



METHOD FOR PROCESSING CUSTOMER LOYALTY INFORMATION

[0001] The present application relates to a method for processing customer loyalty information automatically. It further relates to a device for processing customer loyalty information automatically.

[0002] Various methods of unique product identification are currently available in the market. These methods include serial numbers along with Universal Product Code (UPC), European Article Norm (EAN) or Global Trade Identification Number (GTIN) product codes. The UPC, EAN and GTIN codes identify the manufacturer and product type, while serial numbers add the unique identity. There are other methods such as using randomized identification patterns on the product along with other digital identifiers. Generally this information is on the product in the form of a barcode, or an RFID tag, or other forms of proprietary tags.

[0003] In the current retail market place, the product manufacturer (e.g. a Brand owner) sells its products through retailers who stock products from several Brands. These retailers may also stock and sell competing Brand products. Consumers purchase products from the retailers. Since the Brands do not sell their products directly to the consumers they have no direct connection with their customers. Any Brand Loyalty program rewarding the consumer for frequent and loyal purchase of products has to be carried out through retailers by means of discount coupons or by requiring the consumer to mail a physical proof of purchase (typically the UPC, EAN, or GTIN barcode on the product packaging) along with the cash receipt to the manufacturer in order to get "cash back" rewards or discount coupons towards future purchase of the manufacturer's products. This process is expensive to the Brand (several times the face value of the coupon) and cumbersome to the consumer. Such rewards programs typically do not yield high participation from the consumer. The present invention will allow Brands to connect with customers directly and reward their customers for purchase of their products without mail-in proof of purchase and cashier receipts. An electronic proof of purchase can be derived and can be used for the loyalty programs. This will increase consumer participation and increase Brand sales and recognition. In view of the known practice for providing brand loyalty service,



an easier and cheaper method for tracking product sales and rewarding loyal purchasers is desired.

5 [0004] According to a first aspect of the invention, a product's state either sold or unsold can be determined if it can be uniquely identified and its current physical location can be determined. For example, if the product is in the manufacturer's warehouse or on the retailer's shelf it is unsold, while if the product is in the consumer's home it is safe to say that the product has been sold. Thus by identifying a product and its physical location its state – i.e. whether sold or unsold - can be
10 determined. Based on this state an electronic proof of purchase can be created.

● [0005] The first aspect provides a method to derive an electronic proof of purchase of a product based on a unique identifier along with the physical location of the product. This proof of purchase can be used to reward the purchaser for frequent purchase of
15 the product or brand loyalty.

[0006] A second aspect of the invention provides a method for processing customer loyalty information automatically, whether for products or services. The method comprises a first step of providing an unique identification code to a product, a second
20 step of receiving a geographical location of the product, a third step of comparing the geographical location of the product with a seller's/distributor's/retailer's geographical indications of the product, and a fourth step of recording a transaction of the product if the received geographical location of the product is away more than a predetermined distance from the sellers' geographical indications of the product. The transaction
25 may also be known as sale, purchase by an end consumer, a retailer, a wholesaler, an original equipment manufacturer, etc. For example, if a product has been moved away from retailer's shop for more than 50 feet (about 15 meters), the product will be recorded as transacted or sold. The method may be implemented on a mobile communication device or a computer (e.g. server). For example, the method may be
30 stored on a non-transitory storage medium, which is tangibly embodied thereon instructions associated with a context management routine according to the method.

[0007] The step of receiving the geographical location of the product may comprise a step of capturing the unique identification code at a predetermined place to prove

both the geographical location of the product as well as purchase of the product. For example, the unique identification code is scanned by a camera of a GPS enabled mobile phone at a particular geographical location. The unique identification code or information is received by a Brand owner via a telecom network automatically, such as via an application software on the mobile phone. The unique identification code may be associated with an address of the customer/purchaser's registered previously with the Brand owner, and/or a mobile phone number recorded by the Brand owner. Purchasing information (e.g. price & quantity) may be recorded under the purchaser's name for accumulating loyalty points. Accordingly, the Brand owner may automatically award loyalty points or dispatch electronic coupons to the loyal purchaser/customer. For example, the customer scans a purchased product at his registered address such that the purchasing information will received automatically by the Brand owner for awarding loyalty points, when the address and/or the phone number of the scanning matches the previously registered particulars of the purchaser.

[0008] The step of receiving the geographical location of the product may be replaced or accompanied by getting unique identity of a scanning device for association to purchaser/customer's identity. For example, the customer can transmit his mobile phone number, name or other identity information via a telecom network together with scanned product identity.

[0009] The step of providing the unique identification code to the product comprises a step of affixing a digital code to the product. The digital code may be read electrically by optical means (e.g. barcode scanner), wirelessly (e.g. Radio-frequency identification scanner/reader). The digital code may be replaced by an analogue signal, or a combination of both digital and analogue signal.

[0010] The digital code can comprise a barcode, which includes a linear barcode and a Matrix (2D) barcode. For example, the barcode contains a MaxiCode, EZcode, a PDF471, and UnisCode.

[0011] The method may further comprise a step of compiling the personal identification information of a purchaser of the product.

[0012] The method can further comprise a step of tracking the purchasing history of the purchaser.

5 [0013] The method may alternatively comprise a step of rewarding the purchaser for customer loyalty, such as giving loyalty points or vouchers to the purchaser. The rewarding step can further include a coupon processing method, which rewards loyal customers. For example, once the state of the product is determined to be as sold, the Brand owner can allow the buyer to present (encash) electronic or printed
10 coupons with unique identifiers. The encashment can be in the form of loyalty points or other reimbursement of the face value of the coupon. Once the coupon is presented (encashed), the coupon is marked as used in the loyalty system database. The coupon processing method may include following steps:

- 15 1. Determining the state of a product as purchased or unsold as described above;
2. Identifying the coupon;
 - a. Checking if the coupon is valid for the product in step 1.
 - b. Redeeming coupon;
 - c. Marking coupon as used.

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[0014] The step of receiving the geographical location of the product may comprise a step of entering both the unique identification code of the product and the geographical location of the product.

25 [0015] The step of receiving the geographical location of the product can alternatively comprise a step of obtaining the geographical location of the product electronically.

[0016] The method may further comprise a step of tracking a geographical distribution or time pattern of the product or the transaction for analysis.

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[0017] The method may again comprise a step of associating records of sales of the product with records of sales of other products or with other sellers.

[0018] According to a third aspect of the present invention, a device for rewarding purchasers of products comprises a non-transient medium for keeping identification information of a purchaser, a seller or both; a digital processor for comparing the identification information of a purchaser, a seller or both; and a display unit that is connected to both the non-transient medium and the computing processor for showing results of the comparing.

[0019] According to a fourth aspect of the present invention, a mobile communication device (e.g. mobile phone) comprises an electronic reader for acquiring an unique identification code of a product, a geographical signal receiver for obtaining an electronic signal on location of the mobile communication device, an integrated circuit connected to both the electronic reader and the geographical signal receiver for signal processing, and an antenna connected to the integrated circuit for communicating with a remote server in order to provide information of the unique identification code and the electronic signal that marks or identifies the location of the mobile communication device.

[0020] The accompanying figures (Figs.) illustrate embodiments and serve to explain principles of the disclosed embodiments. It is to be understood, however, that these figures are presented for purposes of illustration only, and not for defining limits of relevant inventions.

[0021] Fig. 1 illustrates a system used to identify an object and its location.

Fig. 2 illustrates shows an alternate system where an RFID reader is used to identify an object.

Fig. 3 shows the typical data encoded in the 2D barcode.

Fig. 4 shows the process of capturing the unique identifier and location in the mobile communication device.

Fig. 5 shows the process of generating an electronic proof of purchase in the server.

[0022] Exemplary, non-limiting embodiments of the present application will now be described with references to the above-mentioned figures.

[0023] Products can be uniquely identified by various methods as mentioned above. These methods are generally by way of machine-readable serialized product codes in the form of 1D or 2D barcodes or RFID tags. In some cases, random properties of the object, its packaging, or tags attached to the object can be used to uniquely identify it.

- 5 Electronic readers can read these identifiers. These readers can communicate this information either directly or through the use of a mobile communication device like a mobile phone or personal digital assistant to a remote server. In cases where barcodes are used to identify products, they could be read using cameras built into mobile communicating devices. Furthermore, smart mobile phones like iPhones or
- 10 Android phones allow their location to be detected via built in Global Positioning System radio module or via triangulation using the cell phone towers that the phone communicates with. Readers that communicate directly with the remote server need to be equipped with GPS receiver modules or shall have the capability to determine their physical location. The location is typically identified by its longitude and latitude.
- 15 These locating methods allow determination of the position of the mobile communication device or reader to within 50 feet. Thus, knowing the position of the mobile phone/reader, the position of the scanned object whose unique identifier has been read can also be known. If the object's location is outside the premises of the retailer it can be assumed with a very high degree of likelihood that the product has
- 20 been sold.

- [0024] In the typical shopping process consumers purchase a variety of products from various retailers and return home with their purchases. Each of the purchased items can then be scanned using the methods described above and the location of the
- 25 mobile communication device or reader can be sent to or determined by a remote server. The server can then identify the consumer based on the phone number of the mobile phone or the unique identity of the reader for example. The server then compares the location of the mobile communicating device with that of the registered home location of the consumer in the server database. The home location will be
- 30 identified taking into account a defined buffer zone. If the two locations match then the product can be identified as purchased. An alternate method would be for the server to search the locations of all retailers in the vicinity of the current location of the phone and determine that the location of the item is outside the premises of the retailers, this location also appropriately buffered as above. The server will then generate an

electronic proof of purchase, mark the product in its database as sold and then reward the consumer based on the Brand's loyalty program. Repeated scans of the same product, or if the product is determined as previously sold no points or rewards will be awarded and the server will indicate the same to the consumer.

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[0025] This system could potentially have numerous embodiments. One preferred embodiment of this system is to generate an electronic proof of purchase as shown Fig. 1. The system consists of an instance of a mobile communicating device namely a mobile phone 3 with a camera 4 and a GPS receiver module communicating to remote server 8 via a cellular network 6. The mobile phone camera 4 is used to capture the barcode image 2 on the saleable object 1. The unique identity is digitally encoded in a 2D barcode 2. An application running on the mobile phone 3 de-codes this information contained in the barcode image. The application then finds the mobile phone's current physical location via its built in GPS module through appropriate application interface. The unique identity and location information is sent to the remote server. Typical contents of the 2D barcode are as shown in fig 3. At a minimum it shall contain a product identification code 20, which could be one of many types of codes based on international standards like UPC, EAN or GTIN codes which are used to identify the manufacturer and the product type. Serial number 21 is a unique number given to this instance of product. Together the product code 20 and serial number 21 form the product's unique identity.

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[0026] The general process of identification, locating a saleable object and communicating this to the server is shown in Fig. 4. The process starts with capturing the identifier on the object in step 26. This information is checked for any errors in 27. If any errors occur this is indicated to the user in step 28. If no errors are found in step 26 the location of the mobile communication device is acquired in step 29. The location and unique identity is communicated to the remote server in step 30. The mobile communication device then waits for a response from the server in step 31. The received information is displayed to the user in step 32.

[0027] Fig. 5 shows the process of generating the electronic proof of purchase at the remote server. In step 35 the unique product identifier and the mobile communication device location are received. The server checks its database to see if the object was

marked as previously sold. If so, it will return this result to the mobile communication device in step 37. If not, the server in step 38 verifies if the mobile communication device (and hence the object) location is the same as that of the consumer's registered address. If the result is false, the server communicates this to the mobile communication device in step 39. If the result is positive, the server in step 40 generates an electronic proof of purchase, marks the object as sold, and saves both in its database. In step 41 the server rewards the consumer as per the loyalty program process and sends the result to the mobile communication device.

10 [0028] For example, Fig. 2 shows an alternate system where the saleable object 9 has its unique identifier stored in a RFID tag 10. Here the RFID tag 10 is read by a hand held RFID reader 11, which communicates this information to the mobile communication device 14 via a cable 12. Alternatively, the RFID reader could also communicate via personal area wireless network like a Blue Tooth connection 13.

15 The mobile communication device 14 communicates to the remote server 16 via the cellular wireless network 15. Proprietary readers and tags could replace 10 and 11 in Fig. 2.

[0029] In the application, unless specified otherwise, the terms "comprising", "comprise", and grammatical variants thereof, intended to represent "open" or "inclusive" language such that they include recited elements but also permit inclusion of additional, non-explicitly recited elements.

[0030] As used herein, the term "about", in the context of concentrations of components of the formulations, typically means $\pm 5\%$ of the stated value, more typically $\pm 4\%$ of the stated value, more typically $\pm 3\%$ of the stated value, more typically, $\pm 2\%$ of the stated value, even more typically $\pm 1\%$ of the stated value, and even more typically $\pm 0.5\%$ of the stated value.

30 [0031] Throughout this disclosure, certain embodiments may be disclosed in a range format. The description in range format is merely for convenience and brevity and should not be construed as an inflexible limitation on the scope of the disclosed ranges. Accordingly, the description of a range should be considered to have specifically disclosed all the possible sub-ranges as well as individual numerical

values within that range. For example, description of a range such as from 1 to 6 should be considered to have specifically disclosed sub-ranges such as from 1 to 3, from 1 to 4, from 1 to 5, from 2 to 4, from 2 to 6, from 3 to 6 etc., as well as individual numbers within that range, for example, 1, 2, 3, 4, 5, and 6. This applies regardless of the breadth of the range.

[0032] It will be apparent that various other modifications and adaptations of the application will be apparent to the person skilled in the art after reading the foregoing disclosure without departing from the spirit and scope of the application and it is intended that all such modifications and adaptations come within the scope of the appended claims.

Claims

1. Method for processing customer loyalty information, the method comprising:
 - obtaining an unique identification code to a product,
 - receiving a geographical location of the product,
 - comparing the geographical location of the product with sellers' geographical indications of the product, and
 - recording a transaction of the product if the received geographical location of the product is away more than a predetermined distance from the sellers' geographical indications of the product.
2. Method of Claim 1, wherein the receiving of the geographical location of the product comprises capturing the unique identification code at a predetermined place which proves both the geographical location of the product as well purchase of the product.
3. Method of Claim 1 or 2, wherein the obtaining of the unique identification code to the product comprises affixing a digital code to the product.
4. Method of Claim 3, wherein the digital code comprises a matrix barcode.
5. Method of any of the preceding Claims further comprising compiling personal identification information of a purchaser of the product.
6. Method of Claim 5 further comprising tracking purchasing history of the purchaser.
7. Method of Claim 6 further comprising rewarding the purchaser for offering customer loyalty.
8. Method of any of the preceding Claims, wherein

the receiving of the geographical location of the product comprises entering both the unique identification code of the product and the geographical location of the product.

- 5 9. Method of any of the preceding Claims, wherein
the receiving of the geographical location of the product comprises obtaining
the geographical location of the product electronically.
- 10 10. Method of any of the preceding Claims further comprising
tracking a geographical distribution or time pattern of the product or the
transaction for analysis.
- 15 11. Method of any of the preceding Claims further comprising
associating records of sales of the product with records of sales of other
products or with other sellers.
- 20 12. Device for rewarding purchasers of products, the device comprising
A non-transient medium for keeping identification information of a purchaser, a
seller or both;
A digital processor for comparing the identification information of a purchaser,
a seller or both; and
A display unit that is connected to both the non-transient medium and the
computing processor for showing results of the comparing.
- 25 13. Mobile communication device comprising:
 - an electronic reader for acquiring an unique identification code of a product,
 - a geographical signal receiver for obtaining an electronic signal on location
of the mobile communication device,
 - an integrated circuit connected to both the electronic reader and the
geographical signal receiver for signal processing, and
 - an antenna connected to the integrated circuit for communicating with a
remote server in order to provide information of the unique identification
code and the electronic signal on location of the mobile communication
device.
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14. Method of processing a coupon processing including:

- Determining the state of a product as purchased or unsold;
- Identifying the coupon;
- Checking if the coupon is valid for the product;

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- Redeeming coupon; and
- Marking coupon as used.