ISSN 2321-743X
International Journal of Research in
Engineering and Bioscience
Volume 6 Issue 3 (Pages 13- 19)
IJREB
Journal home page: www.ijreb.org

ADVANCED BILLING USING QR CODE

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ABSTRACT

The objective of this project is to propose a real time capturing system for consumer supplies using Quick Response (QR) code in an Android smart phone. In recent years, extensive research has been carried out on vision-based automatic identification technology that recognizes image codes using smart phones to provide various services that can recognize the authenticity of any product.Using Multiplexing and Demultiplexing process encode and decode the information from single QR code with special symbols and split the data back to their QR Code pattern where these QR Code pattern can be read by Android smart phones.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.

KEYWORDS: QR code, Authentication, Sensors, Vision based automatic identification.

I. INTRODUCTION

During recent years, there are major developments in the adoption of 2D Codes such as The directive by International Air Transport Association (IATA) for airports worldwide to adopt 2D bar code for passenger boarding passes by 2010. 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 in Japan and Korea. Examples of such applications are: 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 use of mobile phone to scan the QR Code on the packaging of fruits or vegetables to retrieve information about the name of the farm 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 also enable consumers to download information on cooking recipes. QR Codes 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 bus. Mobile phone and QR Code for payment of tickets for Trains and Airlines

services. QR Code for TV programme guides using mobile phone to view the programme captured in QR Code.

II. OBJECTIVES

To design a QR Code Based Billing System for Shops Using Android SmartphoneTo overcome the existing method of online shopping which uses concept like e-payment, etc. In the proposed method the concept of QR code billing system for shop application is created using android. The authentication is done through the scanning of QR-Code through the mobile scanner application. In this method the customer login has to register using the application and the QR-Code will be provided connection is successful. On scanning the QR-Code the shopping will be asked for the password. Once the authentication is done the buy made to proceed with the shopping process. The main purpose of implementing this concept of time sharing So that the customer is not required to visit the shopping center to buy product vote and also to avoid fake bill.

III. LITERATURE REVIEW

QR Code is a Matrix code; the QR codes were developed in Japan in 1994 by Toyota subsidiary, Denso Wave to help track automobile parts throughout production [1]. Bar codes have become widely popular because of their reading speed, accuracy, and superior functionality [2]. The attack method used in the QR code was that when a user scans the code he is directed towards a website and then a malicious file downloads in the user's device without the knowledge of the user [3].Due to rapid growth of technology security problems are getting increased. Fingerprint scanner and our Microsoft scanner have ability to recognize thumbs no matter in which angle has been pressed on scanner [4]. All the systems that are based on biometric mechanisms are client-server architectures which system administrator has privileges to manage the system [3],[4].

A Survey on Technologies Used for Billing System in Supermarkets

RFID (radiofrequency identification) technology offers the ability to provide many new services and conveniences in the retail environment. An innovative product with societal acceptance is the one that aids the comfort, convenience and efficiency in everyday life. There are number of supermarkets in each city having huge amount of people visiting daily basis. Now days purchasing and shopping at big malls is becoming a daily activity in metro cities.

Designing of Android Mobile Based Payment System Using QR Code

This paper explores a solution to create a cashless mobile payment system. The aim is to provide the most cost efficient and secure alternative to current systems. Current systems use SMS and USSD to process payments. These are not cost effective methods of communication. There is also no current method of processing credit payment on a mobile phone without the need for a specialized piece of hardware.

Image Steganography and Data hiding in QR Code

Sometimes there is a need to keep our data safe and as at many places there is private data which needs to be secured. For this reason steganography is a technique which can be applied. Also we can add data in QR code for the ease of access of sending information. Steganography is using the DWT technique and LSB steganography. The data to be steganographed is encrypted using AES algorithm to enhance the security.

Online Banking Authentication System Using QR-code and Mobile OTP

This paper explains implementation details of online banking authentication system. Security is an important issue for online banking application which can be implemented by various internet technologies and gap between real world and virtual world can be filled up. To eliminate threat of phishing and to confirm user identity, QR-code which would be scanned by user mobile device can be used and weakness of traditional password based system can be improved by one time password (OTP) which can be calculated by user transaction information and data unique at user side like imei number of the user mobile device.

IV. SYSTEM ANALYSIS

A. EXISTING SYSTEM:

Bar Code used in the existing System. Bar Code 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. 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.

B. 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 theselected product list to the server that enables the consumer to decide based on the products authenticity.

V. SYSTEM DESIGN

A. Overall Architecture Diagram:

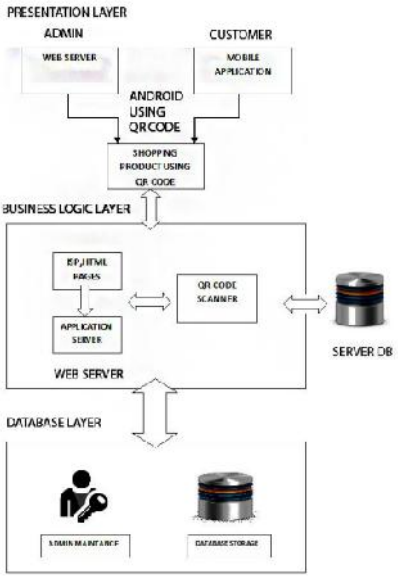

Fig 5.1: QR Code Billing System

B. Data Flow Diagram:

A data flow diagram is a graphical representation of the flow of data through an information system.DFD can also be used for the visualization of data processing.

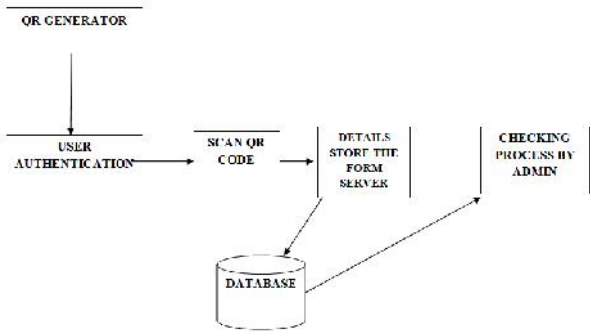

Fig 5.2: Data flow Diagram

C. Use Case Diagram

A use case is a methodology used in system analysis to identify, clarify and organize system requirements.

Actors: client, vendor.

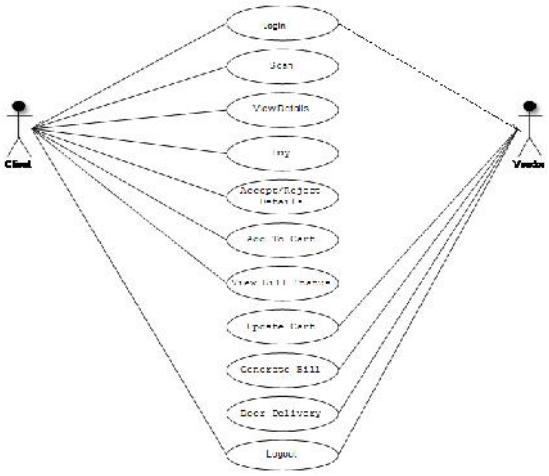

Fig 5.3: Use Case Diagram

D. Sequence Diagram

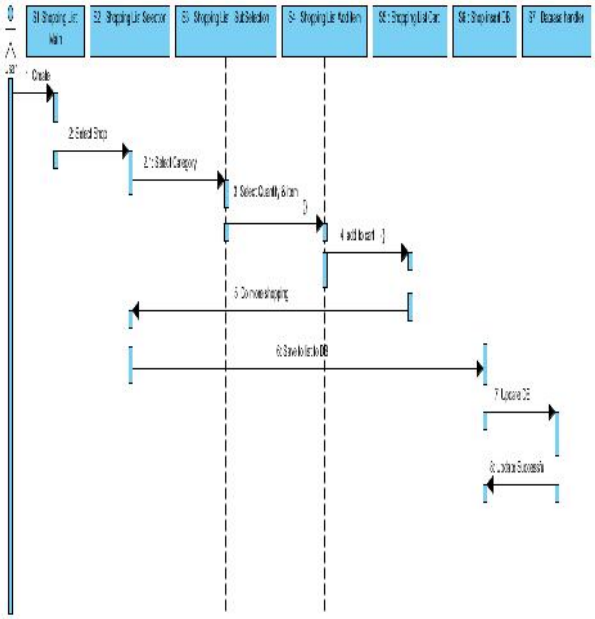

Fig 5.4: Sequence Diagram

E. Activity Diagram

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency.

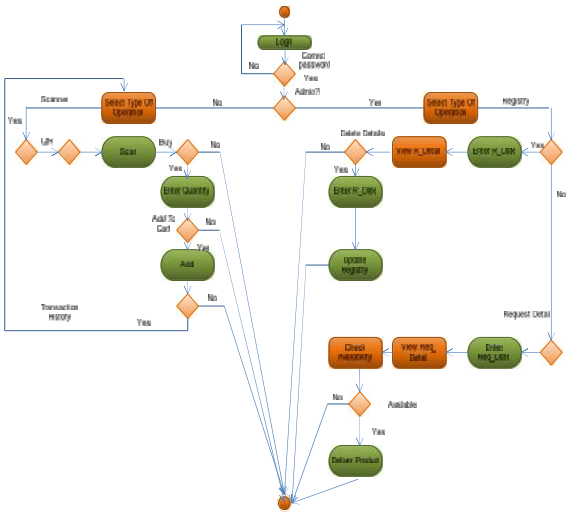

Fig 5.5: Activity Diagram

F. Class Diagram

Class diagram is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes and the relationships between the classes.

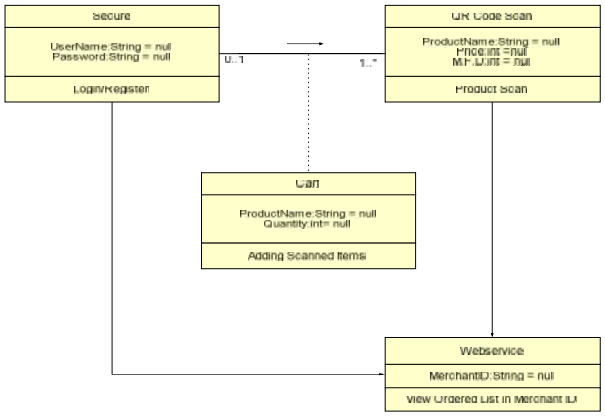

Fig 5.6: Class Diagram

VI. SYSTEM IMPLEMENTATION

This project is divided into four modules they are explained below.

A. 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.

B. 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 webserver.

Fig 6.1: Mobile Authentications

C. QR code Scanner Module

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.

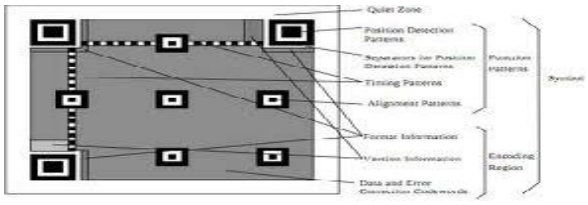

Fig 6.2: QR code Scanner

D. 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.

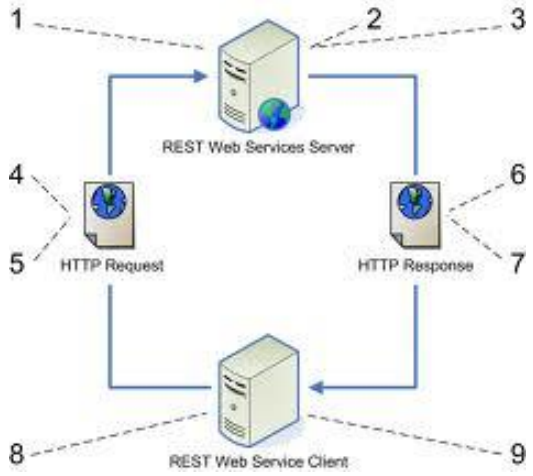

Fig 6.3: Web Service Clients

VII. CONCLUSION & FURTHER ENHANCEMENT

This project proposed with 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 tosimulate payment method at different gateway

The 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.

VIII. REFERENCES

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