

ELECTRONIC TRANSACTION SYSTEM AND METHOD

FIELD OF THE INVENTION

The present invention relates to an electronic transaction system and
5 method.

BACKGROUND TO THE INVENTION

Prepayment of expected charges is a common occurrence in society today. This is both advantageous as a security mechanism for a vendor, but also in some industries a way for customers to limit their spending.

10 For example, communication services such as telephone and Internet services are often preferred by both vendors and customers to be prepaid. This allows only a certain number of hours of usage to prevent unexpected large post-pay bills.

Prepayment is in particular prevalent with cell phone providers and
15 customers. With the widespread use of cell phones in recent times, limiting usage of the phone is preferred by many people, in particular parents with children. Parents can purchase a \$20 or \$50 phone credit, and their child will be unable to make further use of the phone once the limit is reached.

Similar prepaid mechanisms are also available with Internet time, as well
20 as in other industries such as prepaid music download credit.

Prepayment of credit has certain drawbacks which makes the system unpopular to many. Most importantly, prepaid credit typically has an expiry date, for example, three months from first use. If the entire credit is not used before the expiry date, the remaining credit is lost. This is particularly the case with persons
25 who are travelling and purchase different phone credit to enable cell phone use in each different country where they are travelling. The person typically will not use the entire credit amount in each country by the time they return home, in which case the remaining credit is again lost.

The potential loss of credit causes persons to purchase smaller amounts.
30 However, this has the inconvenience of requiring regular purchases of credit, along with the circumstance of regularly running out of credit.

There is therefore a need for a system which alleviates the aforementioned concerns of users of prepaid services.

SUMMARY OF THE INVENTION

Broadly, the present invention provides an electronic transaction system and method which allows prepaid credit to be transferred into electronic currency, which can then be used to make various transactions.

5 In one aspect, there is provided an electronic transaction method comprising at least the steps of:

 receiving a query for payment of goods or services by a customer to a merchant, said query including identification data relating to an electronic transaction account of the customer and a payment amount;

10 accessing said electronic transaction account of the customer, said transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency;

 verifying said account balance in said transaction account is at least equal
15 to said payment amount, and if so, transferring said payment amount from said transaction account to said merchant to provide payment for said goods or services.

 In a second aspect, there is provided an electronic transaction system comprising:

20 receiving means for receiving a query for payment of goods or services by a customer to a merchant, said query including identification data relating to an electronic transaction account of the customer and a payment amount;

 access means for accessing said electronic transaction account of the customer, said transaction account having an account balance comprising an
25 amount of electronic currency derived from converting unused prepaid credit into said electronic currency ;

 verification means for verifying said account balance in said transaction account is at least equal to said payment amount, and if so, transfer means for
30 transferring said payment amount from said transaction account to said merchant to provide payment for said goods or services.

 In a third aspect, there is provided a method for purchasing goods or services by a customer from a merchant, the method comprising the steps of:

providing payment data to the merchant, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency;

- 5 allowing transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

In a fourth aspect, there is provided a system for purchasing goods or services by a customer from a merchant, the method comprising the steps of:

- 10 means for providing payment data to the merchant, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency ;

- 15 means for allowing transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

In a fifth aspect, there is provided a method for receiving payment for goods or services of a merchant from a customer, the method comprising the steps of:

- 20 receiving payment data from the customer, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency;

- 25 receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

In a sixth aspect, there is provided a system for receiving payment for goods or services of a merchant from a customer, the method comprising:

- 30 receiving means for receiving payment data from the customer, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency ;

verification means for receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

In a seventh aspect, there is provided a method for utilising unused prepaid credit of a customer, the method comprising at least the steps of:

transferring said unused prepaid credit of a customer into an amount of electronic currency;

storing said electronic currency in an electronic transaction account of the customer;

enabling the customer to use the transferred electronic currency as payment to conduct transactions.

In an eighth aspect, there is provided a system for utilising unused prepaid credit of a customer, the system comprising:

transfer means for transferring said unused prepaid credit of a customer into an amount of electronic currency;

storage means for storing said electronic currency in an electronic transaction account of the customer;

transaction means for enabling the customer to use the transferred electronic currency as payment to conduct transactions.

In one form, the prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service. The unused prepaid credit preferably comprises at least some of said quantity of said service which has been purchased but has not been used. Advantageously, the prepaid credit may be selected from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

In another form, the electronic transaction account is hosted by a third party unrelated to said merchant.

Preferably, the query for payment of said goods or services is received from the merchant. More preferably, the query is received by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

To keep the relevant parties notified, the transfer of the payment amount from the customer transaction account to the merchant may be communicated to

the customer and/or the merchant. Preferably, this will be communicated by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device. If insufficient funds are held in the transaction account, preferably the merchant and/or customer is also notified accordingly.

For ease of use of the system, transferring the payment amount from the transaction account to the merchant may include transferring the payment amount to a corresponding transaction account of a merchant. The funds can then be transferred into the merchant financial institution account each certain period, for example at the end of each month.

In some forms, the payment data may include identification data relating to the electronic transaction account, and the method may further comprising the step of allowing said identification data to be communicated to a host.

Advantageously, forms of the present invention may be used for transactions comprising one or more of: purchasing credit, transferring electronic currency to another customer, purchasing goods or services from at least one merchant. The transactions may be enabled by a customer or a merchant via a cellular phone, via a web application, or a cell phone application.

The present invention alleviates the problems caused by loss of prepaid credit, by allowing left over credit to be converted into an electronic currency to then be used to make other purchases. The present invention is envisaged to assist both customers, who will minimise cell phone costs by reducing "wasted" credit, and also service providers, as customers will be enticed to purchase larger amounts of credit each transaction, thereby potentially increasing the amount of credit used.

The present invention also provides a secure transaction system which does not require credit cards or cash. Accordingly, the present invention will allow customers to purchase goods and services without needing to carry around large amounts of cash, by allowing goods and services to be purchased with the electronic currency.

BRIEF DESCRIPTION OF THE FIGURES

Preferred embodiments and implementations of the present invention will now be described with reference to the accompanying figures, in which:

Fig. 1 is a context diagram providing an overview of a preferred embodiment of the present invention;

Fig. 2 is context diagram providing a detailed overview of the architecture of a preferred embodiment of the present invention;

5 Fig. 3 is a flow chart providing an overview of a preferred method of the present invention;

Fig. 4 is a flow chart illustrating one application of an embodiment of the present invention;

10 Fig. 5 is a flow chart illustrating a second application of an embodiment of the present invention;

Fig. 6 is a flow chart illustrating a third application of an embodiment of the present invention.

DESCRIPTION OF PREFERRED EMBODIMENT

15 The present invention is not specific to any particular hardware or software implementation, and may be viewed at a conceptual level above the specifics of implementation. It is understood that various other embodiments and variations of the invention than those described herein may be produced, without departing from the spirit or scope of the invention. The following is provided to assist in understanding the practical implementation of particular embodiments of the
20 invention.

The present embodiment will be discussed in relation to a cell phone system where a customer has prepaid for cell phone credit. However, it will be appreciated that the present invention may be applied to other service providers, such as the Internet, long distance telephone calling, music downloads, etc,
25 where a customer has purchased a quantity of the service in advance of use of the service. The present invention may equally apply to services where there is a minimum credit spend and any left over credit is lost, eg where a customer must still pay \$100 each month even if the entire amount is not used. All of these cases fall within the definition of "prepaid credit".

30 The transaction system 20, as shown in Fig. 1, includes the host system 30 which communicates with the cellular operators 40, merchants 50, customers 60, and third parties 70. The host system 30 hosts a website 80 as one means to allow the customers 60 and merchants 50 and other users to access the service.

The cellular operators 40 in the present embodiment preferably include telecommunication providers, eg AT&T, British Telecom, etc, although in other applications may include Internet service providers eg AOL, or music download providers eg itunes etc.

5 The customers 60 include purchasers of prepaid credit who wish to use their unused portion of the prepaid credit in the host system 30.

 The merchants 50 include retail stores and the like which enable customers 60 to purchase goods and services from the retail stores (either online or conventionally in person) using their electronic currency from the host system
10 30. The merchants 50 may then receive the funds in local "traditional" currency via a bank transfer from the host system 30 through a financial institution partner.

 The third parties 70 include other persons participating in the system, eg persons who can receive credit from customers 60 who have transferred their electronic currency balance to the third party 70, but of whom do not actually have
15 an account set up with the host 30, ie not actually customers 60.

 The host website 80 provides a user interface to allow the necessary functions to be performed, for example - customer virtual bank, allowing customers to deposit into the account using prepaid credit, withdraw from the account to fund prepaid credit while travelling, buy and sell prepaid credit, transfer
20 credit to another customer or third party, use the credit to purchase goods and services, use the credit to donate to charities, amongst others.

 Now referring to Fig. 2 which illustrates the architecture of an embodiment of the present invention. The host system 30 ideally includes a data processor, ie servers 31 which may incorporate wholly or partly the receiving means, access
25 means, verification means, transaction means and transfer means, communication means 32 for communicating with a customer 60, cellular operator 40, merchant 50, or third party 70. The host system 30 further includes a storage means, ie database 33, a payment processor 34, and preferably a fraud detection integration processor 35.

30 The database 33 may take any one of several forms, for example, a single central database, a distributed database, or a number of secure databases.

 The fraud detection integration platform 35 links with the cellular operator 40 to verify the legitimacy of transactions. When the customer transaction is

delivered to the host server 31, the host server 31 will send a verification code to the customer's cell phone via a text message to confirm the validity of the cell phone number. After receiving the verification code, the customer 60 must input that code to send back to the host server 31, for example via the host website 80, a mobile application on the customer's cell phone, or via interfaces at a merchant premises. The verification code will only remain valid for a short period of time, preferably about 5 minutes. After 5 minutes, if the customer 60 has not inputted in the verification code, the code will become inactive, and the customer 60 will need to resend through the transaction.

10 The applications stored on the servers 31 will provide for various functionality of the system. Preferably, the applications will use UNIX, HTTPS and/or Web Base Interface for programming. Functionality preferably included will be the host system operation application, the host customer and merchant service application, the host security monitor application, and business reporting and analysis, amongst others.

On the customer 60 side, communication with customers 60 may be via the Internet or via a mobile telephone network. The mobile telephone network will preferably provide access through the customer's 60 cell phone via a mobile application 62 stored on the cell phone, or via short message service (SMS) 64.

20 The Internet will preferably provide access through a web application 66.

On the merchant 50 side, each merchant 50 will preferably have a payment terminal 53 to allow customers 60 to use their transferred electronic currency to make purchases from the merchant 50. The payment terminal 53 will include an application to link to a payment processor 34 at the host system 30 to deduct and transfer the respective funds. Alternatively or in addition, the merchant 50 may use the host website 80 or web application 52 via HTTP + VPN to manually connect to the host system 30 to deduct and transfer the respective funds. Communication with merchants 50 may also be through the merchant's cell phone via a mobile application 51.

30 The merchant 50 will also preferably have access to an administration web application 54, being a specific application developed for merchants using Application Programming Interface. The application can be embedded in the merchant's 50 own web pages with JavaScript and or other Programming

Languages. The application will provide a code of utilities for manipulating a transaction, similar to the host website 80 itself, and be connected to the host system 30 via HTTPS + VPN.

The host system 30 will also have a communication link to a financial institution 55 for settling merchant's 50 accounts. Once a customer 60 transaction has been processed permitting the goods or services to be purchased by the customer 60 using their electronic currency from a merchant 50, the equivalent funds in the local currency will be transferred to the merchant's financial account via a financial institution 55 transfer. This may be done either directly at the time of each customer transaction, or preferably after a certain period of time, eg once a month. Prior to that period of time, the funds can be stored in a transaction account of the merchant 50.

Preferably, information relating to the identification of, for example, the customers 60, merchants 50, and cellular operators 40 are securely stored in the database 33 of the system 30. The identification information relating to customers 60 will preferably include the customer's full name, a username/account number, unique security identifier, password, address (street, country, city, postcode), identification card/driver's licence/passport number, registered cell phone number, age, and valid email address.

This information will preferably be collected when the customer 60 first uses the system via the web application 66, or by telephone to the host customer service department.

Once the account activation is complete, identification data such as an account number or username will be provided to the customer 60, along with a unique security identifier to be used during any future transactions. The unique security identifier will preferably be a multi-digit Personal Identification Number (PIN), although may take other forms, eg a security question and answer. The unique security identifier is used as a security measure to prevent fraudulent transactions. In order to maximise the security of the system 30, the customer 60 will be advised not to provide their unique security identifier to any other parties. The unique security identifier is stored in the database 33, although for enhanced security may be stored in a separate database, or at a separate location. The various user details, including the account number/username, password,

registered cell phone number, email and PIN code are encrypted for storage, using any known type of encryption process.

The identification information relating to merchants 50 will preferably include the merchant's full name, address (including country, city, postal code),
5 identification card/driver's licence/passport number, registered cell phone number, and valid email address of the contact person or merchant owner. In addition, further details such as the type and category of the merchant, merchant username, merchant password, merchant landline phone number, merchant fax number, merchant website address will be collected and encrypted for storage on
10 the database 33.

The identification information relating to cellular operators 40 will also be stored in the database 33, and include a username and password, and PIN code, allowing the integrated application server between the cellular operator's server and host server 30. Cellular operators 40 who wish to participate in the system
15 will preferably be contracted with the host. Alternatively, the host may be a cellular operator itself. Individual PIN codes may be set up for individual employees at the cellular operator 40 who will access the system.

Once the customer 60 account has been set up, the customer 60 can access the system via a mobile application that has been installed on his/her
20 cellular phone. The mobile application is web and mobile technology based, designed to be used in web or mobile web systems. It may be available in various types of platforms, including WAP, J2ME, Symbian and SIM toolkit. The mobile application will preferably be compatible with all cellular phone brands, eg Nokia, Sony Ericsson, Samsung, Motorola etc.

25 To install the mobile application onto his/her cell phone, the installation process may be done through:

- (i) Over the Air (OTA): With WAP push, the host server/provider will send a message to the customer 60 to start downloading the application. The customer 60 can also send a special text message to the host
30 server/provider to start downloading the application.
- (ii) Service Center: A Customer Service Center, a merchant, or mobile service providers may assist the installation through Bluetooth or via infrared, or any other wireless transfer system. The customer 60 can

also download the application and install it using a USB port or download the program from one cell phone to another.

- (iii) SIM Tool Kit: The customer 60 can buy a SIM card for their cell phone which has already been uploaded with the mobile application.

5 Once the application has been installed, an icon will appear on the application listing on the customer's 60 cell phone. When the customer 60 wishes to use the service, the customer 60 will access the application via the icon. The customer 60 will then be prompted to complete the relevant details for the transaction 61 on the user interface, including (i) the type of transaction, (ii) the receiver's account number (if applicable), and (iii) unique security identifier for transaction verification safety. Preferably, the customer's identification data will be stored in the mobile application to avoid the customer 60 needing to re-input this information for every transaction. Similar inputs for interfaces via the host website or web application may also be used.

15 In this embodiment, and with reference to Fig. 3, the transaction type 61 will be one of the following: (i) buy/sell credit 63, (ii) electronic fund transfer to another account holder 65 or third party 67 or (iii) payment to a merchant 69. In other embodiments, alternative transaction types and functionalities may be used, and the present invention is not limited in this regard.

20 Buy/sell credit allows a customer 60 to sell back unused cell phone credit to the host 30 (or other types of credit in other embodiments), the amount of which is then transferred into host digital/electronic currency. The customer 60 can then use the digital currency for future purchases via the host 30, including transfers to third party cellular accounts. Alternatively, Buy/sell credit option 63
25 allows a customer 60 to purchase cell phone credits using his/her digital currency, from a range of cellular operators.

 Electronic fund transfer allows the electronic currency to be transferred to other customers 65 or third parties 67. Once the customer 60 has initially transferred phone credits to the digital currency, he/she can then transfer those
30 credits to another account holder or a third party with a cell phone account. The transferred funds may also be traded for cash at a financial institution 71 that is a partner of the host 30.

Payment to a merchant 69 allows the customer 60 to use his/her electronic currency to make payments to merchants who have partnered with the host 30. These merchants may include both online merchants and conventional merchants, such as restaurants, cafes, book stores, etc.

5 For the first transaction, the only option available to the customer 60 will be the buy/sell credit, and the customer 60 will need to sell his/her unused prepaid credit to create an electronic currency account balance to be used for future transactions. To sell the customer 60 top up credit, the customer 60 will be prompted, once having selected the buy/sell credit option, to select "sell credit",
10 and enter the amount he/she wishes to sell. The customer 60 will then enter in the amount and the information will be sent to the host server 31.

 The transaction will be transmitted to the host server 31 through a web based application (HTTP) or cellular application (J2ME/.NET/WAP SMS) 62 that enables the transmission to be sent wirelessly directly to the host 30. The
15 transaction message will then be sent once the mobile application is connected with the host server 30. Thus, the transaction may be accessed either on a cell phone, or any PC or computer with the Internet.

 Alternatively, if the transaction cannot be made through the web based application, eg if the customer cell phone does not have the compatible
20 technology and the Internet-based application is unworkable for a customer 60, then it may be done through text messaging. In the latter case, a customer 60 may send a text message which includes various text strings identifying their account name and identifier details, transaction type, and amount to be transferred.

25 In either case, the message is then processed by the host server 31 to convert the requested amount into the electronic currency. The electronic currency may be distinct from conventional country currency, or alternatively may be equivalent to a country currency, for example US dollars. Once the amount has been converted, the processor 31 determines the transaction type for the
30 next step in the process. If the transaction is to sell customer 60 credit, the server 31 will need to connect with the cell phone operator 40.

 As noted above, the host 30 will have agreements with various cell phone telecommunication operators who agree to become partners of system. The

hardware and software requirements for the telecommunication operator to participate in the system will not be specific. The host system will be designed to integrate with the various telecommunication provider systems.

Once the "sell credit" transaction has been processed by the host server
5 31, the server 31 will send information to the cell phone provider 40 using a secure Internet connection. The information will include the cell phone number for the customer 60 of the transaction, the amount of the transaction, the date and time of the transaction.

The server/processor at cell phone provider 40 will verify the amount of
10 credit remaining on the customer's 60 cell phone account, and send a message back to the host server 31 either allowing or denying the transaction. It is preferred the verification and messaging is an automated and almost instantaneous process. The cell phone provider 40 will then deduct the amount from the customer's 60 cell phone account.

15 If the transaction is allowed by the cell phone provider 40, the host server 31 will correspondingly add the requested amount from the customer's 60 host account, and electronically deposit the equivalent amount of funds into the cell phone provider's account 41. A message will be sent to the cell phone provider 40 advising of the deduction in cell phone credit, and deposit of the relevant
20 funds. Preferably, the cell phone provider 40 will then alert the customer 60 via text message of the deduction in cell phone credit to eliminate errors and possible misuse. The host server 31 will then alert the customer 60 of the deduction in cell phone credit, and the balance of their e-currency account.

If a customer 60 wishes to purchase phone credit from a cell phone
25 provider, the customer 60 will choose the respective option on his/her mobile application, and key in the amount he/she wishes to purchase. This information will then be transmitted to the host server 31 according to the same method as previously described. The host server 31 will then verify sufficient funds are available in the customer account 63. If sufficient funds are available, the
30 information will be sent to the cell phone provider 40 through the host server 31 using a secure Internet connection. This information will preferably include the amount of top up / phone credit, identity of the person who purchased the credit,

the date and time of purchased transaction, and the cell phone number of the person who will receive the reload from the purchase.

The cell phone provider 40 will then check the customer's 60 cell phone account and approve or deny the request by sending a message back to the host
 5 server 31. If the transaction is approved, the cell phone provider 40 will increase the customer's 60 cell phone account accordingly. The host server 31 then deducts the funds from the customer's host account 63, and deposits the respective funds into the cell phone provider's account 41.

The host system 30 then advises the customer 60 the transfer has been
 10 completed. For example, a message may be sent to the customer 60 cell phone via SMS: "You just purchased IDR 70.000 top up / phone credit for 089453xxxx at 12.50 pm 12/08/08 and the reload is successful". Again, it is preferred the system is automated and instantaneous. It is further preferred that the cell phone provider 40 will also alert the customer via text message of the increase in cell phone
 15 credit to eliminate errors and possible misuse.

If the "electronic funds transfer" option is selected by the customer 60, the customer 60 is prompted to key in the account number/username of the companion 80 to which the funds are to be transferred, along with the amount of the transfer. This information is then transmitted to the host server 31 in the same
 20 way as described previously. The host server 31 verifies the customer 60 has sufficient funds for the transfer, and if so, transfers the funds to the companion account 81. Both the customer 60 and companion 80 are then advised of the transfer and their respective account balances. For example, the information to the customer 60 may say: "The 0819765xxx transfer top up/phone credit balance
 25 to 084563xxx for amount IDR 70.000 at 12/08/08 12.30 pm has been successful".

If the "online payment" option is selected by the customer 60, the customer 60 is prompted to key in the merchant account number, and the amount of the transfer. This information is then transmitted to the host server 31 in the same
 30 way as described previously. The host server 31 verifies the customer 60 has sufficient funds for the transfer. If so, the host server 31 transfers the funds to the merchant's account 51, which in turn is transferred to the merchant's financial institution. The host server 31 then advises the merchant 50 and the customer 60 of the transfer.

The current system will support mass payment transactions such as fund gathering for charity from several donators at once, or transactions to several accounts from one account at once. It will also allow transfer of funds from individual to another individual without any territorial boundaries. Account holders
 5 can easily and safely send funds to another account holder. Once the transaction is complete, the receiver will be notified through a text message, or email etc.

Customers can also withdraw or make a purchase from a host partner merchant from the customer's cell phone to the merchant's cell phone, from a customer's cell phone to a web point of sale merchant application, or from a
 10 user's area at the website or application to the merchant's account.

Customers can use the present system to sell unused overseas phone credits, and then purchase new local credits when the customer returns home. Family members can transfer their unused phone credits from one provider to phone credits on another provider for other family members. Customers can
 15 transfer electronic currency to other customers who have an account with the provider. Customers can trade their electronic currency into cash at partner financial institutions. Customers can purchase goods and services using their electronic currency both online, or at conventional outlets which are fitted with appropriate systems, thus forming an electronic transaction and payment system.

20 Figs 4 to 6 show flow charts of some applications of the present embodiment. These applications are exemplary only, and do not limit the invention to only these applications. There are many other applications which may be performed using the system, and the following is not intended to be limiting in any way.

25 Fig. 4 shows one application of the present embodiment where a customer 60 has travelled to Malaysia, and purchased pre-paid cell phone credits in the amount of RM 30 for a cellular service in Malaysia. When the customer 60 is ready to depart Malaysia 100, he finds he still has RM 15 remaining in credit. The customer 60 therefore accesses the host mobile application from his cell phone
 30 102, enters the relevant details 104, and sends a command to the host system 30 to sell top up balance RM 15 106. The command is sent via the communication link to the host system 30, and the host server 31 converts the remaining RM 15 credit into electronic currency, which in this case is equivalent to United States

dollars 108. The balance of RM 15 is accordingly converted, using the daily exchange rates, to USD 7 of electronic currency. The server 31 then contacts the cell operator for approval 110, who submits the approval and removes RM 15 from the customer cell phone account 112. The host system then transfers the equivalent amount to the cell phone operator account, and stores the electronic currency (USD 7) to the customer 60 account and notifies the customer and cell phone operator 114. When the customer 60 arrives in his home country of Indonesia 118, he again accesses the host mobile application from his cell phone 120, enters the relevant details 122, and sends a command to the host system 30 to buy top up of IDR 70.000 124. The IDR 70.000, being in a different currency to the electronic currency, is converted by the host server 32 into the electronic currency (in this case US dollars) and confirms sufficient credit in account 126. The host system contacts the cell operator for approval 128, and once approved 130 and the cell phone operator has added on the equivalent amount to the customer's cell phone balance, the host system transfers the equivalent electronic currency amount (in this case also USD 7) to the cell phone operator account, advises cell phone operator, and removes the electronic currency amount from customer account 132.

Fig. 5 shows another application of the present embodiment where a customer 60 needs to transfer money to a companion 200. Instead of a cash transfer in the convention method, the customer 60 accesses the mobile application on cell phone 202, inputs identification details and requests to transfer RM 15 (which they already have stored in their host account) to companion account 204. The host system then converts the amount into the electronic currency (in this case US dollars), and verifies there are sufficient funds in the customer account 208. The host system contacts the companion's cell operator for approval 210, who processes the requests and submits approval to the host system 212. The host system then deducts the electronic currency amount from the customer account, transfers the equivalent amount to the companion cell phone operator, and advises all parties 214. The cell phone operator then adds the RM 15 amount to the companion's account 216.

Fig. 6 shows another application of the present embodiment, where a customer 60 wishes to purchase groceries from a merchant partner 300. In this

case, the customer 60 advises the merchant partner 300 of his intention to pay by the host system (an example of payment data), and then logs on to the mobile application 302 via his cell phone, inputs his identification data, and requests to pay RM 15 to merchant partner 304. The host system then converts the amount into electronic currency, and verifies there are sufficient funds in the customer's account 308. The host system 30 then deducts the converted amount from the customer 60 account, transfers the amount to the merchant's account, and advises the merchant by telephone or web application and customer 310. The merchant then organises with the customer 60 for delivery of the paid groceries.

10 In an alternative embodiment of this application, the merchant 50 may have a payment terminal automatically linked in to the host system 30 via a wireless or wired communication device. This would eliminate the need for the customer 60 to log on to the host 30 via the mobile application, as the payment amount and identification data can all be inputted by the merchant via the payment terminal.

15 The communication of success or non-success of the result of the transfer can also then be communicated via the payment terminal. In other forms, the customer 60 may be provided with a swipe card or similar which contains the identification data, which can be used with the payment terminal.

The presently described embodiment allows for cell phone credits and other prepaid credits to be treated as electronic currency, allowing a person to make electronic financial transactions through the Internet or via a cell phone. The system enables a customer to send and receive money electronically that is safe, easy and sufficient. The system may also be used to purchase items, send and receive electronic phone credits and the like anywhere and at any time, from all around the world.

Customers will have access to their account funds through their cell phone or web application and will enable them to make financial transactions electronically. The system is relatively streamline, with customers simply requiring a cell phone or Internet access, and an account, to use the system.

30 Advantages of the system from a customer perspective is that it will minimise cellular communication costs, and help control usage of phone credits, especially prepaid phone credits while travelling abroad. It also allows payment of goods and services electronically, eliminating the need for cash.

In the present specification and claims, the word “comprising” and its derivatives including “comprises” and “comprise” include each of the states integers but does not exclude the inclusion of one or more further integers.

Reference throughout this specification to “one embodiment” or “an embodiment” means that a particular feature, structure, or characteristic described in connection with the embodiment is included in at least one embodiment of the present invention. Thus, the appearance of the phrases “in one embodiment” or “in an embodiment” in various places throughout this specification are not necessarily all referring to the same embodiment. Furthermore, the particular features, structures, or characteristics may be combined in any suitable manner in one or more combinations.

The foregoing discussion is considered as illustrative only of the principles of the invention. Furthermore, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

CLAIMS:

1. An electronic transaction method comprising at least the steps of:
 receiving a query for payment of goods or services by a customer to a merchant, said query including identification data relating to an electronic transaction account of the customer and a payment amount;
 5 accessing said electronic transaction account of the customer, said transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency;
 10 verifying said account balance in said transaction account is at least equal to said payment amount, and if so, transferring said payment amount from said transaction account to said merchant to provide payment for said goods or services.
2. A method according to claim 1, wherein said prepaid credit comprises a
 15 quantity of a service which has been purchased in advance of use of said service.
3. A method according to claim 2, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.
4. A method according to claim 2, wherein said prepaid credit is selected
 20 from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.
5. A method according to claim 1, wherein said electronic transaction account is hosted by a third party unrelated to said merchant.
6. A method according to claim 1, wherein said query for payment of said
 25 goods or services is received from said merchant.

7. A method according to claim 1, wherein said query is received by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

8. A method according to claim 1, further comprising the step of
5 communicating transfer of said payment amount from said customer transaction account to said merchant.

9. A method according to claim 8, wherein communicating transfer of said payment amount is communicated by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected
10 to a wireless communication device.

10. A method according to claim 1, wherein transferring said payment amount from said transaction account to said merchant includes transferring said payment amount to a corresponding transaction account of a merchant.

11. A method according to claim 1, wherein if the step of verifying said account
15 balance in said transaction account is at least equal to said payment amount verifies said balance is not at least equal to said payment amount, further comprising the step of communication the result to said merchant.

12. An electronic transaction system comprising:

receiving means for receiving a query for payment of goods or services by
20 a customer to a merchant, said query including identification data relating to an electronic transaction account of the customer and a payment amount;

access means for accessing said electronic transaction account of the customer, said transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into
25 said electronic currency ;

verification means for verifying said account balance in said transaction account is at least equal to said payment amount, and if so, transfer means for transferring said payment amount from said transaction account to said merchant to provide payment for said goods or services.

13. A system according to claim 12, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

14. A system according to claim 13, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been
5 purchased but has not been used.

15. A system according to claim 13, wherein said prepaid credit is selected from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

16. A system according to claim 12, wherein said electronic transaction
10 account is hosted by a third party unrelated to said merchant.

17. A system according to claim 12, wherein said receiving means comprises receiving said query for payment of said goods or services is received from said merchant.

18. A system according to claim 12, wherein said query is received by one of:
15 a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

19. A system according to claim 12, further comprising communication means for communicating the transfer of said payment amount from said customer transaction account to said merchant.

20. A system according to claim 19, wherein said communication means comprises one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

21. A system according to claim 12, wherein said transfer means comprises a
25 processor for transferring said payment amount to a corresponding transaction account of a merchant.

22. A system according to claim 12, wherein if said verification means verifies said account balance in said transaction account is not at least equal to said payment amount, said system further comprises communication means for communicating the result to said merchant.

5 23. A method for purchasing goods or services by a customer from a merchant, the method comprising the steps of:

providing payment data to the merchant, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from
10 converting unused prepaid credit into said electronic currency;

allowing transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

15 24. A method according to claim 23, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

25. A method according to claim 24, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.

20 26. A method according to claim 23, wherein said prepaid credit is selected from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

25 27. A method according to claim 23, wherein said payment data includes identification data relating to said electronic transaction account, and said method further comprising the step of allowing said identification data to be communicated to a host.

28. A method according to claim 23, wherein said electronic transaction account is hosted by a third party unrelated to said merchant.

29. A method according to claim 27, wherein the step of allowing said identification data to be communicated to a host comprises allowing said identification data to be communicated by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal
5 connected to a wireless communication device.

30. A method according to claim 23, further comprising the step of receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant.

31. A method according to claim 30, wherein the step of receiving verification
10 of transfer of at least some of said account balance from said customer transaction account to said merchant includes receiving verification of transfer by one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

32. A method according to claim 23, wherein the step of allowing transfer of at
15 least some of said account balance from said customer transaction account to said merchant includes allowing transfer of at least some of said account balance to a corresponding transaction account of a merchant.

33. A system for purchasing goods or services by a customer from a merchant, the system comprising:
20 means for providing payment data to the merchant, said payment data indicating payment for said goods or services from an electronic transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency ;
means for allowing transfer of at least some of said account balance from
25 said customer transaction account to said merchant as payment for said goods or services.

34. A system according to claim 33, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

35. A system according to claim 34, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.

36. A system according to claim 33, wherein said prepaid credit is selected
5 from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

37. A system according to claim 33, wherein said payment data includes identification data relating to said electronic transaction account, and said system further comprises means for allowing said identification data to be communicated
10 to a host.

38. A system according to claim 33, wherein said electronic transaction account is hosted by a third party unrelated to said merchant.

39. A system according to claim 37, wherein said means for allowing said identification data to be communicated to a host comprises one of: a web
15 application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

40. A system according to claim 33, further comprising receiving means for receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant.

20 41. A system according to claim 40, wherein said receiving means comprises: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

42. A system according to claim 33, wherein said means for allowing transfer of at least some of said account balance from said customer transaction account
25 to said merchant includes means for allowing transfer of at least some of said account balance to a corresponding transaction account of a merchant.

43. A method for receiving payment for goods or services of a merchant from a customer, the method comprising the steps of:

receiving payment data from the customer, said payment data indicating payment for said goods or services from an electronic transaction account having
5 an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency;

receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant as payment for said goods or services.

10 44. A method according to claim 43, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

45. A method according to claim 44, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.

15 46. A method according to claim 43, wherein said prepaid credit is selected from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

47. A method according to claim 43, wherein said payment data includes identification data relating to said electronic transaction account, and said method
20 further includes the step of communicating said identification data to a host.

48. A method according to claim 43, wherein said electronic transaction account is hosted by a third party unrelated to said merchant.

49. A method according to claim 47, wherein the step of communicating said identification data to a host includes communicating said data by one of: a web
25 application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

50. A method according to claim 43, wherein the step of receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant includes receiving verification of transfer by one of: a web application via the Internet, a cell phone application via a cell phone
5 network, or a payment terminal connected to a wireless communication device.

51. A method according to claim 43, wherein the step of receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant includes receiving verification of transfer of at least some of said account balance to a corresponding transaction account of a
10 merchant.

52. A system for receiving payment for goods or services of a merchant from a customer, the system comprising:

receiving means for receiving payment data from the customer, said payment data indicating payment for said goods or services from an electronic
15 transaction account having an account balance comprising an amount of electronic currency derived from converting unused prepaid credit into said electronic currency ;

verification means for receiving verification of transfer of at least some of said account balance from said customer transaction account to said merchant as
20 payment for said goods or services.

53. A system according to claim 52, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

54. A system according to claim 53, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been
25 purchased but has not been used.

55. A system according to claim 53, wherein said prepaid credit is selected from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

56. A system according to claim 52, wherein said payment data includes identification data relating to said electronic transaction account, and said system further includes communication means for communicating said identification data to a host.

5 57. A system according to claim 52, wherein said electronic transaction account is hosted by a third party unrelated to said merchant.

58. A system according to claim 56, wherein said communication means includes one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless
10 communication device.

59. A system according to claim 52, wherein said verification means comprises one of: a web application via the Internet, a cell phone application via a cell phone network, or a payment terminal connected to a wireless communication device.

60. A system according to claim 52, wherein receiving verification of transfer of
15 at least some of said account balance from said customer transaction account to said merchant includes receiving verification of transfer of at least some of said account balance to a corresponding transaction account of a merchant.

61. A method for utilising unused prepaid credit of a customer, the method comprising at least the steps of:

20 transferring said unused prepaid credit of a customer into an amount of electronic currency;

storing said electronic currency in an electronic transaction account of the customer;

25 enabling the customer to use the transferred electronic currency as payment to conduct transactions.

62. A method according to claim 61, wherein said prepaid credit comprises a quantity of a service which has been purchased in advance of use of said service.

63. A method according to claim 62, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.

64. A method according to claim 62, wherein said prepaid credit is selected
5 from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

65. A method according to claim 61, wherein said transactions include one or more of: purchasing prepaid credit, transferring electronic currency to another customer, or purchasing goods or services from at least one merchant.

10 66. A method according to any one of claims 61, wherein enabling the customer to use the transferred electronic currency to conduct transactions is enabled via a cellular phone.

67. A method according to any one of claims 61, wherein enabling the customer to use the transferred electronic currency to conduct transactions is
15 enabled through one or more of: a web application, or a cell phone application.

68. A system for utilising unused prepaid credit of a customer, the system comprising:

transfer means for transferring said unused prepaid credit of a customer into an amount of electronic currency;

20 storage means for storing said electronic currency in an electronic transaction account of the customer;

transaction means for enabling the customer to use the transferred electronic currency as payment to conduct transactions.

69. A system according to claim 68, wherein said prepaid credit comprises a
25 quantity of a service which has been purchased in advance of use of said service.

70. A system according to claim 69, wherein said unused prepaid credit comprises at least some of said quantity of said service which has been purchased but has not been used.

71. A system according to claim 69, wherein said prepaid credit is selected
5 from the group consisting of: cell phone credit, Internet access credit, telephone credit, overseas calling credit, and file download credit.

72. A system according to claim 68, wherein said transactions include one or more of: purchasing credit, transferring electronic currency to another customer, purchasing goods and services from at least one merchant.

10 73. A system according to claim 68, wherein said transaction means includes using a cellular phone.

74. A system according to claim 68, wherein said transaction means includes using one or more of: a web application, or a cell phone application.