QR Code for Billing System and Location based Service

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Abstract: *The main aim of our project is to develop QR Code Billing System in Super Market for reducing the time taking for billing the products. The customer can be able to bill their Respective product on their own. And the corresponding details for billing are added into admin Side. So there is no need for employee to monitoring the barcode. Instead of barcode we added the QR Scanning Application and store the details into centralized Database. It makes customer to pay easily our products without the necessity of standing in queue. The QR code system in automotive industry became popular due to its fast readability and storage capacity compared to standard UPC barcodes. In recent trends, Customers prefer to do online shopping though more than 50% of the customers are not satisfied in quality, size and worthiness of the products. For touch and feel satisfaction, choice of items customers wanted to go for direct shopping comparatively. Customers feel difficult to buy large number of products as it is hard to carry the items throughout the shopping. Billing process consumes more time and results to loss of patience among customers. This methodology is the easy and smarter way of shopping where the customer can choose the product based on the quality and the size by scanning the bar code or QR code on the price tag of the product the required data are then extracted from patterns that are present in both horizontal and vertical components of the image. In order to use QR codes, a cell phone capable of running decoding software is required. These smart phones can download and install applications, can access the Internet and perform the required scanning process.*

Keywords: QR Scanning, Android

1. Introduction

In recent years, there are major developments in the adoption of 2D Codes to mention: The directive by International Air Transport Association (IATA) for airports used worldwide to adopt 2D bar code for passenger boarding passes and The adoption of QR Code for patient identification by two leading hospitals in Singapore and all hospitals in Hong Kong. The use of 2D bar codes/micro codes for various applications in the other sectors. The use of QR code with mobile phones is popular in Japan and Korea. Examples of such applications includes Large scale QR Codes on buildings to enable users to use mobile phone to scan the QR Code to retrieve information about the companies that are operating inside the buildings.

The smart phone is used to scan the QR Code on the package of fruits or vegetables to retrieve information such as farm name from which the fruits and vegetables are grown and harvested, also the fertilizers and insecticide used. The QR Codes on the food packages when scanned will enable consumers to download cooking recipes. QR Codes is implemented for location based services on maps in the Tokyo subway and central bus stations. Passengers can use their mobile phones to scan the QR Code to find out the arrival time of the next scheduled bus. Mobile phones and QR Code are also used for payment of train tickets and Airlines services. QR Code for TV programme guides customers to view the programme captured using mobile phone.

2. Domain Introduction

QR Code is a two-dimensional symbol. Denso invented in 1994 , one of major Toyota group companies, and got approved as an ISO international standard (ISO/IEC18004) in the year June 2000. The two-dimensional symbol was first intended for use in production control of automotive parts in automobile industries, but now it has become widespread in other fields. QR Codes is used in day today life everywhere in Japan for the following various reasons: Several characteristics superior to linear bar codes are: higher data density, support Kanji/Chinese character, etc. Another exciting news is that it can be used by anybody free of charge as Denso has released the patent into the public domain. Data structure standard is not prerequisite for current usages. Most mobile phones in Japan equipped with cameras that enable reading of QR Codes can access Internet addresses automatically by simply reading a URL encoded in the QR Code
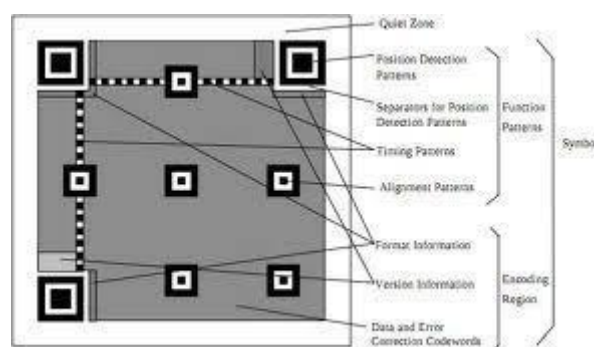

Figure 1: QR code Scanner

This module is to scan the QR code and read the value of the QR code captured in the mobile. QR code is a matrix bar code designed which is scanned in mobile phone. The code contains white background with black modules arranged in a square pattern. The information encoded is a text, a URL, or other data. If the user selects the product, the details will directly forward to the server for the encryption of visual information but this method is complex in computation. SDE-QR method is only used for the encryption of the text message, it is not applicable for the encryption of the IMAP shows how to build encrypted file systems and secure mail servers, but typically one must sacrifice functionality to ensure security.

To overcome the above problem, digital authentication method can be used. This paper is all about applying the digital authentication for the marks sheet. In this method the marks obtained by the students is stored in the Quick response code(QR code).The information stored in the QR code is encrypted by using sharing technique method after encryption QR code is printed on the mark sheet of the student and for the decryption also using the sharing technique method.

3. Existing System

Bar Code used in the existing System. The Readings may get unusable if any one side of the code is Rubbed or Deleted. Queue system get too late for customer to get products. Labour resources are needed and it may cost separately for them. It Consume More Time, if any one product gets barcode erased all the other customers have to wait, until the product has to replace the erased product of the same.

Limitation:
The System Failure may cost more delays and scratched or crumpled barcodes may cause problems. Those Data must be coded in the barcode and cause more time delay. In Laser Scanning, durability and cost are the two disadvantages.

4. Proposed System

In the proposed system, we can scan QR code of the products they wish to buy. This applications allows QR code scanning, because it gets scan faster although if camera quality is not good, also the QR code are more relevant than barcode. User can update or remove items form cart. Its time saving process no needs to stand in long queue. So QR code verifies products by capturing it through the smart phone, then decodes and sends it to the server for authentication. The customer forwards the selected product list to the server after which it enables the consumer to decide based on the products authenticity.

Advantages:
Users can save time by entering into priority queue kept for this application user than into the normal queue. This application is very relevant to use as it allows customer to remove items from his list by one click. It displays the total cost of the shopping done by the customer , which allows customer to choose product according to his needs. People not having internet connection can also make use of this

application as the shopping market environment internet friendly. Smart phone can be used for shopping in malls and markets which makes Proper use of mobile technology.
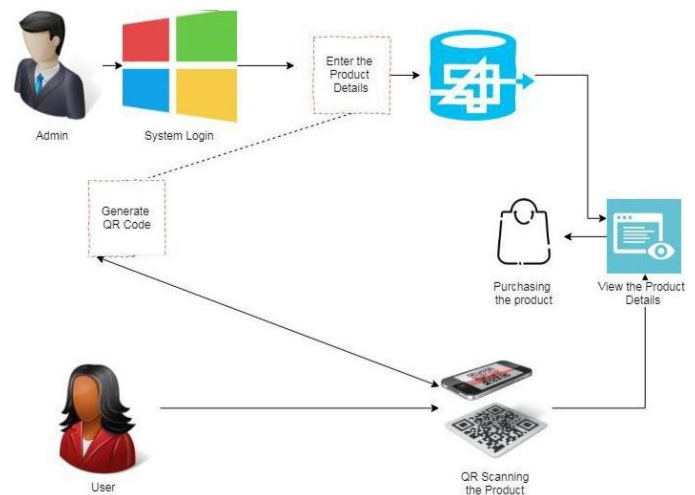
5. Architectural Diagram

Figure 2: Architecture Diagram.

The block diagram of the proposed system is shown in the fig 4. In the proposed system, we can scan QR code of the products they wish to buy. This applications allows QR code scanning, because it gets scan faster although if camera quality is not good, also the QR code are more relevant than barcode. User can update or remove items form cart. Its time saving process no needs to stand in long queue.

So QR code verifies products by capturing it through the smart phone, then decodes and sends it to the server for authentication. The customer forwards the selected product list to the server that enables the consumer to decide based on the products authenticity.

5.1 Module Description

- Generating QR code image
- Mobile Authentication Module
- QR Code Scanner Module
- Web service client module

5.2 Generating QR code image

In this module are creating QR codes for encoding the information about the products. The product contains name, code, quantity and price. Each pattern is encoded and represented each module in QR code with black and white special symbols. QR code can hold information more than other bar codes. The format of QR Code includes unique Finder Pattern (Position Detection Patterns) located at three corners of the symbol and can be used to locate the positioning of the symbol, size and inclination.

Figure 6.2: Generating QR code

5.3 Mobile Authentication Module

This module represents the authentication, which is used for the customer to login their details for the shopping processes. Logged user is redirected to the scanner module.

Authentication is used as the basis or authorization determining whether a privilege will be granted to a particular user or process. The validation process is done on the web server.

Figure 6.3: Mobile Authentications

5.4 QR Code Scanner Modules

- This module is used to scan the QR code and read the value of the QR code inside the mobile. QR code is a matrix bar code designed to be read by Smartphone.
- The code contains of black modules arranged in a square pattern on a white background. The information encoded may be text, a URL, or other data. If the user selects the product, the details will directly forward to the server.
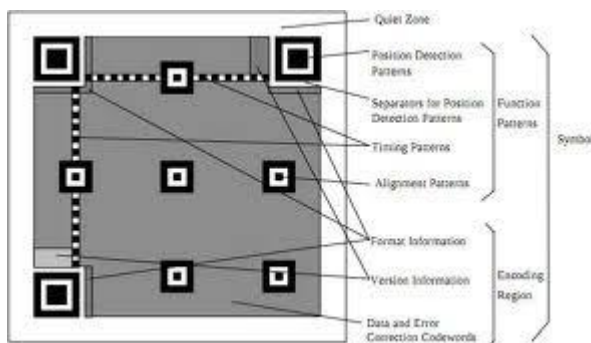

Figure 6.4: QR code Scanner

5.5 Web service client module

This module has the process of storing the selected product's information from the client, which are send through the web service. All these information will be stored in the database. We are maintaining a centralized server in order to receive the selected product list from the customer through internet. In this module the merchant see the ordered items from the client. The Merchant will use this list to do delivery the items to the customers.
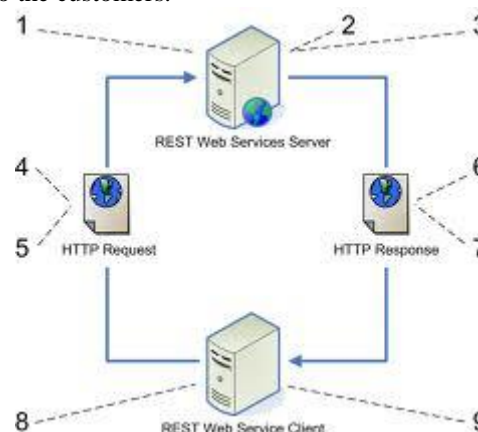

Figure 6.5: Web service clients

In this module are creating QR codes for encoding the information about the products.The product contains name, code, quantity and price. Each pattern is encoded and represented each module inqr code with black and white special symbols. Qrcode can hold information more than other bar codes. The format of QR Code includes unique Finder Pattern (Position Detection Patterns) located at three corners of the symbol and can be used to locate the positioning of the symbol, size and inclination.

6. Conclusion

According to this project proposed a real time capturing system for customer supplies using Quick Response (QR) code in Android smart phone. QR code verifies products by capturing it through the smart phone, then decodes and sends it to the server for authentication. The customer forwards the selected product list to the server and the response received from the server enables the consumer to decide based on the products authenticity. An interesting future study might involve to simulate payment method at different gateway.

7. Future Scope

The main scope of this project is to propose a real time capturing system for consumer supplies using Quick Response (QR) code in a Android smart phone.
- Customer login
- Preparation for shopping
- No of product
- Product lists have been prepared and are available in a suitable format.
- Summarized shopping bill

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