

An Innovative Approach for Quick Shopping Using QR-Code for Indian Precinct

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Abstract

In the present scenario life style became too fast and in this rushing life style shopping become hectic for everyone. In the era of technical achievement, there are multiple advanced ways available for shopping. In which window shopping, virtual shopping is few common names. Present paper elaborated about the advancement in virtual shopping via QR code over smart phone. we are creating a shopping system which is simple, fast, easily approachable and mutually supported by both customers and merchants. In view of the smartphone have become a highly used handheld device, a simple android /IOS application was given to design shopping system run on smart phones, with the help of QR code generation and recognition technology.

Keywords

Quick Response code,
Shopping Mall,
Smart Trolley

1. Introduction

Over the last few years, technology has introduced many products which can be used to reach the consumers. One such innovation is QR codes – short for Quick Response codes – originally created by a Toyota subsidiary in 1994 to track auto parts [7]. The QR codes are similar to bar codes used currently by retailers to track inventory and price products at the point of sale. The main difference is the amount of data that they can hold [3].

QR-codes can also be used in shopping malls. If we see a hypothetical system where every item will have a specific QR-code so, the customers have to scan the QR-code of the products they want to purchase and as the customer submits the final order, the smart trolley in go down will collect the ordered products from each stall in go down. As soon as the procedure gets complete, the customer will collect the bill as well as products from the cash counter. Everybody gets amped up for new innovation and much more energized when it can spare them cash QR codes in retail enables customers to have an all the more fulfilling purchasing knowledge by giving them a chance to investigate the items using QR codes[2]. The QR codes

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are intended to furnish the shopper with more data on the item before they make their buy, and in addition enable them to make the buy ideal from their telephone.

A portion of the ways retailers utilize QR codes are to incite new items, offer coupons, look at costs in different stores, and permit coordinate web based shopping. A showcasing device as well as upgrades client benefit as well! Some QR codes scanners are connected to the store stock and can really reveal to us the amount, size and shading presently in load of the item checked. Each time we examine an item it is put away in your telephones inner memory and in you QR application history [4]. This permits the QR code application to prescribe certain stores and items identifying with our checked history. We have all had those circumstances when we feel uncertain about the nature of an item before making the buy. QR Codes in retail enable clients to interface with each other on the web. Whenever checked, QR Codes raise the item and its client surveys. Perusing positive audits about an item from an outsider will improve the probability that the client will make the buy. If all else fails, examine the code and enjoy the second suppositions.

QR codes are not another mushy uneven promoting strategy utilized by stores. The codes are utilized to profit the two gatherings and make all around item and administration fulfilment.

2. Drawbacks of Existing System

There are many drawbacks of conventional bar code system used in Indian shopping malls. System software failure may cost more delays and a light beam might be refracted by water particles suspended in the atmosphere, resulting in focus distortion. In laser scanning, durability and cost are the two disadvantages and a barcode becomes scratched or crumpled the reader may not be able to read it[4]. If the scan rate of a reader is exceeded by the speed of movement of the bar codes, a loss of reading accuracy, together with failure to read a bar code. A bar code reader cannot read a bar code if there is any obstacle between the reader and the bar code.

2.1. Problems Faced by Old System

Shopping malls are a hectic and tedious place where in today's world time is very precious[4]. Following are the problems customers are facing:

In shopping malls, customers firstly have to look for their required products, secondly they have to manage a cart (trolley) with them in case they have too many products to buy so large shopping area is required to accommodate more number of customers with trolleys.

- a) Customers have to stand in long queues for a longer period of time, which is very time consuming.
- b) There are chances that after the customers select the product and if their mind change then they put the product in the stall of some other products, so rearrangement of products in their proper places become time consuming and cumbersome for the staff members of the shopping mall.
- c) Chances of damage of products are high.

2.2. Literature Review

Expanding exercises of individuals over Internet has filled in as another business medium, another method for moving toward business. It is giving favourable position to web based business and spread of online offers of item and foodstuffs, which leaded the ascent to the idea of virtual shopping. Virtual shopping can be characterized as a client is surfing on web he takes a gander at a commercial of a specific brand or item at any site and he tapped on that connected to pick up learning in regards to that item either to buy or to have general data of that specific thing without physically touching the item independent from anyone else is named as virtual shopping. It can be expressed as utilizing web variant for shopping which was beforehand done through inventories; a man arranges the things through moving over the items he sees on the screen and the one which he discovers ideal for he arrange it as opposed to going to shop (Barnatt, 1998)[2].

It resembles exchanging of item deals through electronic means, a move from shopping physically through store configuration and seeing inventories in printed versions however transforming it with

electronic arrangement and electronic inventory to a shape which constitute by means of World Wide Web and web utilizing (Parsons, 2002)[7].

3. Proposed System

Quick response code applications it empowers the client to record the putting away address and the organization's URL of the thing which the client may discover intriguing to him while he is strolling and seen at any publicizing stance or either looking through the magazine and with the utilization of cell phones it catches the picture of that code and through the assistance of QR code application show in the telephone empowers the client to find the URL, organization data and the item portrayal he is being taking a gander at. At that point associating with web and opening the coveted website page, choosing the thing and continuing towards the instalment zone to make the instalment (Jones, Comfort, Clarke-Hill, and Hillier, 2010).

Customer after entry to the shopping mall:

- a) Open the App.
- b) Login to the App.
- c) After login scan QR code kept on the entry door (unique QR code will be assigned to the customer)



Fig. 1(a): Scanning QR Code at the time of entry

- d) After the QR code is assigned, customer can purchase the product, even customer can select products from the previous ordered list or bill.
- e) After the final order of products, customer will click on bill generation and go to bill counter.
- f) Each trolley will have unique id and as the customer is clicking on bill generation, the unique trolley id will be connected with the customer's QR code id.



Fig. 1(b) Reading QR code at the entry of Shopping Mall.



Fig. 2(a): Scanning QR Code on products

- g) Then the trolley will be moved to each stall in the go down and the shop/stall keeper will put the customer's ordered products in the trolley and goes to the next stall and same process will continue till the order is completed.

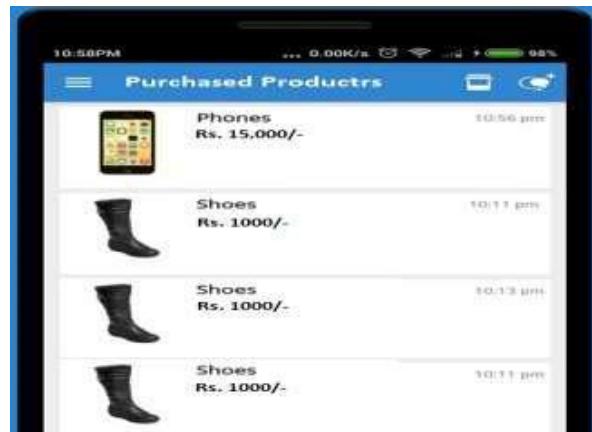


Fig. 3: Purchased products

- h) Then the trolley will be moved to the billing counter by the embedded system and the customer will take the products and pay the bill.

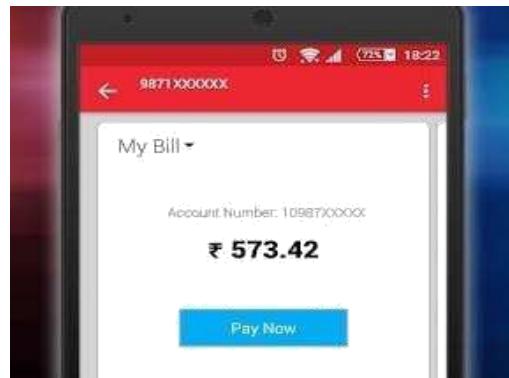


Fig. 4: Pay bill

4. Process of Shopping Using QR-Code

- i) QR-codes can also be used in shopping malls. Here we are proposing a system (mobile application) where sample product will have a specific QR-code so, the customers have to scan the QR-code of the products they want to purchase. As soon as they complete their shopping, instead of standing in long queues with their products, they just have to collect their bill as well as their products from the cash counter.
 - j) Customer has to install app before entry and as the customer will come for shopping will open the software(mobile application) and then a unique id will be assigned to each customer. After the unique id is assigned customer can start scanning the QR code for the product he/she wants to purchase. Sample Products are displayed with QR code and customer needs to scan product QR code using app and has to enter quantity. As the customer will finish with the order a unique smart trolley (unique smart trolley number will be given to the customer) will be assigned to each customer in the godown.
 - k) In godown, stalls will be there with shopkeeper and person/software to put products in trolley when arrives. When customer tap on check-out in app, the trolley will go to each stall one by one, and stall keeper will put products in trolley as displayed in Fig. 5. Stall will have related items. Trolley will have QR code and when it arrives to stall, the software in store will have the order given by customers. So, only those ordered products will be kept in smart trolley.
 - l) The billing amount will be reflected immediately including discount and offers. Until he/she reaches Billing Counter he/she will not have trolley. When he/she reaches at billing counter and do check-out, the trolley will come with all the purchased products from go down and immediately he/she can pay bill.

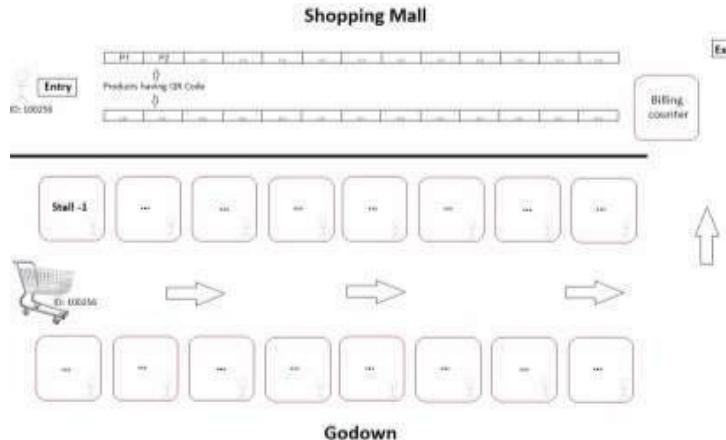


Fig. 5: Processing of Product in Shopping Mall

5. Advantages

- a) As all the trolleys are kept in the go down more number of customers can be accommodated for shopping.
 - b) The numbers of trolleys required are less as compared to the existing system.
 - c) A straightforward sweep catches the coveted data.
 - d) The Decoded information can be put away in the server and can be seen by the clients.
 - e) High precision in picture catching.
 - f) Client can without much of a stretch identify the qr code picture, by means of his Android versatile itself.

- g) As the stalls with original products are kept in go down, the shopping area will become large or spacious, so, shopping area will not be crowded.
- h) Remunerating clients with coupons and unique offers each time they check one of their QR codes, makes a feeling of dependability amongst them and their image. Feeling happy with their administration and their buy will make them more prone to purchase from us later on and prescribe their image to individuals they know.

6. Conclusion and Future Enhancements

This approach for quick shopping or virtual shopping is well suited for today's hectic and busy schedule of ours. It is adaptive in terms of time and accessibility during easily used by individual's mobile phone. Each and every customer will have their individual account so no any hurdle during payment and making purchased item bills[5]. There is a huge advantage of this approach that it is effective in terms of time and required less amount of manpower to manage different counters of shopping mall.

- Customers bank details can be maintained. So, customer don't have to wait long in bill payment. it is easily implemented by attached a bank payment gateway API with this app, where individual customer can choose any type of payment option either by their debit or credit card of any Bank and by using Net Banking.
- We may include some rewards or offers voucher during their items selection[3].
- We may include some additional discount offers over special days or festivals and notify the sign up users and customer's.

QR Codes are already very popular in Asia[7], and, as mobile becomes the dominate platform for accessing the internet, Ultimately, I'd happy to see paper Fact Tags replaced by digital Fact Tags such as those offered by MicroSigns. Retailers could even offer built in NFC transmitters to interact with shoppers' mobile devices (For example, imagine Digital Fact Tags that could instantly change colors to highlight the products that best matched a search you performed on your phone). If it does happen it might take some time for retailers, QR Codes are going to be the best and most popular option for the next several years.



Fig. 6: Future of QR Code Technology

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