for preventing the user device 24 from unintentionally sliding off of the support surface 58. In at least one further embodiment, the support surface 58 may provide a relatively high-friction material - such as silicone or rubber, for example - positioned and configured for assisting in
preventing the user device 24 from unintentionally sliding off of the support surface 58. In at least one further embodiment (not shown), the vendor terminal 28 may provide an at least one display screen for providing an at least one graphical user interface to assist the respective user and vendor to utilize the various functions provided by the system 20. In at least one such embodiment, the display screen provides a touchscreen interface. It should be noted that the particular size, shape and configuration of the vendor terminal 28 as depicted in the accompanying drawings is merely exemplary. Accordingly, in further embodiments, the vendor terminal 28 may take on any other size, shape and/or configuration, now known or later conceived, so long as the vendor terminal 28 is capable of substantially carrying out the functionality described herein.

[0021] As discussed in detail below, the system 20 may be utilized in a variety of contexts involving the digitizing of physical currency in the possession of - or otherwise owed to - the at least one user, and subsequently managing that digitized currency. It should be noted that the below described applications of the system 20 are merely exemplary and are being provided herein for illustrative purposes. As such, the system 20 and associated methods described herein should not be read as being so limited, but instead can be utilized in any context, now known or later conceived, wherein there is a need for digitizing physical currency and/or managing and transferring digital currency.

[0022] One exemplary context in which the system 20 may be utilized is cash payment transactions. In a bit more detail, and by way of example, in at least one embodiment, as illustrated in the flow diagrams of Figs. 4-6, the vendor is a retail store and the vendor device 26 is a POS system located in the retail store. Through the vendor application 40 residing either locally in memory 42 on the vendor device 26 (or vendor terminal 28) or remotely on the computing system 22 and/or database 34, upon the vendor accessing the vendor application 40, the computing system 22 first determines whether the vendor is new to the system 20 (402). If the vendor is new, the vendor is required to properly register a new vendor account with the computing system (404). As part of the registration process, in at least one embodiment, the vendor is prompted to provide at least one of their full legal name, their physical address, their phone number and an at least one bank account, or other financial account, into which funds may be electronically transferred. The vendor application 40 may also prompt the vendor to create a password. In at least one embodiment, each vendor account is configured for storing an amount of electronic funds owned by the associated vendor. Similarly, through the user application 36 residing locally in memory on the user device 24 or remotely on the computing system 22 and/or database 34, upon the user accessing the user application 36, the computing system 22 first determines whether the user is new to the system 20 (406). If the user is new, the user is required to properly register a new user account with the computing system 22
(408). As part of the registration process, in at least one embodiment, the user is prompted to
provide at least one of their full legal name, their physical address, their email address, their
phone number and an at least one bank account, or other financial account, into which funds
may be electronically transferred. The user application 36 may also prompt the user to create a
password. In at least one embodiment, each user account is configured for storing an amount
of electronic funds owned by the associated user. Additionally, as discussed further below,
these electronic funds may be used by the user to pay for desired goods, services, or any other
benefit now known or later conceived, or they may be optionally transferred into a bank account
or some other financial account associated with the user. Accordingly, in at least one such
embodiment, the computing system 22 is in selective communication with one or more financial
institutions 64 associated with the bank account or other financial account associated with the
at least one user (Fig. 1). In at least one such embodiment, the computing system 22 prevents
the user from transferring electronic funds into user cannot transfer funds to a bank account or
some other financial account associated with the user until the user account has accumulated a
pre-defined minimum amount of electronic funds. In at least one embodiment, the at least one
user is capable of selectively transferring an amount of electronic funds from an associated
bank account, or other financial account, into their associated user account. In at least one
further embodiment, rather than each user account being configured for storing an amount of
electronic funds owned by the associated user, the electronic funds are instead stored in
respective third party bank accounts owned by each user. Accordingly, the term “user account”
as used herein is intended to include third party bank accounts and other financial accounts
now known or later conceived.

[0023] Upon the user of the at least one user device 24 desiring to enter into a financial
transaction to purchase goods and/or services from the vendor (410), the vendor initiates a new
transaction by first inputting the amount to be charged into the vendor application 40 of the
vendor device 26 - either manually or by scanning the goods and/or services to purchased -
and then calculates a grand total to be paid by the user, including any applicable taxes and
desired tips (412). The vendor application 40 then determines whether a registered user device
24 is present (414) - i.e., the user device 24 must be presented by positioning the user device
24 proximal the vendor terminal 28 such that the wireless transceivers 44 and 46 of the user
device 24 and vendor terminal 28 may communicate with one another. If the user device 24 is
not detected, then the transaction may proceed using a traditional payment process (416). In at
least one embodiment, the user application 36 continuously runs passively in the background
on the user device 24, and begins to run actively in the foreground upon being positioned within
sufficient range of the vendor terminal 28 - i.e., upon the wireless transceiver 46 of the vendor
terminal 28 being able to automatically establish a connection with the wireless transceiver 44
of the user device 24. In at least one such embodiment, the user device 24 must be positioned
in contact with the support surface 58 of the vendor terminal 28. In at least one alternate embodiment, the user device 24 must simply be located within a pre-defined proximity relative to the vendor terminal 28 - the pre-defined proximity dictated, at least in part, by the range limitations of the wireless communication protocol that is utilized by the vendor terminal 28 and the user device 24.

[0024] Upon detecting the presence of the user device 24, in at least one embodiment, the vendor device 26 logs and stores - either locally within memory 42 on the vendor device 26 or remotely in the database 34 - select details related to the goods and/or services that the user is seeking to purchase. These details may include, but are certainly not limited to, names of the goods and/or services, vendor location, date and time of purchase, quantities purchased, etc. Not only may these details be used for market research and demand planning purposes, but they may also be used for warranty purposes. For example, should a user subsequently return to the vendor and claim that they were sold a defective product, the vendor would be able to refer to the user’s associated purchase log to verify whether the user did in fact purchase the product from the vendor on the alleged date; and by analyzing purchase logs globally, the vendor could further determine whether any other purchasers of the product during the same time period had lodged a similar complaint, which would add credibility to the user’s claim. Thus, these details may allow a vendor to make a more informed determination as to whether to provide a refund to a given user.

[0025] In at least one embodiment, upon the user device 24 being detected by the vendor device 26, the vendor device 26 proceeds with processing the transaction in conjunction with the user device 24 (500), as illustrated in the flow diagram of Fig. 5. If the associated user account contains an amount of available electronic funds (502), the user is prompted with the option of paying at least a portion of the grand total using those available funds in the associated user account (504). If the user chooses to pay at least a portion of the grand total using available electronic funds in the associated user account, the computing system 22 transfers the appropriate amount of electronic funds from the user account associated with the user to the vendor account associated with the vendor (506). If, after the electronic funds transfer, there remains an outstanding amount owed - i.e., if the available electronic funds in the associated user account is less than the grand total - (508) or, alternatively, if no electronic funds from the associated user account were applied toward the grand total, the user is prompted with the option of paying any outstanding portion of the grand total with an alternate form of payment (510) - including but not limited to credit card, debit card, and physical currency. If the user chooses to pay at least a portion of the outstanding grand total using physical currency - i.e., cash - (512), the vendor device 26 receives and calculates the amount of physical currency provided by the user (514). If, after applying the amount of physical
currency received, there remains an outstanding amount owed - i.e., if the user tenders an amount of physical currency having a value less than the outstanding grand total - (516), in at least one embodiment, the computing system 22 determines whether the user and the associated transaction are eligible to receive a user loan (518).

[0026] In a bit more detail, in at least one such embodiment, the computing system 22 is configured for allowing the at least one user to selectively define a standing lending policy with respect to the electronic funds contained in their associated user account, thereby allowing eligible other users to receive a designated amount of those electronic funds as needed. For example, a given lending user may define a standing lending policy whereby an at least one prospective borrowing user who requires up to one dollar ($1.00 USD) to cover an outstanding amount owed, may receive that necessary amount from the lending user’s electronic funds. Accordingly, then, if a borrowing user is making a purchase using the system 20 and is short by fifty cents ($0.50 USD), the borrowing user would be able to receive a user loan in that amount from the lending user to cover the outstanding grand total. In at least one embodiment, the lending user is able to selectively define a maximum user loan amount (i.e., the maximum amount of electronic funds that a given borrowing user may receive for a given transaction), a minimum user loan amount (i.e., the minimum amount of electronic funds that a given borrowing user may receive for a given transaction), as well as a user loan limit (i.e., the maximum amount of total funds that the lending user is willing to distribute to borrowing users during a given period of time). In at least one embodiment, the lending user may also selectively define the terms of the standing lending policy, setting the criteria that must be met for a prospective borrowing user to be eligible to receive a portion of the available funds. For example, the lending user may limit the funds to a specific set of users (such as family members, for example), or a specific vendor or vendor location, or a specific date or time, or a specific list of goods and/or services, etc. Additionally, in at least one embodiment, the lending user is able to choose whether the borrowing user must repay the electronic funds or, instead, whether the electronic funds are to be a donation or gift to the borrowing user with no expectation of repayment. In at least one embodiment, the maximum user loan amount is one dollar; thus, creating somewhat of a "micro-lending" arrangement. However, in further embodiments, the maximum user loan amount may be any desired amount.

[0027] With continued reference to Fig. 5, in at least one embodiment, if the outstanding grand total falls within the criteria of at least one user loan, then the computing system 22 determines that the user and the associated transaction are eligible to receive that user loan, and the user is notified accordingly. If the user accepts the user loan (520), then the electronic funds are transferred from the lending user to the vendor (522). In at least one embodiment, the lending user is also notified of the user loan. Additionally, in at least one embodiment, where
the terms of the user loan require repayment, the user account associated with the borrowing
user is notated such that the borrowed funds will be automatically repaid to the user account of
the lending user upon the user account of the borrowing user accumulating the appropriate
amount of electronic funds. Thus, for example, if the borrowing user receives a user loan in the
amount of one dollar from the lending user, then that one dollar will be automatically be repaid
as soon as the user account of the borrowing user accumulates one dollar in electronic funds.
In at least one alternate embodiment, the lending user is automatically repaid in increments as
the user account of the borrowing user accumulates any amount of electronic funds.

[0028] With continued reference to Fig. 5, in at least one embodiment, if the computing
system 22 determines that the user and the associated transaction are not eligible to receive a
user loan, or if the user declines any user loans for which they are eligible, the user is prompted
to pay any outstanding portion of the grand total with a further alternate form of payment (510) -
again, including but not limited to credit card, debit card, and physical currency.

[0029] With continued reference to Figs. 5 and 6, in at least one embodiment, if the user
chooses to pay at least a portion of the outstanding grand total using physical currency and the
user tenders an amount of physical currency having a value greater than the outstanding grand
total (524), the vendor device 26 processes the change (600) by first calculating the amount of
change (i.e., the amount by which the user has overpaid) that is owed to the user (602). In at
least one embodiment, the vendor device 26 next determines whether the user has an
outstanding user loan balance - i.e., money that is owed to at least one lending user in
connection with prior user loans received by the user (604). If an outstanding user loan balance
exists, then the computing system 22 automatically converts an appropriate amount of the
change to digital currency and transfers the electronic funds to the user account associated
with the at least one lending user (606), and each user is notified accordingly. In at least one
alternate embodiment, the digitized change is only used to automatically repay the at least one
user loan if the amount of change is greater than or equal to the outstanding user loan balance
- i.e., only if the amount of change is sufficient to repay the entire outstanding user loan
balance.

[0030] With continued reference to Fig. 6, in at least one embodiment, if the user is owed an
amount of change (608) - either after repaying any outstanding user loan balances, or if no
such user loan balances exist - the vendor device 26 determines whether the user account
associated with the user contains any change preferences. In a bit more detail, in at least one
embodiment, the computing system 22 is configured for allowing the at least one user to
selectively define how they would generally like to receive change. In at least one such
embodiment, a given user may choose to receive all change - both paper currency and coin
currency - as digitized funds to be transferred into their user account; or they may choose to
receive paper currency as physical change, while any coin currency is to be digitized and
transferred into their user account; or they may choose to have only certain denominations
provided to them as physical currency, while the rest is to be digitized and transferred into their
user account. For example, a given user may choose to only have twenty dollar ($20.00 USD)
paper bills and quarters ($0.25 USD) be provided as physical currency, while all other
denominations be digitized and transferred into their user account. In at least one embodiment,
if no change preferences are found in the associated user account, the user is prompted to
select a desired form of change. Either way, in at least one embodiment, where at least a
portion of the change is to be digitized (610), the user is prompted as to whether they would like
to designate at least a portion of the digitized change as a future user loan (612) - if so, the
computing system 22 earmarks the specified amount of change as a future user loan (614),
subject to any terms that the user may dictate. In at least one further embodiment, the user is
also prompted as to whether they would like to donate at least a portion of the digitized change
to one or more charitable organizations. All remaining change - less any service fees that
might be charged by the computing system 22 - is provided to the user in the appropriate
format, with physical change being tendered to the user by the vendor, and digitized change
being transferred from the vendor account associated with the vendor to the user account
associated with the user (616). In at least one embodiment, the vendor device 26 automatically
accounts for the digitized change (given that the physical coins remain in the cash drawer 32 or
coin dispenser 30) and reconciles the vendor's accounting books so that they remain balanced.

[0031] Referring again to Fig. 4, in at least one embodiment, upon full payment of the grand
total, and any change returned back to the user, a digital receipt may optionally be generated
by the vendor device 26 (or vendor terminal 28) and sent to the email address associated with
the user (418). Alternatively, or additionally, a physical receipt may be printed by the vendor
device 26 (or vendor terminal 28).

[0032] As mentioned above, the system 20 may be utilized in a variety of contexts involving
the digitizing of physical currency in the possession of - or otherwise owed to - the at least one
user, and subsequently managing that digitized currency. In at least one further exemplary
context, the computing system 22 may be configured for allowing a given user to transfer an
amount of electronic funds in their user account to the user account of another designated user.
In at least one further exemplary context, the user account associated with a given user, as
stored and accessible via the associated user device 24, may be used as a form of user
authentication which may then be used in various access control environments now known or
later developed (i.e., building access, event access, bailment claims, etc.).

[0033] Aspects of the present specification may also be described as follows:
[0034] 1. A method for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, the method comprising the steps of: implementing a central computing system configured for receiving and processing data related at least one of the at least one user and at least one vendor; implementing a vendor application residing in memory on an at least one vendor device under the control of the at least one vendor, the at least one vendor device in selective communication with the computing system; implementing a user application residing in memory on an at least one user device under the control of the at least one user, the at least one user device in selective communication with at least one of the computing system and the at least one vendor device; implementing a unique user account associated with each of the at least one user; implementing a unique vendor account associated with each of the at least one vendor; and upon a one of the at least one user desiring to enter into a financial transaction with a one of the at least one vendor: calculating a grand total to be paid by the user; and upon determining that the at least one user device associated with the user is positioned proximally to the at least one vendor device associated with the vendor: establishing communication between the at least one user device and the at least one vendor device; and upon the user electing to pay at least a portion of the grand total using physical currency: receiving and calculating the value of the physical currency provided by the user; and upon determining that the user has tendered an amount of physical currency having a value greater than an outstanding grand total: calculating an amount of change that is owed to the user based on the amount by which the user has overpaid; and upon the user electing to receive at least a portion of the change in the form of electronic funds: converting the elected portion of the change into electronic funds; and transferring the electronic funds from the vendor account associated with the vendor to the user account associated with the user.

[0035] 2. The method according to embodiment 1, further comprising the step of implementing an at least one vendor terminal in communication with the at least one vendor device and configured for facilitating the selective communication between the at least one vendor device and the at least one user device.

[0036] 3. The method according to embodiments 1-2, wherein the step of establishing communication between the at least one user device and the at least one vendor device further comprises the step of establishing communication between a wireless transceiver of the at least one user device and a wireless transceiver of the at least one vendor terminal.

[0037] 4. The method according to embodiments 1-3, further comprising the step of implementing an at least one database in communication with the computing system and
configured for selectively storing said data related to at least one of the at least one user and at least one vendor.

[0038] 5. The method according to embodiments 1-4, further comprising the step of storing select details related to the financial transaction.

[0039] 6. The method according to embodiments 1-5, further comprising the steps of, upon determining that the user account associated with the user contains an amount of available electronic funds: prompting the user with the option of paying at least a portion of the grand total using the available electronic funds; and upon the user electing to pay at least a portion of the grand total using the available electronic funds, transferring an appropriate amount of the electronic funds from the user account associated with the user to the vendor account associated with the vendor.

[0040] 7. The method according to embodiments 1-6, further comprising the steps of, upon determining that a total payment amount provided by the user has a value that is less than the grand total: determining whether the user and the associated financial transaction are eligible to receive an at least one user loan from an at least one lending user; and upon determining that the user and the associated financial transaction are eligible to receive the at least one user loan: prompting the user with the option of paying a remaining portion of the grand total using the at least one user loan; and upon the user electing to pay the remaining portion of the grand total using the at least one user loan, transferring an appropriate amount of electronic funds from the user account associated with the at least one lending user to the vendor account associated with the vendor.

[0041] 8. The method according to embodiments 1-7, further comprising the step of allowing an at least one lending user to selectively define a standing lending policy with respect to the electronic funds contained in the user account associated with said lending user, thereby allowing an at least one eligible borrowing user to receive a designated amount of those electronic funds as needed via a user loan.

[0042] 9. The method according to embodiments 1-8, further comprising the step of allowing the at least one lending user to selectively define at least one of a maximum user loan amount, a minimum user loan amount, a user loan limit, and an at least one criterion that must be met for the at least one borrowing user to be eligible to receive a portion of the electronic funds contained in the user account associated with the lending user.

[0043] 10. The method according to embodiments 1-9, further comprising the step of allowing the at least one lending user to selectively elect whether a given user loan must be repaid.
[0044] 11. The method according to embodiments 1-10, wherein the step of calculating an amount of change that is owed to the user further comprises the steps of: determining whether the user has an outstanding user loan balance; and upon determining that the user has an outstanding user loan balance, converting an appropriate amount of the change to electronic funds and transferring said electronic funds to the user account associated with the at least one lending user.

[0045] 12. The method according to embodiments 1-11, wherein the step of the user electing to receive at least a portion of the change in the form of electronic funds further comprises the step of prompting the user with the option of designating at least a portion of the electronic funds as a future user loan.

[0046] 13. The method according to embodiments 1-12, wherein the step of the user electing to receive at least a portion of the change in the form of electronic funds further comprises the step of prompting the user with the option of donating at least a portion of the electronic funds to an at least one charitable organization.

[0047] 14. The method according to embodiments 1-13, further comprising the step of allowing the at least one user to selectively define a change preference for dictating how the user is to receive change owed to the user by the at least one vendor.

[0048] 15. The method according to embodiments 1-14, wherein the step of allowing the at least one user to selectively define a change preference further comprises the step of allowing the user to elect one of receiving all change in the form of electronic funds to be transferred into the user account associated with the user, receiving paper currency as physical change and coin currency as electronic funds to be transferred into the user account associated with the user, and receiving select denominations as physical change and all other denominations as electronic funds to be transferred into the user account associated with the user.

[0049] 16. The method according to embodiments 1-15, further comprising the step of prompting the user to pay any outstanding portion of the grand total using an at least one alternate form of payment.

[0050] 17. The method according to embodiments 1-16, further comprising the step of generating a receipt to be provided to the user.

[0051] 18. A method for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, the method comprising the steps of: implementing a central computing system configured for receiving and processing data related at least one of
the at least one user and at least one vendor; implementing a vendor application residing in memory on an at least one vendor device under the control of the at least one vendor, the at least one vendor device in selective communication with the computing system; implementing a user application residing in memory on an at least one user device under the control of the at least one user, the at least one user device in selective communication with at least one of the computing system and the at least one vendor device; implementing a unique user account associated with each of the at least one user; implementing a unique vendor account associated with each of the at least one vendor; and upon one of the at least one user desiring to enter into a financial transaction with a one of the at least one vendor: calculating a grand total to be paid by the user; and upon determining that the at least one user device associated with the user is positioned proximally to the at least one vendor device associated with the vendor: establishing communication between the at least one user device and the at least one vendor device; upon the user electing to pay at least a portion of the grand total using physical currency: receiving and calculating the value of the physical currency provided by the user; and upon determining that the user has tendered an amount of physical currency having a value greater than an outstanding grand total: calculating an amount of change that is owed to the user based on the amount by which the user has overpaid; and upon the user electing to receive at least a portion of the change in the form of electronic funds: converting the elected portion of the change into electronic funds; and transferring the electronic funds from the vendor account associated with the vendor to the user account associated with the user; and upon determining that a total payment amount provided by the user has a value that is less than the grand total: determining whether the user and the associated financial transaction are eligible to receive an at least one user loan from an at least one lending user; and upon determining that the user and the associated financial transaction are eligible to receive the at least one user loan: prompting the user with the option of paying a remaining portion of the grand total using the at least one user loan; and upon the user electing to pay the remaining portion of the grand total using the at least one user loan, transferring an appropriate amount of electronic funds from the user account associated with the at least one lending user to the vendor account associated with the vendor.

[0052] 19. A currency management system for digitizing physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, and managing said digitized currency, the system comprising: a central computing system configured for receiving and processing data related at least one of the at least one user and at least one vendor; the central computing system providing a unique user account associated with each of the at least one user, and a unique vendor account associated with each of the at least one vendor; an at least one vendor device under the control of the at least one vendor and in selective communication with the computing system, the at least one vendor device providing
a vendor application residing in memory thereon; and an at least one user device under the
control of the at least one user and in selective communication with at least one of the
computing system and the at least one vendor device, the at least one user device providing a
user application residing in memory thereon; wherein, upon a one of the at least one user
desiring to enter into a financial transaction with a one of the at least one vendor, the system is
configured for: calculating a grand total to be paid by the user; and upon determining that the at
least one user device associated with the user is positioned proximally to the at least one vendor
device associated with the vendor: establishing communication between the at least one
user device and the at least one vendor device; and upon the user electing to pay at least a
portion of the grand total using physical currency: receiving and calculating the value of the
physical currency provided by the user; and upon determining that the user has tendered an
amount of physical currency having a value greater than an outstanding grand total: calculating
an amount of change that is owed to the user based on the amount by which the user has
overpaid; and upon the user electing to receive at least a portion of the change in the form of
electronic funds: converting the elected portion of the change into electronic funds; and
transferring the electronic funds from the vendor account associated with the vendor to the user
account associated with the user.

[0053] 20. The currency management system according to embodiment 19, further
comprising an at least one vendor terminal in communication with the at least one vendor
device and configured for facilitating the selective communication between the at least one
vendor device and the at least one user device, the at least one vendor terminal comprising: a
housing providing a support surface sized and shaped for allowing the at least one user device
to be removably positioned thereon; and an at least one wireless transceiver positioned within
the housing and configured for selectively communicating with an at least one wireless
transceiver of the at least one user device.

[0054] 21. The currency management system according to embodiments 19-20, wherein the
at least one vendor terminal further comprises an at least one speaker.

[0055] 22. The currency management system according to embodiments 19-21, wherein the
at least one vendor terminal further comprises an at least one indicator light.

[0056] 23. The currency management system according to embodiments 19-22, wherein the
support surface is inclined for creating a relatively better viewing angle for an at least one
display screen of the at least one user device when the user device is positioned thereon.

[0057] 24. The currency management system according to embodiments 19-23, wherein a
bottom edge of the support surface provides a support ledge extending substantially
perpendicularly from the support surface and configured for preventing the at least one user device from unintentionally sliding off of the support surface.

[0058] 25. The currency management system according to embodiments 19-24, wherein the support surface provides a relatively high-friction material positioned and configured for assisting in preventing the at least one user device from unintentionally sliding off of the support surface.

[0059] 26. The currency management system according to embodiments 19-25, further comprising an at least one database in communication with the computing system and configured for selectively storing said data related to at least one of the at least one user and at least one vendor.

[0060] 27. The currency management system according to embodiments 19-26, wherein the system is further configured for storing select details related to the financial transaction.

[0061] 28. The currency management system according to embodiments 19-27, wherein the system is further configured for, upon determining that the user account associated with the user contains an amount of available electronic funds: prompting the user with the option of paying at least a portion of the grand total using the available electronic funds; and upon the user electing to pay at least a portion of the grand total using the available electronic funds, transferring an appropriate amount of the electronic funds from the user account associated with the user to the vendor account associated with the vendor.

[0062] 29. The currency management system according to embodiments 19-28, wherein the system is further configured for, upon determining that a total payment amount provided by the user has a value that is less than the grand total: determining whether the user and the associated financial transaction are eligible to receive an at least one user loan from an at least one lending user; and upon determining that the user and the associated financial transaction are eligible to receive the at least one user loan: prompting the user with the option of paying a remaining portion of the grand total using the at least one user loan; and upon the user electing to pay the remaining portion of the grand total using the at least one user loan, transferring an appropriate amount of electronic funds from the user account associated with the at least one lending user to the vendor account associated with the vendor.

[0063] 30. The currency management system according to embodiments 19-29, wherein the system is further configured for allowing an at least one lending user to selectively define a standing lending policy with respect to the electronic funds contained in the user account associated with said lending user, thereby allowing an at least one eligible borrowing user to receive a designated amount of those electronic funds as needed via a user loan.
31. The currency management system according to embodiments 19-30, wherein the system is further configured for allowing the at least one lending user to selectively define at least one of a maximum user loan amount, a minimum user loan amount, a user loan limit, and an at least one criterion that must be met for the at least one borrowing user to be eligible to receive a portion of the electronic funds contained in the user account associated with the lending user.

32. The currency management system according to embodiments 19-31, wherein the system is further configured for allowing the at least one lending user to selectively elect whether a given user loan must be repaid.

33. The currency management system according to embodiments 19-32, wherein while calculating an amount of change that is owed to the user, the system is further configured for: determining whether the user has an outstanding user loan balance; and upon determining that the user has an outstanding user loan balance, converting an appropriate amount of the change to electronic funds and transferring said electronic funds to the user account associated with the at least one lending user.

34. The currency management system according to embodiments 19-33, wherein upon the user electing to receive at least a portion of the change in the form of electronic funds, the system is further configured for prompting the user with the option of designating at least a portion of the electronic funds as a future user loan.

35. The currency management system according to embodiments 19-34, wherein upon the user electing to receive at least a portion of the change in the form of electronic funds, the system is further configured for prompting the user with the option of donating at least a portion of the electronic funds to an at least one charitable organization.

36. The currency management system according to embodiments 19-35, wherein the system is further configured for allowing the at least one user to selectively define a change preference for dictating how the user is to receive change owed to the user by the at least one vendor.

37. The currency management system according to embodiments 19-36, wherein the system is further configured for allowing the user to elect one of receiving all change in the form of electronic funds to be transferred into the user account associated with the user, receiving paper currency as physical change and coin currency as electronic funds to be transferred into the user account associated with the user, and receiving select denominations as physical change and all other denominations as electronic funds to be transferred into the user account associated with the user.
38. The currency management system according to embodiments 19-37, wherein the system is further configured for prompting the user to pay any outstanding portion of the grand total using an at least one alternate form of payment.

39. The currency management system according to embodiments 19-38, wherein the system is further configured for generating a receipt to be provided to the user.

In closing, regarding the exemplary embodiments of the present invention as shown and described herein, it will be appreciated that a system and associated methods for digitizing and managing physical currency are disclosed. Because the principles of the invention may be practiced in a number of configurations beyond those shown and described, it is to be understood that the invention is not in any way limited by the exemplary embodiments, but is generally directed to a system and associated methods for digitizing and managing physical currency, and is able to take numerous forms to do so without departing from the spirit and scope of the invention. It will also be appreciated by those skilled in the art that the present invention is not limited to the particular geometries and materials of construction disclosed, but may instead entail other functionally comparable structures or materials, now known or later developed, without departing from the spirit and scope of the invention.

Certain embodiments of the present invention are described herein, including the best mode known to the inventor(s) for carrying out the invention. Of course, variations on these described embodiments will become apparent to those of ordinary skill in the art upon reading the foregoing description. The inventor(s) expect skilled artisans to employ such variations as appropriate, and the inventor(s) intend for the present invention to be practiced otherwise than specifically described herein. Accordingly, this invention includes all modifications and equivalents of the subject matter recited in the claims appended hereto as permitted by applicable law. Moreover, any combination of the above-described embodiments in all possible variations thereof is encompassed by the invention unless otherwise indicated herein or otherwise clearly contradicted by context.

Groupings of alternative embodiments, elements, or steps of the present invention are not to be construed as limitations. Each group member may be referred to and claimed individually or in any combination with other group members disclosed herein. It is anticipated that one or more members of a group may be included in, or deleted from, a group for reasons of convenience and/or patentability. When any such inclusion or deletion occurs, the specification is deemed to contain the group as modified thus fulfilling the written description of all Markush groups used in the appended claims.
Unless otherwise indicated, all numbers expressing a characteristic, item, quantity, parameter, property, term, and so forth used in the present specification and claims are to be understood as being modified in all instances by the term "about." As used herein, the term "about" means that the characteristic, item, quantity, parameter, property, or term so qualified encompasses a range of plus or minus ten percent above and below the value of the stated characteristic, item, quantity, parameter, property, or term. Accordingly, unless indicated to the contrary, the numerical parameters set forth in the specification and attached claims are approximations that may vary. At the very least, and not as an attempt to limit the application of the doctrine of equivalents to the scope of the claims, each numerical indication should at least be construed in light of the number of reported significant digits and by applying ordinary rounding techniques. Notwithstanding that the numerical ranges and values setting forth the broad scope of the invention are approximations, the numerical ranges and values set forth in the specific examples are reported as precisely as possible. Any numerical range or value, however, inherently contains certain errors necessarily resulting from the standard deviation found in their respective testing measurements. Recitation of numerical ranges of values herein is merely intended to serve as a shorthand method of referring individually to each separate numerical value falling within the range. Unless otherwise indicated herein, each individual value of a numerical range is incorporated into the present specification as if it were individually recited herein.

Use of the terms "may" or "can" in reference to an embodiment or aspect of an embodiment also carries with it the alternative meaning of "may not" or "cannot." As such, if the present specification discloses that an embodiment or an aspect of an embodiment may be or can be included as part of the inventive subject matter, then the negative limitation or exclusionary proviso is also explicitly meant, meaning that an embodiment or an aspect of an embodiment may not be or cannot be included as part of the inventive subject matter. In a similar manner, use of the term "optionally" in reference to an embodiment or aspect of an embodiment means that such embodiment or aspect of the embodiment may be included as part of the inventive subject matter or may not be included as part of the inventive subject matter. Whether such a negative limitation or exclusionary proviso applies will be based on whether the negative limitation or exclusionary proviso is recited in the claimed subject matter.

The terms "a," "an," "the" and similar references used in the context of describing the present invention (especially in the context of the following claims) are to be construed to cover both the singular and the plural, unless otherwise indicated herein or clearly contradicted by context. Further, ordinal indicators - such as "first," "second," "third," etc. - for identified elements are used to distinguish between the elements, and do not indicate or imply a required or limited number of such elements, and do not indicate a particular position or order of such
elements unless otherwise specifically stated. All methods described herein can be performed in any suitable order unless otherwise indicated herein or otherwise clearly contradicted by context. The use of any and all examples, or exemplary language (e.g., "such as") provided herein is intended merely to better illuminate the present invention and does not pose a limitation on the scope of the invention otherwise claimed. No language in the present specification should be construed as indicating any non-claimed element essential to the practice of the invention.

[0079] When used in the claims, whether as filed or added per amendment, the open-ended transitional term "comprising" (along with equivalent open-ended transitional phrases thereof such as "including," "containing" and "having") encompasses all the expressly recited elements, limitations, steps and/or features alone or in combination with un-recited subject matter; the named elements, limitations and/or features are essential, but other unnamed elements, limitations and/or features may be added and still form a construct within the scope of the claim. Specific embodiments disclosed herein may be further limited in the claims using the closed-ended transitional phrases "consisting of or "consisting essentially of in lieu of or as an amendment for "comprising." When used in the claims, whether as filed or added per amendment, the closed-ended transitional phrase "consisting of excludes any element, limitation, step, or feature not expressly recited in the claims. The closed-ended transitional phrase "consisting essentially of limits the scope of a claim to the expressly recited elements, limitations, steps and/or features and any other elements, limitations, steps and/or features that do not materially affect the basic and novel characteristic(s) of the claimed subject matter. Thus, the meaning of the open-ended transitional phrase "comprising" is being defined as encompassing all the specifically recited elements, limitations, steps and/or features as well as any optional, additional unspecified ones. The meaning of the closed-ended transitional phrase "consisting of is being defined as only including those elements, limitations, steps and/or features specifically recited in the claim, whereas the meaning of the closed-ended transitional phrase "consisting essentially of is being defined as only including those elements, limitations, steps and/or features specifically recited in the claim and those elements, limitations, steps and/or features that do not materially affect the basic and novel characteristic(s) of the claimed subject matter. Therefore, the open-ended transitional phrase "comprising" (along with equivalent open-ended transitional phrases thereof) includes within its meaning, as a limiting case, claimed subject matter specified by the closed-ended transitional phrases "consisting of" or "consisting essentially of." As such, embodiments described herein or so claimed with the phrase "comprising" are expressly or inherently unambiguously described, enabled and supported herein for the phrases "consisting essentially of and "consisting of."

[0080] All patents, patent publications, and other publications referenced and identified in the present specification are individually and expressly incorporated herein by reference in their
entirety for the purpose of describing and disclosing, for example, the compositions and methodologies described in such publications that might be used in connection with the present invention. These publications are provided solely for their disclosure prior to the filing date of the present application. Nothing in this regard should be construed as an admission that the inventors are not entitled to antedate such disclosure by virtue of prior invention or for any other reason. All statements as to the date or representation as to the contents of these documents is based on the information available to the applicants and does not constitute any admission as to the correctness of the dates or contents of these documents.

[0081] It should be understood that the logic code, programs, modules, processes, methods, and the order in which the respective elements of each method are performed are purely exemplary. Depending on the implementation, they may be performed in any order or in parallel, unless indicated otherwise in the present disclosure. Further, the logic code is not related, or limited to any particular programming language, and may comprise one or more modules that execute on one or more processors in a distributed, non-distributed, or multiprocessing environment.

[0082] The methods as described above may be used in the fabrication of integrated circuit chips. The resulting integrated circuit chips can be distributed by the fabricator in raw wafer form (that is, as a single wafer that has multiple unpackaged chips), as a bare die, or in a packaged form. In the latter case, the chip is mounted in a single chip package (such as a plastic carrier, with leads that are affixed to a motherboard or other higher level carrier) or in a multi-chip package (such as a ceramic carrier that has either or both surface interconnections or buried interconnections). In any case, the chip is then integrated with other chips, discrete circuit elements, and/or other signal processing devices as part of either (a) an intermediate product, such as a motherboard, or (b) an end product. The end product can be any product that includes integrated circuit chips, ranging from toys and other low-end applications to advanced computer products having a display, a keyboard or other input device, and a central processor.

[0083] While aspects of the invention have been described with reference to at least one exemplary embodiment, it is to be clearly understood by those skilled in the art that the invention is not limited thereto. Rather, the scope of the invention is to be interpreted only in conjunction with the appended claims and it is made clear, here, that the inventor(s) believe that the claimed subject matter is the invention.
CLAIMS

What is claimed is:

1. A method for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, the method comprising the steps of:
   - implementing a central computing system configured for receiving and processing data related at least one of the at least one user and at least one vendor;
   - implementing a vendor application residing in memory on an at least one vendor device under the control of the at least one vendor, the at least one vendor device in selective communication with the computing system;
   - implementing a user application residing in memory on an at least one user device under the control of the at least one user, the at least one user device in selective communication with at least one of the computing system and the at least one vendor device;
   - implementing a unique user account associated with each of the at least one user;
   - implementing a unique vendor account associated with each of the at least one vendor; and
   - upon a one of the at least one user desiring to enter into a financial transaction with one of the at least one vendor:
     - calculating a grand total to be paid by the user; and
     - upon determining that the at least one user device associated with the user is positioned proximally to the at least one vendor device associated with the vendor:
       - establishing communication between the at least one user device and the at least one vendor device; and
     - upon the user electing to pay at least a portion of the grand total using physical currency:
       - receiving and calculating the value of the physical currency provided by the user; and
       - upon determining that the user has tendered an amount of physical currency having a value greater than an outstanding portion of the grand total:
         - calculating an amount of change that is owed to the user based on the amount by which the user has overpaid; and
         - upon the user electing to receive at least a portion of the change in the form of electronic funds:
           - converting the elected portion of the change into electronic funds; and
           - transferring the electronic funds from the vendor account associated with the vendor to the user account associated with the user.
2. The method of claim 1, further comprising the step of implementing an at least one vendor terminal in communication with the at least one vendor device and configured for facilitating the selective communication between the at least one vendor device and the at least one user device.

3. The method of claim 2, wherein the step of establishing communication between the at least one user device and the at least one vendor device further comprises the step of establishing communication between a wireless transceiver of the at least one user device and a wireless transceiver of the at least one vendor terminal.

4. The method of claim 1, further comprising the step of implementing an at least one database in communication with the computing system and configured for selectively storing said data related to at least one of the at least one user and at least one vendor.

5. The method of claim 1, further comprising the step of storing select details related to the financial transaction.

6. The method of claim 1, further comprising the steps of, upon determining that the user account associated with the user contains an amount of available electronic funds: prompting the user with the option of paying at least a portion of the grand total using the available electronic funds; and upon the user electing to pay at least a portion of the grand total using the available electronic funds, transferring an appropriate amount of the electronic funds from the user account associated with the user to the vendor account associated with the vendor.

7. The method of claim 1, further comprising the steps of, upon determining that a total payment amount provided by the user has a value that is less than the grand total: determining whether the user and the associated financial transaction are eligible to receive an at least one user loan from an at least one lending user; and upon determining that the user and the associated financial transaction are eligible to receive the at least one user loan: prompting the user with the option of paying a remaining portion of the grand total using the at least one user loan; and upon the user electing to pay the remaining portion of the grand total using the at least one user loan, transferring an appropriate amount of electronic funds from the user account associated with the at least one lending user to the vendor account associated with the vendor.
8. The method of claim 7, further comprising the step of allowing an at least one lending user to selectively define a standing lending policy with respect to the electronic funds contained in the user account associated with said lending user, thereby allowing an at least one eligible borrowing user to receive a designated amount of those electronic funds as needed via a user loan.

9. The method of claim 8, further comprising the step of allowing the at least one lending user to selectively define at least one of a maximum user loan amount, a minimum user loan amount, a user loan limit, and an at least one criterion that must be met for the at least one borrowing user to be eligible to receive a portion of the electronic funds contained in the user account associated with the lending user.

10. The method of claim 8, further comprising the step of allowing the at least one lending user to selectively elect whether a given user loan must be repaid.

11. The method of claim 10, wherein the step of calculating an amount of change that is owed to the user further comprises the steps of: determining whether the user has an outstanding user loan balance; and upon determining that the user has an outstanding user loan balance, converting an appropriate amount of the change to electronic funds and transferring said electronic funds to the user account associated with the at least one lending user.

12. The method of claim 11, wherein the step of the user electing to receive at least a portion of the change in the form of electronic funds further comprises the step of prompting the user with the option of designating at least a portion of the electronic funds as a future user loan.

13. The method of claim 1, wherein the step of the user electing to receive at least a portion of the change in the form of electronic funds further comprises the step of prompting the user with the option of donating at least a portion of the electronic funds to an at least one charitable organization.

14. The method of claim 1, further comprising the step of allowing the at least one user to selectively define a change preference for dictating how the user is to receive change owed to the user by the at least one vendor.

15. The method of claim 14, wherein the step of allowing the at least one user to selectively define a change preference further comprises the step of allowing the user to elect one of receiving all change in the form of electronic funds to be transferred into the user account associated with the user, receiving paper currency as physical change and coin currency as electronic funds to be transferred into the user account associated with the user, and
receiving select denominations as physical change and all other denominations as electronic funds to be transferred into the user account associated with the user.

16. The method of claim 1, further comprising the step of prompting the user to pay any outstanding portion of the grand total using an at least one alternate form of payment.

17. The method of claim 1, further comprising the step of generating a receipt to be provided to the user.

18. A method for converting physical currency in the possession of an at least one user, or otherwise owed to said at least one user by an at least one vendor, to electronic funds and managing said electronic funds, the method comprising the steps of:

- implementing a central computing system configured for receiving and processing data related at least one of the at least one user and at least one vendor;
- implementing a vendor application residing in memory on an at least one vendor device under the control of the at least one vendor, the at least one vendor device in selective communication with the computing system;
- implementing a user application residing in memory on an at least one user device under the control of the at least one user, the at least one user device in selective communication with at least one of the computing system and the at least one vendor device;
- implementing a unique user account associated with each of the at least one user;
- implementing a unique vendor account associated with each of the at least one vendor; and
- upon a one of the at least one user desiring to enter into a financial transaction with a one of the at least one vendor:
  - calculating a grand total to be paid by the user; and
  - upon determining that the at least one user device associated with the user is positioned proximally to the at least one vendor device associated with the vendor:
    - establishing communication between the at least one user device and the at least one vendor device;
    - upon the user electing to pay at least a portion of the grand total using physical currency:
      - receiving and calculating the value of the physical currency provided by the user; and
      - upon determining that the user has tendered an amount of physical currency having a value greater than an outstanding portion of the grand total:
        - calculating an amount of change that is owed to the user based on the amount by which the user has overpaid; and
upon the user electing to receive at least a portion of the change in the form
of electronic funds:
converting the elected portion of the change into electronic funds; and
transferring the electronic funds from the vendor account associated with
the vendor to the user account associated with the user; and
upon determining that a total payment amount provided by the user has a value that
is less than the grand total:
determining whether the user and the associated financial transaction are
eligible to receive an at least one user loan from an at least one lending user;
and
upon determining that the user and the associated financial transaction are
eligible to receive the at least one user loan:
prompting the user with the option of paying a remaining portion of the grand
total using the at least one user loan; and
upon the user electing to pay the remaining portion of the grand total using
the at least one user loan, transferring an appropriate amount of
electronic funds from the user account associated with the at least one
lending user to the vendor account associated with the vendor.

19. A currency management system for digitizing physical currency in the possession of an at
least one user, or otherwise owed to said at least one user by an at least one vendor, and
managing said digitized currency, the system comprising:
a central computing system configured for receiving and processing data related at least
one of the at least one user and at least one vendor;
the central computing system providing a unique user account associated with each of the
at least one user, and a unique vendor account associated with each of the at least one
vendor;
an at least one vendor device under the control of the at least one vendor and in selective
communication with the computing system, the at least one vendor device providing a
vendor application residing in memory thereon; and
an at least one user device under the control of the at least one user and in selective
communication with at least one of the computing system and the at least one vendor
device, the at least one user device providing a user application residing in memory thereon;
wherein, upon a one of the at least one user desiring to enter into a financial transaction
with a one of the at least one vendor, the system is configured for:
calculating a grand total to be paid by the user; and
upon determining that the at least one user device associated with the user is positioned
proximally to the at least one vendor device associated with the vendor:
establishing communication between the at least one user device and the at least one vendor device; and

upon the user electing to pay at least a portion of the grand total using physical currency:

receiving and calculating the value of the physical currency provided by the user; and

upon determining that the user has tendered an amount of physical currency having a value greater than an outstanding portion of the grand total:

calculating an amount of change that is owed to the user based on the amount by which the user has overpaid; and

upon the user electing to receive at least a portion of the change in the form of electronic funds:

converting the elected portion of the change into electronic funds; and

transferring the electronic funds from the vendor account associated with the vendor to the user account associated with the user.

20. The currency management system of claim 19, further comprising an at least one vendor terminal in communication with the at least one vendor device and configured for facilitating the selective communication between the at least one vendor device and the at least one user device, the at least one vendor terminal comprising:

a housing providing a support surface sized and shaped for allowing the at least one user device to be removably positioned thereon; and

an at least one wireless transceiver positioned within the housing and configured for selectively communicating with an at least one wireless transceiver of the at least one user device.
Fig. 1
BEGIN

Registered Vendor?

NO

Register Vendor with System

YES

Registered User?

NO

Register User with System

YES

New Transaction Initiated

Calculate Grand Total

Proceed with Traditional Payment Process

User Device Present?

NO

YES

Proceed with User Device Payment Process

Issue Receipt to User

END

Fig. 4
Fig. 6
INTERNATIONAL SEARCH REPORT

International application No. PCT/US2016/062779

A. CLASSIFICATION OF SUBJECT MATTER
   IPC(8) - G06Q 20/00; G06Q 20/20; G06Q 20/32; G06Q 40/00 (2016.01)
   CPC - G06Q 20/00; G06Q 20/20; G06Q 20/32; G06Q 40/00 (2016.08)

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

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
   IPC - G06Q 20/00; G06Q 20/20; G06Q 20/32; G06Q 40/00
   CPC - G06Q 20/00; G06Q 20/20; G06Q 20/32; G06Q 40/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
   USPC - 705/35,000; 705/39,000 (keyword delimited)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
   Orbit, Google Patents, Google Scholar, Google
   Search terms used: pay, cash, product, change, amount, transfer, electronic, account

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>X</td>
<td>US 2012/01 16956 A1 (ALTMAN et al) 10 May 2012 (10.05.2012) entire document</td>
<td>1-6, 13-17, 19, 20</td>
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<tr>
<td>Y</td>
<td>US 7,797,231 B1 (LOEB et al) 14 September 2010 (14.09.2010) entire document</td>
<td>7-12, 18</td>
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</table>

Further documents are listed in the continuation of Box C.

See patent family annex.

Date of the actual completion of the international search
03 January 2017

Date of mailing of the international search report
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