

"Data capture System and method"

TECHNICAL FIELD

5 This invention relates to a data processing system of a payment, discount and incentive reward programme. In particular the system employs smart cards that allow the user of the smart cards to purchase goods and services, receive discounts and rewards. The system records the goods and services purchased and makes the data available for data mining.

BACKGROUND ART

10 Payment systems and reward systems are well known on the prior art. In general payment systems are administered by financial institutions and reward programmes are implemented by incentive companies. Such systems can be highly effective but they are difficult to administer and therefore can be expensive to run. In addition such systems do not provide for extraction of data based on the items and services purchased by consumers. What is needed is a system that can minimise their cost and maximise the available extractable data for
15 use by companies in promoting their goods and services.

DISCLOSURE OF INVENTION

Accordingly what is needed is a system that implements transactional data capturing in such a way that it enables marketing and other companies to obtain valuable transactional data or at least provides the public or industry with the a useful choice.

20 In a first aspect the present invention may broadly be said to consist in a transaction data capture system comprising:

- a plurality of multi function cards, each said card assigned to one participant and having a unique account number;

- a database, storing participant demographic information for each participant in
25 association with each unique account number;

- a system server for receiving transaction information, programmed to store received transaction data in said database;

- transaction site devices for collecting payments and collecting transaction data, programmed to collect transaction data including the products or services purchases, the
30 location and the time of purchase and the card identifier for the transaction said transactional data stored in association with the card identifier and forward said transaction data to said system server over a network connecting said transaction server and said transaction sites; and

- a query interface programmed to allow for the extraction of information from said database said query interface enabling queries and reports based on multiple simultaneous

criteria including, simultaneously, participant demographic criteria and transaction information criteria;

Preferable said multi function cards include finger vein biometrics.

5 Preferable said multi function cards include the facility to be used as a security card and transaction data includes the time of use of said card.

Preferable said card includes a number of payment systems wherein said card is a stored value card.

Preferable said multi function cards are used to purchase services on a time basis wherein said transactional data includes the time said services are used.

10 In a second aspect the present invention may broadly be said to consist in a method of providing transactional information comprising the steps of:

issuing multi function cards to public participants;

15 recording demographic customer data for each participant, wherein said data is recorded at the time each said multi function cards is issued, and is recorded in association with an identifier of the card received by that participant;

receiving and storing transactional data, said transactional data including the identity of the card, information on the product/item purchased, the location of purchase and the time of purchase; and

20 providing a query interface for extracting information from said stored transactional data.

Preferable said multi function cards include finger vein biometrics.

Preferable said multi function cards include the facility to be used as a security card and said transaction data including times of use of said card

Preferable said card includes a number of payment systems.

25 Preferable said card is a store value card.

Preferable said multi function cards are used to purchase services on a time basis wherein said transactional data includes the time said services are used.

BRIEF DESCRIPTION OF THE DRAWINGS

30 **Figure 1** is a block diagram of the system according to the invention illustrating the hardware components and the interconnection between the components,

Figure 2 is a block diagram in the system according to the invention illustrating the hardware components and an alternative interconnection arrangement,

Figure 3 is a block diagram of the system according to the invention illustrating the web interface of the invention,

Figure 4 is a block diagram of the system according to the invention illustrating the data mining interface of the invention, and

5 **Figure 5** is a block diagram of the system according to the invention illustrating the card functions of the invention.

BEST MODES FOR CARRYING OUT THE INVENTION

The present invention is a one card system for purchasing many goods and/or services. The system includes a royalty programme, a discount programme, the ability to pay for entry to
10 facilities and attractions and the ability to pay for goods and services at retail outlets, food and beverage providers and other facilities.

Referring to Figure 1 the system of the present invention is described. A computer system 101 including a database 102 is connected to a network 103. The network 103 is also connected a multitude of card readers 104. The card readers 104 are used to collect data on
15 purchases made by the user's of the card.

The cards are able to purchased from tour operators, hotel operators, overseas tour operators, discount ticketing agents, airlines, airport arrival halls, institutions and schools, travel fairs and tourism board offices. The purchaser of the card will purchase the cards over the counter and upon purchasing the card will fill in a registration form. The card can be issued
20 with a certain stored value and the seller of the card will enter the purchases details using a personal computer 301 or other web enabled device via the system web server 301. As soon as the customer has completed the form their particulars are entered into the system. Once their details are entered, the card will be activated and the card purchaser will be able to enjoy the royalty programme and other benefits of the card.

25 When a user of the card purchases goods and/or services the card readers 104 collect data on the transaction. The data is transmitted to the system 101 for storage in the database 102.

The card readers 104 may either send data to the system 101 in real time or alternatively the card readers 104 may store the data and upload to the system 101 as required either by the
30 system 101 or by the readers 104.

While one card reader has been described it would be possible for the card readers 104 to comprise a system such as a retail system in either a store or a national chain where the data is first sent to the chain or the stores central server and then forwarded to the system server 101

for storage in the database 102. Referring to Figure 2 the card readers are connected to a server either a store 108 or company 105 server via a network 106.

In an alternative embodiment some of the card readers 104 may not store the transactional data and may instead add the transactional data to the card to be stored in memory in the card. When the card is then used in a card reader that is connected to the system server 101 transactional information from transactions conducted by off line card readers will be uploaded to the system.

Referring to Figure 5 the functions 501 of the card are described. Users of the card are able to make payments 502 using the card. In the preferred embodiment the card would act as both a credit card and debit card. The card will also act as a stored value card 503. When a customer makes a purchase for example to pay for a bus ride, a monorail ride or ERP (Electronic Road Pricing) the cost of the purchase is deducted from the stored value. To enable the card to act as a stored value card the card will include memory to store information. The information stored will include information on the stored value that has been added to the card.

Every purchase a user makes on the card enables the user to collect reward points. The system server 101 will record the reward points in the database 102. In the preferred embodiment a user will be able to access their points using a PC or other web enabled device 301 shown in Figure 3 to access a web server 301 contained in the system 101 of the present invention.

In the preferred embodiment the system will also include a royalty programme each purchase made using the card will add royalty points to the card users rewards programme. The system 101 will automatically calculate the reward points allocated to a particular purchase and store these in the database 102 in association with a card identifier. In the preferred embodiment a card user will be able to view their reward points online using a personal computer 302 or other WAP enabled device 303. The system will provide a web server interface 301 to enable the user to view their points.

In addition to being able to view their points online the user will also be able to request using their PC 302 or WAP enabled device 303 to request rewards.

The card of the present invention will also enable users to obtain discounts in various retail outlets and attractions.

The cards can also be used to monitor vehicles entering and exiting certain locations. The system 101 will record the car parking duration of each vehicle. This enables car parking providers to access data to enable better parking space management.

The system 101 will enable the collection of user purchasing trends. Because each purchase is recorded in the system 101 data on purchasing patterns and sequence of purchases is available. This will enable information such as frequencies of visits, sequences of activities and purchasing patterns of shoppers to be made available.

5 The use of data will enable better management of promotions by companies. Companies will be able to analysis the data and find the best fit promotional effort either on an event basis or a seasonal basis. Having found the best fit they can target their promotion. A further use of the system is as hotel room keys. Hotels typically use cards to allow visitors to access their room and other locks during their stay. The card of the present invention can
10 additionally act as a hotel room key. In addition to acting as a hotel room key the card can be used to allow guests and/or visitors access to certain facilities in addition to providing access to certain facilities the system will allow the recording of the use of those facilities and the entry and exit of guests to their rooms.

15 While a normal smart card could be used it is envisaged that the security system would include finger vein biometrics to provide additional security for the system.

20 To those skilled in the art to which the invention relates, many changes in construction and widely differing embodiments and applications of the invention will suggest themselves without departing from the scope of the invention as defined in the appended claims. The disclosures and the descriptions herein are purely illustrative and are not intended to be in any sense limiting.

CLAIMS

1. A transaction data capture system comprising:

a plurality of multi function cards, each said card assigned to one participant and having a unique account number;

5 a database, storing participant demographic information for each participant in association with each unique account number;

a system server for receiving transaction information, programmed to store received transaction data in said database;

10 transaction site devices for collecting payments and collecting transaction data, programmed to collect transaction data including the products or services purchases, the location and the time of purchase and the card identifier for the transaction said transactional data stored in association with the card identifier and forward said transaction data to said system server over a network connecting said transaction server and said transaction sites; and

15 a query interface programmed to allow for the extraction of information from said database said query interface enabling queries and reports based on multiple simultaneous criteria including, simultaneously, participant demographic criteria and transaction information criteria;

2. A transaction data capture system as claimed in claim 1 wherein said multi function
20 cards include finger vein biometrics.

3. A transaction data capture system as claimed in any one of claim 1 or claim 2 wherein said multi function cards include the facility to be used as a security card and transaction data includes the time of use of said card.
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4. A transaction data capture system as claimed in any one of claims 1 to 3 wherein said card includes a number of payment systems wherein said card is a stored value card.

5. A transaction data capture system as claimed in any one of claims 1 to 4 wherein when
30 said multi function cards are used to purchase services on a time basis wherein said transactional data includes the time said services are used.

6. A method of providing transactional information comprising the steps of:
issuing multi function cards to public participants;

recording demographic customer data for each participant, wherein said data is recorded at the time each said multi function cards is issued, and is recorded in association with an identifier of the card received by that participant;

5 receiving and storing transactional data, said transactional data including the identity of the card, information on the product/item purchased, the location of purchase and the time of purchase; and

providing a query interface for extracting information from said stored transactional data.

10 7. A method of providing transactional information as claimed in claim 6 wherein said multi function cards include finger vein biometrics.

8. A method of providing transactional information as claimed in any one of claims 6 or 7 wherein said multi function cards include the facility to be used as a security card and said
15 transaction data including times of use of said card

9. A method of providing transactional information as claimed in any one of claims 6 to 8 wherein said card includes a number of payment systems.

20 10. A method of providing transactional information as claimed in any one of claims 6 to 9 wherein said card is a store value card.

11. A method of providing transactional information as claimed in any one of claims 6 to 10 wherein when said multi function cards are used to purchase services on a time basis wherein
25 said transactional data includes the time said services are used.