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- (54) Title: A METHOD AND A SYSTEM FOR CASHLESS TRANSACTION AND INVENTORY MANAGEMENT ON VENDING MACHINES.

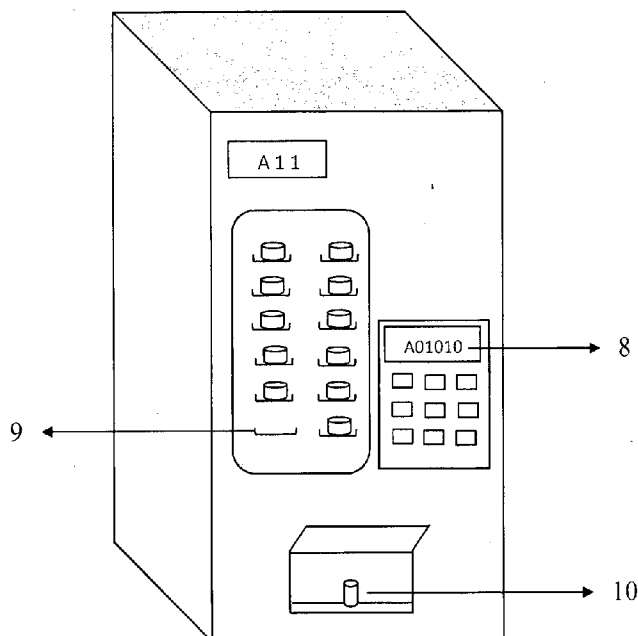


Figure 3

- (57) Abstract: The invention relates to a method and a system for management of cashless purchase or transaction using a vending machine and software installed on a mobile device such as a smart phone. The present invention maintains security of payment by keeping confidentiality of payment and ensures that the code sent to the user/purchaser is used only once. The invention provides easy mode of purchase and transaction over a network managing both the user and the vending machine over a network and facilitates cashless transaction and eliminate cumbersome transactions by managing inventory.



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DESCRIPTION**Title of the invention**

A method and a system for cashless transaction and inventory management on vending machines.

Technical Field

The present invention relates to the management of purchase and transactions over a network through automated vending machines, and more particularly to wireless management of remote vending machines without internet connection.

Background Art

State-of-the-art explains purchase and selling of the products as a self-service model wherein one has to pay at the vendor and take the item of interest on his own or in some cases where payment is done using credit card and/or debit card wherein you swipe a debit or a credit card at the vending machine and collect product on payment. One finds it galling to carry all the cards along with you every time you go shopping.

In some cases, the user device is connected to the vending machine through internet; moreover, several vending machines are linked to the central server through internet for updating and/or managing the inventory. Thus offline inventory management is not possible in this case and both user device and the machine require internet connectivity. WO2014037923 explains the user and the machine both should be connected with internet.

Thus what is needed is a solution to this wherein several vending machines can be connected to the centralized server without internet and the inventory management to be carried out offline.

To overcome this problem, the present invention addresses the issue of the internet connection required for an automatic vending machine, and discloses a solution for the same. The invention disclosed herein eliminates the drawbacks of the state of art technology, wherein no internet is required at the vending machine end and the products in the inventory are identified with a simple identification code which is generated to the user by the server on making the payment at user end.

The main object of the invention is to provide an easy mode of purchase and transactions over a network managing both the user and the vending machine over a network.

Further object of the present invention is to maintain security of payment.

This security is maintained not only by keeping confidentiality of payment but also code sent to the user/purchaser can be used only once.

Said invention discloses a method of purchasing a product from a specific dispensing machine wherein the server on request of purchase and payment from the user will generate a unique code that serves as a token for dispensing the product at the vending machines end.

Summary of Invention

The present invention describes a cashless purchase or transaction system comprising a software wherein once loaded in the system of the user manages the transaction between the user and the vending machine; a user device with the installed application; a vending machine with installed software through which product is dispensed a means for generating a unique verification code on payment; a server or inventory management unit that links user device and vending machine.

Brief Description of Drawings

The invention will now be described in connection with the associated drawings but not limited

to:

A method for performing the operations disclosed herein, wherein said system may be specially constructed for the desired purpose or it may comprise a general-purpose device selectively activated or can be reconfigured as per the requirement.

Further the invention may be implemented in one or a combination of hardware, firmware, and software.

Furthermore, the invention may also be implemented as instructions stored on a machine-readable medium, which may be read and executed by a computing platform to perform the operations described herein.

Further machine-readable medium may include any mechanism for storing or transmitting information in a form readable by a machine like e.g. digital sign or RAM etc. if any

To understand the system, drawings are described in detail here, wherein like reference numerals and characters represent like or corresponding parts and steps throughout each of the several views.

FIG. 1 Illustrates the system with all the instructions to the user or the purchaser.

FIG. 2 Illustrates a sketch of a vending machine with a machine identification number 3 for user to identify machine in the system and select product for purchase from the inventory list 4, an alphanumeric keypad 5 to insert code and displayed on screen 7, lastly, a product dispensing area 6 wherein said product is dispensed.

FIG. 3 Illustrates the demonstration of said purchase wherein user selects product 9 from the inventory list and enters the alphanumeric code 8 to collect the dispensed product 10 at dispensing area.

Best Mode for carrying out the Invention

Earlier payments were done by direct payment at the shop or at the vending machine, which was replaced by paid coupon or coins that when inserted in the machine, the desired item for which it was paid this system pops out of the machine. Ex. As in case of cold drink vending machine. The system was then upgraded to cashless payment system wherein the purchaser and the vending machine both are connected through internet. On purchase of the product online and making payment for the same online, the vending machine generates a code to complete transaction and initiate delivery offline to the purchaser. This formed a traditional way of buying or selling products online for which both the user and purchaser and the vending machine had to be connected to internet. To avoid this two-way internet connection problem, the present invention provides cashless transaction for a purchase.

The present invention is a software application to facilitate cashless transaction and eliminate cumbersome transactions also supporting the machine owner and the manufacturer.

Also the present invention is to maintain security of payment by keeping confidentiality of payment and ensuring that the code sent to the user/purchaser is used only once.

A method for performing the operations disclosed herein can be constructed for the desired purpose or may comprise a general-purpose device selectively activated or can be reconfigured as per the requirement. Further the invention may be implemented in one or a combination of hardware, firmware, and software.

The vending machine is loaded with goods and tagged with an appropriate identification code against each item. Hence, one code is used once and cannot be used again until the loaded sequence completes. Upon completion of codes in sequence, the same codes will begin again and repeated in the same sequence. On processing an order by the user and making payment of the same against desired item purchased, the user gets said unique code for the purchase. The code thus available to the user is inserted into the typed code display using alphanumeric keypad for inserting code the machine will identify the code, if correct, product will be made

available at dispensing area to collect at the vending machine.

The code generation and code structure is unique wherein nearest vending machine to said user is identified and shared with the user. The code generates considering the location of the machine and nearby user or vice a versa. Ex. city, the area in the city and number of the machine around are considered. When the user/purchaser matches with the nearby vending machine, the code is generated according to the inventory saved in the vending machine and is given to the user on making payment for said order made by the user. This also shows for which item which machine is selected as the number of the machine is given for particular item. After payment, when code is forwarded to the user and the user on displaying or entering the said code at the vending machine will receive the items or order purchased at a dispensing area.

The code generation is well shown in the logic of the payment system. The present invention can be described by way of example only. It is to be recognized that modifications falling within the scope and spirit of the description or claims, which would be obvious to a person skilled in the art based upon the disclosure herein, are also considered to be included within the scope of this disclosure.

Examples:

User and/or purchaser approaches vending machine marked with machine number A01. User who is also mentioned as purchaser in the specification has said application installed on the user device or a smart phone.

Said software application on the user device identifies nearby vending machine, say, A01 to the user. Based on user chosen machine A01, the software application accesses the database of available codes for Machine A01 from back-end software application on the central server, and displays it on the software application on the device of the user. The codes generated are pre-loaded (hard coded) into the software of each vending machine. The codes have pre-decided characters and digits in between A, 0, and 1 and generates code A X 0 P 1 5. Code is based on

location and the location i.e. Machine A01 is in the 1st, 3rd and 5th character of the code generated.

On approaching the vending machine, said user compares the located vending machine number suggested by said software application to that with the number displayed on the vending machine.

Code Example for Machine A01: A X 0 P 1 5

Front end of Software Application:

Once the user has identified the machine, he would choose the product on said software application and make the purchase through his digital wallet, debit/credit card, net banking or any means of digital payment or online transactions but not just limited to those mentioned. Once payment has been successfully carried out, the server generates a unique code based on user identified location of machine.

On entering the code A X 0 P 1 5 by the user in the machine, product will be dispensed from the machine.

Back-end of the Software Application:

Said software application at the central server identifies the machine based on 1st, 3rd and 5th character of the code generated (A01= machine number).

Once purchase is made, software application, at the server, will automatically record the sale of one product from inventory levels of Machine A01. Said software application on the centralized server maintains the inventory and records every purchase made against it. Also said server updates the availability of the products to the user, on his device through said software application installed on said device.

Thus the link is created securely between the user, vending machine as well as centralized inventory management and/or server without the necessity of an internet connection at the vending machine.

I Claim:

1. A cashless purchase or transaction system comprising;

a software wherein once loaded in the system of the user manages the transaction between the user and the vending machine,

a user device with the installed application,

a vending machine with installed software through which product is dispensed a means for generating a unique verification code on payment.

a server or inventory management unit that links user device and vending machine.
2. A cashless purchase or transaction system as claimed in claim 1, wherein security of said payment is maintained by keeping payment confidential and also ensuring said code sent to the user/purchaser is used only once.
3. A cashless purchase or transaction system as claimed in claim 1, wherein said means for generating a unique code on completion of the payment is made on the server.
4. A cashless purchase or transaction system as claimed in claim 1, wherein said server or said inventory management unit maintains inventory at the vending machine on every purchase on the products at the inventory and updates the availability of products at the user end.
5. A cashless purchase or transaction system as claimed in claim 3, wherein said unique code is used to identify product in the inventory maintained at the vending machine.
6. A cashless purchase or transaction system as claimed in claim 3, wherein said unique code is generated only on payment of the order and serves as a receipt of payment.

7. A cashless purchase or transaction system claimed in claim 4, wherein said products in the inventory are recorded with an identification code and or number for each item and the purchase of every product is maintained at the server until the inventory is empty subsequently said numbering is refreshed on uploading new stock in the inventory.
8. A cashless purchase or transaction system as claimed in claim 6, wherein said receipt can be used at the software installed vending machine to collect the product.

1/3

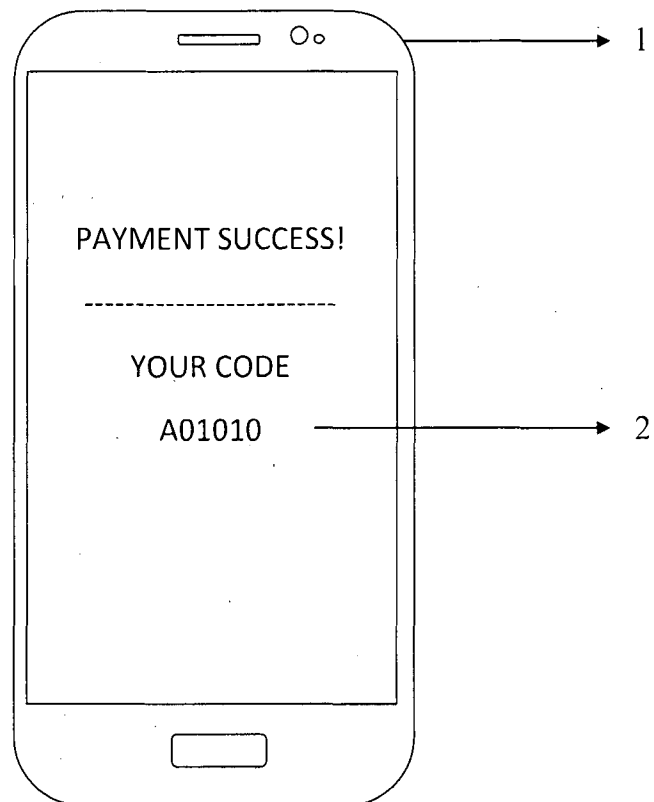


Figure 1

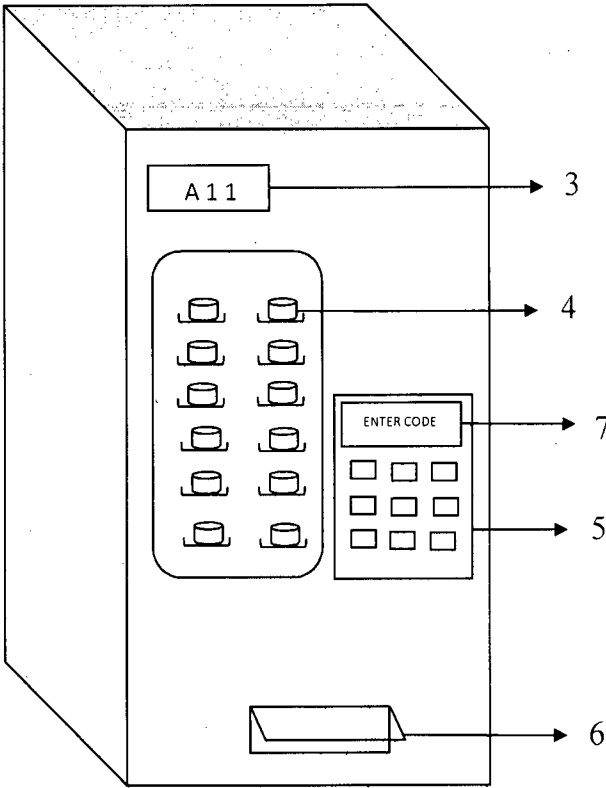


Figure 2

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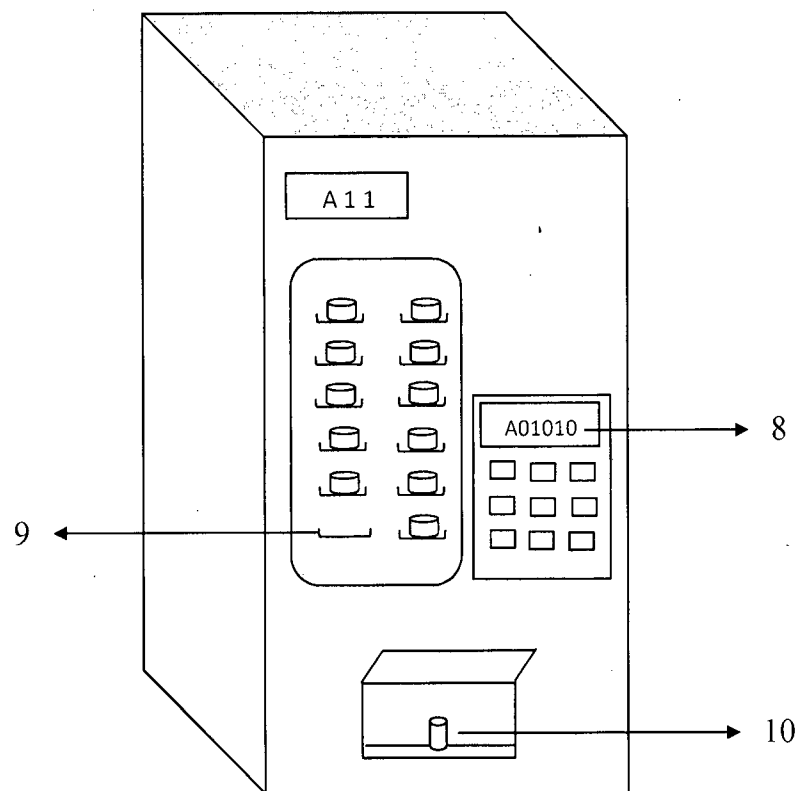


Figure 3