

Smart Billing System for Android Using Camera as a Bar Code Scanner

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Abstract: The smart phone usage is dramatically increased throughout the world. Even we can say there is no one is there, not using smart phone in Oman. Smart Billing System (SBS) for hyper market is an Android mobile Application where the customers can download from play store and install in their smart phones. The SBS used in two ways for the customers who visiting the hypermarket, first it will be very useful for those who have problem in eye vision because the items price will be printed very small hence our App will scan the barcode of the product and displays the price in the mobile screen and even if customer use voice option to hear the price of the product. Second usage of the App is, the customer can eliminate the queue by printing the bill by himself where by using the provision provided by hyper market. Hence customer can avoid the long queue. The App developed for Android platform.

Keywords: Android, E-Billing, JSON, Smart Phones.

1. INTRODUCTION

The Android is an open source platform where lot of inventions are happening. The Android application can be developed by using various IDE's, the Android Studio is the perfect place to develop the Android Applications. The SQLite is the inbuilt database comes with the Android studio which is the local to the mobile. The data stored by using SQLite cannot be accessed out the mobile. Hence in this App we used MySQL. The following Architecture diagram gives you the clear picture of working principle of the App.

Architecture Diagram

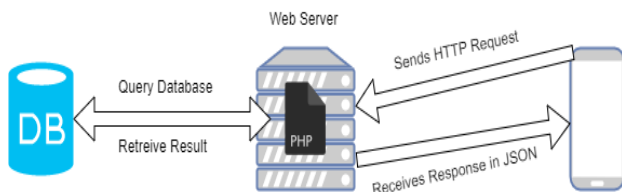


Figure 1: Architecture Diagram of SBS

The MySQL database will be connected with the android phone by using HTTP send request and JSON Response. Webserver receives the request from Android phone and send the same to Database and retrieves the data. The retrieved data will be sent back to the Android phone from webserver using JSON response. PHP used as server side scripting.

2. RELATED WORK

Kiran Dhokale etl. [1], this paper proposed to use SQLite as database for Android applications because the SQLite is the lite weight database which can be handled by small mobile devices. SQLite is the database recommended in this paper. The proposed application in this paper helpful to store the data and retrieve the data easily. The SQLite is not centralized database hence the data stored in the app will be local to the device.

Shermin Sultana etl [2], this paper proposed the smart attendance system by using mobile device where GPS is used replacement to biometric information. The GPS is used for taking attendance which reduce the paper work while taking the attendance for the crowd. Here the GPS used for attendance tracking for android devices in our proposed work we going to use barcode scanner for getting value of the product.

Shilpa Bilawane etl[3],this paper proposed to focuses on the development of a mobile application in campus environment that supports information services in campus environment. The proposed application in this paper students are able to retrieve information at any time and at any location. The technology used in this paper is Android.

Nilay Ganatra etl[4], this paper proposed to Examine the push Messaging Service Google Cloud Messaging (GCM) for Android Platform. Using Method of Pulling for Keep Data Synchronization between Android Device and Server-Side. The proposed application in this paper provides great convenience and flexible way for upstream and downstream messaging between client and server.

Gudipaty LP etl[5], this paper proposed to present a step by step forensically sound procedure to extract WhatsApp conversations, which are by default encrypted, from a suspect or victim device and later decrypt it to convert it into human readable formats. The earliest versions of WhatsApp would store these backup files in plain text making them easily readable and vulnerable for exploitation. Keeping user privacy

Ansar Ahemad etl [6], this project to explain the importance of Location Based system which will save our time during various tasks like finding particular address of some shops, Getting and knowing some good offers on the different products. By using this Android application customer will search different Shops, Stores, Groceries, ATM's, and Hospitals etc.

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Bramarambika Thota etl [7], the key features of this application are along with the user’s location, one of the registered contacts gets a call. Also, the registered contacts and GPS location are saved from time to time in a database. In this use Android. Personal safety application developed for smart phones of android platform.

Reda Aissaoui [8], this project presents the requirement, design and implementation of an enterprise-class application for carpooling following a Model-View-Control model. The server is implemented using the powerful JavaScript server Loopback. The server exposes a REST API.

V.Malligai etl. [9], Mobile hand held device such as smart phones has increasingly became powerful in years. Smart phones are not only with voice oriented device but also equipped with wide capabilities with internet access. With the advent of cloud services for mobile application, it has greatly enhanced the scalability and security. In this use ios in android. Making our data secure and flexible (i.e) to be available anywhere.

Mathalcumar etl [10], give solution to identify and purchase products in the supermarket. The advantage of this technology is the blind people can acquire information by audio. The disadvantage of this is need fix RFID in all supermarket shields. The technology used in this paper is PLC microcontroller and RFID.

3. PROPOSED WORK & RESULT

The proposed work is useful for the people during shopping in the hypermarkets especially who have deficiency in eye sight. The price of the products in the hyper markets will be printed very small hence most of the cases we could not sight it properly. Hence people will have forced to check the price during billing only. This is the disadvantage in the existing system. We solved this problem by using the smart phones which all the people using.

The camera of the mobile phone used as the Barcode scanner and which connects to the hyper market database, retires the price and description of the product. The App also provides option of voice in which the customer can hear to the price in Arabic, and the App also provides option to print the bill for the items purchased by adding to cart.

Pseudo Code

If the customer Authenticated can scan the Barcode.
Scan Barcode

If Barcode is available in Database
Display the price of the product.

If Customer want take the product
Add to Cart

Else
Check for other Products

If shopping done
Print the bill and pay in counter and leave

The following figure 2: show the comparative chart of the existing system and proposed system in which the existing billing time and proposed billing time have been compared by taking sample of 20 items in super market.

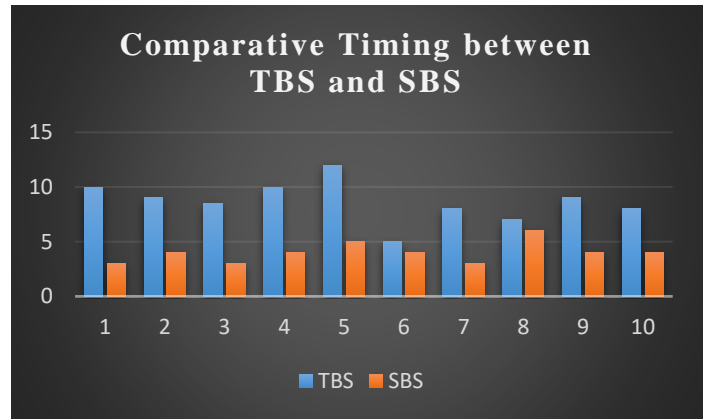


Figure 2: Comparative Timing between TBS and SBS (Traditional Billing System, Customer – X axis, Time – Y axis)

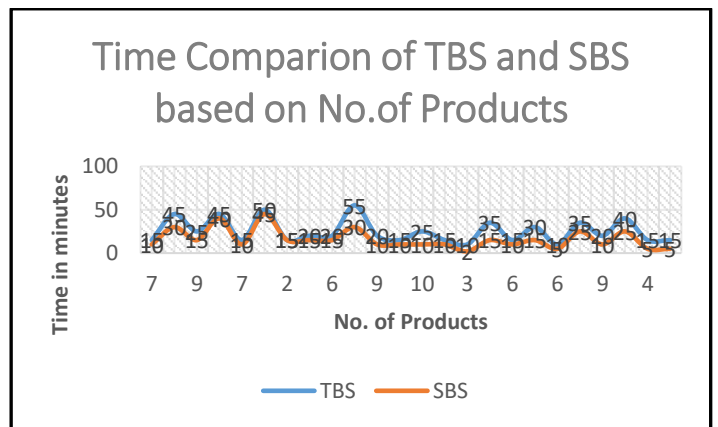


Figure 3: Comparative Timing between TBS and SBS based on number of Products

The figure 3 show the comparison of timings between TBS and SBS based on number of products purchased by the customers in a hyper market. The timings are rounded to its nearest highest value to simplify the numbers. The values are collected in the test bases of purchasing various items with different quantity and from different sections of the hyper market. The Result shows that, the Smart Billing system reducing the time of billing to the customers in significant way. The smart billing system also have the feature of storing the bill as PDF in SD card locally hence the customer can have the purchase history.

4. CONCLUSION AND FUTURE WORK

The proposed work minimizes the waiting time in billing queue by making the billing work during the shopping. The customer itself involving in billing and only the hypermarket management has to check the products while customers leaving the shop, the checking is also done automatically by the sensors implemented in exit. The result clearly shows that SBS having minimum time compare to TBS. As a feature work we can add options like E-Payment.



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