

sary links with the banking network for transferring value from banking accounts to the stored value accounts on the mobile communication devices.

**[0014]** The user can add value to the stored value device and redeem value from the stored value device through a transaction terminal, while the mobile communication device is in both online and off-line modes. When the mobile communication device operates in an online mode, it acts as an interactive terminal for the user accessing a web portal associated with the operations server, which redirects the access to a merchant site or otherwise presents an online interface for the user of the mobile communication device. The operation servers can act in real time to settle transactions in the online mode. When the mobile communication device operates in an off-line mode, the individual merchant in possession of the transaction terminal used for the off-line transaction is responsible for the value transferred to the mobile communication device relying on the credit of the individual holding the mobile communication device, for example by treating the transaction like a transaction for the sale of gift cards. For off-line transactions, the individual merchant can rely on the credit card network or require cash for transactions requiring delivery of value to the mobile indication device. Furthermore, the transaction terminal is configured to deliver transaction records and other records for the purposes of accounting and verification to the transactions operation server using a secure channel between them, at the time of transactions and/or periodically independent of actual transaction times.

**[0015]** One possible method for handling payment transactions in a system as described above includes:

**[0016]** storing data representing an amount of money on secure memory in a mobile telephone;

**[0017]** establishing a link between the mobile telephone and a transaction terminal in proximity with the mobile telephone;

**[0018]** executing communications between the mobile telephone and the transaction terminal using the link to change the amount of money represented by the data stored in the mobile telephone according to a particular transaction;

**[0019]** passing a first record of the particular transaction from the mobile telephone to an operation server via a first communication channel through the telecommunication provider network;

**[0020]** passing a second record of the particular transaction from the transaction terminal to the operation server via a second communication channel through a communication network coupled to the transaction terminal and the operation server; and

**[0021]** reconciling the first and second records at the operation server to verify the particular transaction.

**[0022]** Another possible method for handling payment transactions in a system as described above includes:

**[0023]** receiving, at a transaction operations server, a first particular transaction of a mobile communication device having a stored value represented by data on the mobile communication device, wherein the first particular transaction adds a first amount of money to the stored value represented by data on the mobile communication device, and wherein the first amount of money is in a first data type representing a first business issued currency honored by a first group of one or more businesses,

**[0024]** wherein the transaction operations server performs:

**[0025]** supporting a plurality of communication protocols;

**[0026]** maintaining accounts of stored value in memory accessible by the transaction operations server;

**[0027]** authenticating and communicating with the mobile communication device via the plurality of communication protocols; and

**[0028]** controlling particular transactions initiated by at least partly wireless communication between a) the mobile communication device having the stored value represented by data on the mobile communication device and b) a transaction terminal;

**[0029]** receiving, at the transaction operations server, a second particular transaction of the mobile communication device, wherein the second particular transaction subtracts a second amount of money from the stored value represented by data on the mobile communication device, and wherein the second amount of money is in a second data type representing a second business issued currency honored by a second group of one or more businesses; and

**[0030]** exchanging, at the transaction operations server, at least part of the money represented by data on the mobile communication device between the first data type and the second data type.

**[0031]** Another possible method for handling payment transactions in a system as described above changes the stored value represented by data on the mobile communication device according to the particular transaction, and is initiated by at least partly wireless communication between the mobile communication device and the transaction terminal, and includes:

**[0032]** receiving, at the transaction operations server, a first record of the particular transaction from the mobile communication device via a first communication channel through the telephone service provider network;

**[0033]** receiving, at the transaction operations server, a second record of the particular transaction from the transaction terminal via a second communications channel through a communication network coupled to the transaction terminal; and

**[0034]** reconciling the first and second records at the transaction server to verify the particular transaction.

**[0035]** The first record may be transmitted at the time of the particular transaction, or consolidated with records of other transactions executed over a period of time, and reported at times independent of the particular transaction. Likewise, the second record may be transmitted at the time of the particular transaction, if for example the transaction terminal is online at the time of the particular transaction, or consolidated with other transaction records and reported at times independent of the particular transaction, if for example the transaction terminal is off-line at the time of the particular transaction. The reconciliation of the first and second records at the operation server allows for strong verification of the actual transactions, for detection of tampering with the mobile communication device, with the secure stored value memory, and for detection of tampering with transaction terminals.

**[0036]** A data processing system acting as a server for mobile payment, a mobile communication device, and a data processing system acting as a transaction terminal are described which supports a mobile payment architecture