

QR Based Virtual Shopping System

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Abstract: *In day to day life everyone uses smartphone and people don't have time to go to shop for shopping they always prefer online website that is very easy to use and its more convenient for all the user and it also save lots of time. As we already know lots of things about online shopping we use them to save our money as it have lots of features like huge discount buy this two items you will get this much amount as a cashback etc. Based on current need and increasing use of network we are developing QR based online shopping website that help people to purchase any product as per their need.*

Keywords: Shopping System

I. INTRODUCTION

As per need of current technology we develop web application that is more user friendly and it is based on QR code. The user can scan QR code to purchase any product.

Basically this idea is very useful for all the small scale businesses we can call them as a retailer, through our web application they can create account and they can sell their product.

QR based system help us to manage all information related to product and through this UI interface user also easily interact with the system directly and it save lots of time and effort of the user.

User will get all information at a single click through QR scan printed on digital banner or on screen design of that particular banner.

In virtual store the product are displayed on large screen on that screen everyone will be easily scan any QR code and directly they can purchase any item.

One more important parameter is that we can easily manage all product at a time any update is required we can complete that part easily.

II. PROPOSED APPROACH

There are total three module we can define as three layers

- Presentation
- Business Logic
- Database

As we know this all layer is depend on each other based on some parameter and condition that is evaluated as per requirement. As we are implementing QR based Online Shopping web application we need some data of Customer and the retailer those who wish to sell their product in this web portal. After gather all the data from customer account and retailer account we need to verify that data so we provided Admin panel who manage the customer and retailer account and it also validate all the information. Once validation is completed retailer upload their product information through retailer login and also they will upload product images after uploading all the information next process is to create QR code for the product.

QR code contain all information related to product and it will store data in database.

Customer can sign in to our application and scan the QR of the product to buy all selected items are added to cart and bill will be generated finally customer will get all product delivery to their home address. Customer also able to fetch their order status.

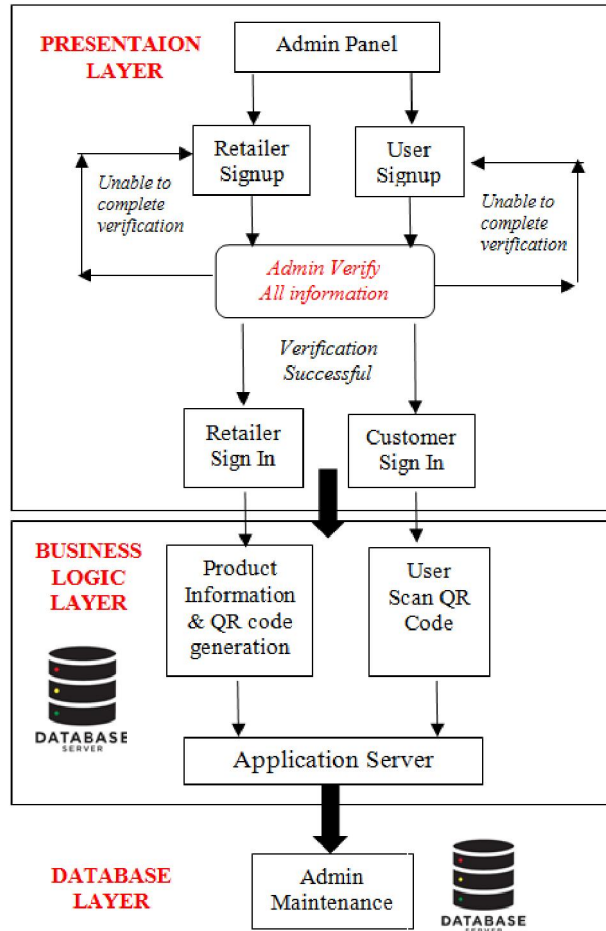


Figure 1- System Design

Flow of QR Code Generation

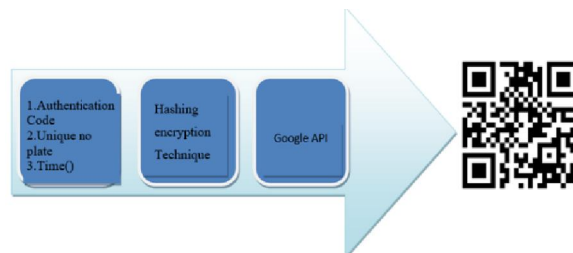


Figure 2- QR Code Generation

The user's unique ID is created using the user's number plate and is protected using methods like MD5(), SHA512(), and SHA256(). QR code created by passing the output as input to the Google API.

2.1. MD5()

md5() function determines a string's MD5 hash value. Data Security is provided via the md5() function. Message-Digest Algorithm MD5: This algorithm accepts messages of any length input and produce a 128-bit "message digest" "fingerprint" of the input. The MD5 technique is created to do this when a huge file needs to be "compressed" before being encrypted with a private (secret) key under a public-key cryptosystem for digital signature applications.

Syntax-

md5(string)

string: Required.

2.2 SHA256()

There are various cryptographic hash functions, one of which is the SHA. A text or data file's signature is similar to a cryptographic hash. The SHA-256 algorithm generates a 256-bit (32-byte), nearly unique hash. It is impossible to reverse-encrypt it. This qualifies it for use in digital signatures, challenge hash authentication, and password validation.

Syntax-

```
sha256($_POST['password']);
```

2.3 TIME()

The current time is returned by the time() method in seconds since January 1st, 1970 at 0:00:00 GMT.

Syntax-

```
time();
```

Return Value: Returns current time as timestamp.

2.4 Random()

The rand() function generates a random integer.

To create a random number between 0 and 100 (inclusive), use the rand function (10,100).

In addition to being 4 times faster than rand(), the mt_rand() function generates superior random values.

Syntax-

```
rand(); or rand(minimax);
```

min: Optional. the lowest number to be returned. Default is 0.

max: Optional.

Return Value: A random min (or 0) and max.

2.5 Google API

A now-deprecated Web application called the interactive Google Chart API creates graphical charts from data provided by users. A user's HTTP request instructs Google servers to build a PNG image of a chart using the data and formatting settings they are given. A wide range of chart information and formatting are supported by the service. By employing a straightforward image element, users can quickly embed these infographics on a Web page.



Figure 3- QR Code Structure

(1) Finder Pattern: The decoder programme can recognise the three identical structures by looking at the upper corners and the bottom left corner. The correct orientation using the QR code. Additionally, these patterns enable fast, 360-degree code reading.

These buildings are made up of a 3 X 3 black square that is encircled on all sides by white modules.

- (2) **Separators:** It is simpler to discern the patterns because to the one-pixel-wide white separators that are placed around the Finder Patterns.
- (3) **Timing pattern:** a set of monochrome modules that help the decoder software determine the width of a single module.
- (4) **Alignment Pattern:** This design helps the QR scanner to take distortion into account when the Code is bent or twisted. The number of alignment patterns used varies depending on whatever version of the encoding is selected, however versions 2 and higher have an alignment pattern.
- (5) **Format Information:** This 15-bit section contains the error correction rate as well as the selected QR code mask design.
- (6) **Data:** The data is stored in the data section in 8-bit chunks after being transformed into Reed Solomon-encoded data bits.
- (7) **Error Correction:** The data code words are used to construct the error correction (EC) code words, which are stored in the error correction region.
- (8) **Remainder Bits:** This section contains empty bits if the data or the error-correction bits cannot be divided into 8-bit code words without a remainder

III. EXPERIMENTAL RESULT

As per the analysis we are developing virtual shopping web application so we need to analysis how many people will be able to access this web application as we are also create app in future so first we need to check the number of smartphone users with below graph along with increasing use of online shopping as compare to traditional shopping.

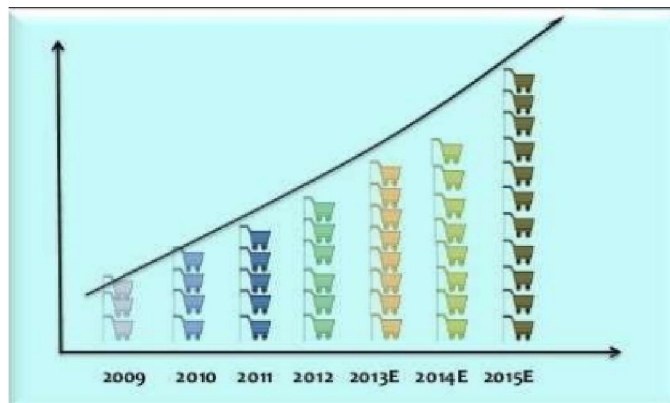


Figure 4 No of users who using Online shopping in India

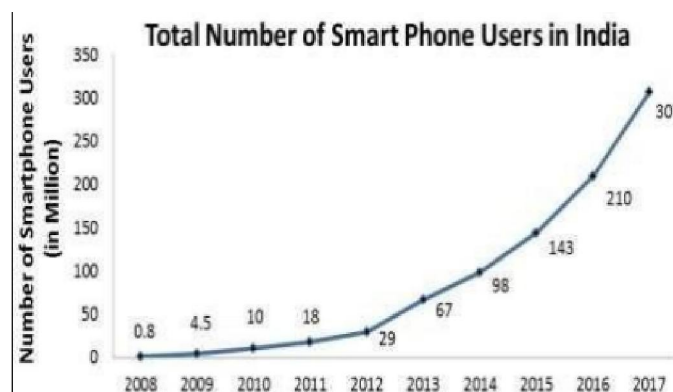


Figure 5 Smartphone users in India

As per above analysis no of users are increased day by day moving towards digitalization solution we are developing QR based shopping system it is quick easier and fast.

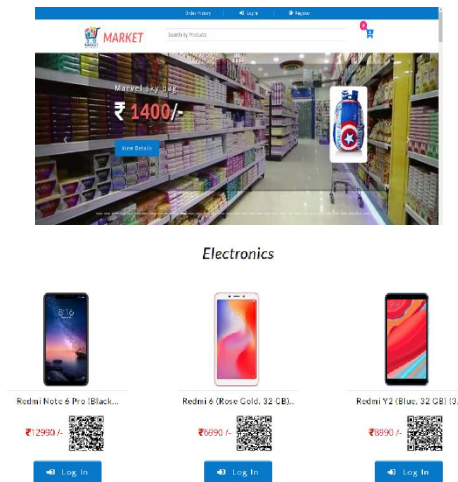


Figure 6 Design of QR based Shopping

IV. CONCLUSION

As increasing number of digital platform all peoples are moving towards online shopping. As offline shopping takes more time to take the product make a bill payment and for that customers are waiting in queue for long time hence we provided the idea that save lots of time as it is QR based fast process and customer not waiting for the bill payment because several payment options we are providing like cash on delivery and online payment etc with the help of this options user can easily purchase any no of products

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