Android Application for Smart Shopping

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Abstract— We are basically developing an Android application that will be interfaced with the cart via a Bluetooth module. As the customer adds an item into the cart he will be required to scan the product first on the barcode scanner placed on the cart and the product will be added on the Android application as well. The customer can also remove the product from the cart by double scanning the product on the barcode scanner and the product will be removed from the Android application as well. Now if the customer removes the product from the Android application but forgets to remove it from the cart, a buzzer will go off. This buzzer is connected to ultrasonic sensors placed inside the cart and if the product is still in its range for 5 secs after being removed from the app, the buzzer will go off. This makes our project cost efficient, time saving and secure.

Index Terms— Android application, Bluetooth module, Barcode scanner, Buzzer, Ultrasonic sensors.

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1 INTRODUCTION

Now a days interest in shopping malls is widely increasing among people. In the present shopping malls, customers find various difficulties. Those difficulties are mentioned below. One third of major shoppers buy groceries on a budget. Most of the times, it is only at the end of purchase shoppers come to know that the overall purchase total is greater than their budget. Another major problem faced by users is that they have to wait in long queues for billing. Thus, the proposed system overcomes all these drawbacks faced by shoppers in shopping malls. In the first step of this project, a mobile application is developed to make shopping process easy. This system provides on spot scanning of the product and shows its price details on android application. This allows customers to compare the total price with the budget in the pocket before billing. Whenever a customer is done with his/her shopping and near to the billing counter, the data from the android application is going to transfer to the billing counter computer. By this way, it will save the time of the customers as well. We designed the system using the Arduino UNO Development Board. It provides complete access to functions of microcontroller or microprocessor like to program the controller, to use the input/output pins, to communicate. The system using Arduino UNO is less bulky and it can easily transfer from one place to another. It requires less power supply and we can easily improve the system, if required, because of its easy programming. Since, we designed this system using Arduino UNO. This system requires less cost to design. This system requires less power supply and it displays the total amount to the user so this system is user-friendly.

2 RELATED SYSTEM

Viswanadha V, Pavan Kumar P, Chiranjeevi Reddy S proposed name system Smart Shopping Cart. The cart will consist of a Barcode reader, LCD screen and raspberry pie. When a person put any product in the cart it will scan the product and price and the brand of the product. The Smart Shopping cart helps the customers to shopping, billing and payment in less time in easy way. By simply scanning the barcode the customer can pay the bill. The problem of this system is that there is no sensor used for the recognizes the product inside or outside the cart.

Ashmeet Kaur, Avni Garg, Abhishek Verma, Akshay Bansal, Arvinder Sing planned a system name " ARDUINO Based Smart Cart" .This is based on the arduino based smart cart. This cart uses RFID technology and arduino. The RFID technology is used for shopping and payment, AVR for peripheral interfacing and record management. This particular system will help the malls to see rise in their purchase and sales along with the customer' s records. This system based on web-development technology.

Zeeshan Ali, Reena Sonkusar planned a system name " RFID based Smart Shopping" . The whole shopping cart is based on the RFID technology. The main goal of this technology is to reduce the long queue at the billing canter. The main focus is to provide assistance in everyday shopping in terms of reducing time. In the RFID based technology the RFID tags was used for maintain the entire database and billing process.

3 TECHNOLOGY

Android is a linux based mobile operation system developed by Google. It is generally developed for touchscreen smart phones or tablets. It supports large number of applications in smartphones. It not only bunch of software comprising of operating system but also middleware and key application. The hardware that supports android software is based on ARM architecture platform. The android is an open source operating system means that it's free and any one can use it.

Barcode technology provides a simple and inexpensive method of recording data or information in a number of applications. The symbologies of the barcode technology can be arranged or mapped in a variety of ways. Barcodes are applied to products as a means of quick indentification. It is consisting of a series of parallel black lines and white spaces of varying widths that can be read by a scanner.

Bluetooth technology is a short-range wireless communications technology to replace the cables connecting electronic devices, allowing a person to have a phone conversation via a headset, use a wireless mouse and synchronize information from a mobile phone to a PC, all using the same core system. The Bluetooth technology offers wireless access to LANs, PSTN, Mobile network and portable handheld devices.

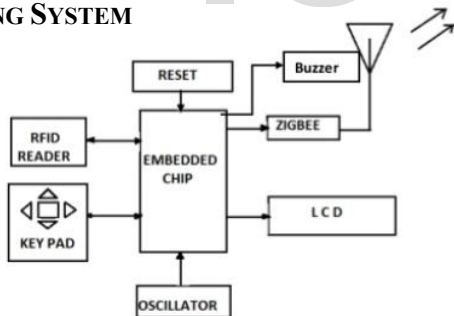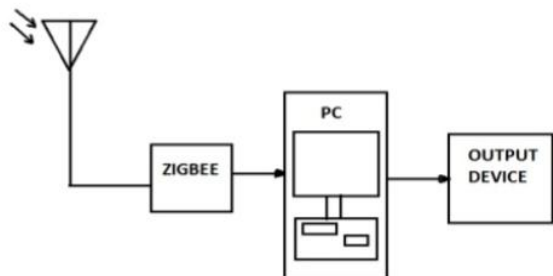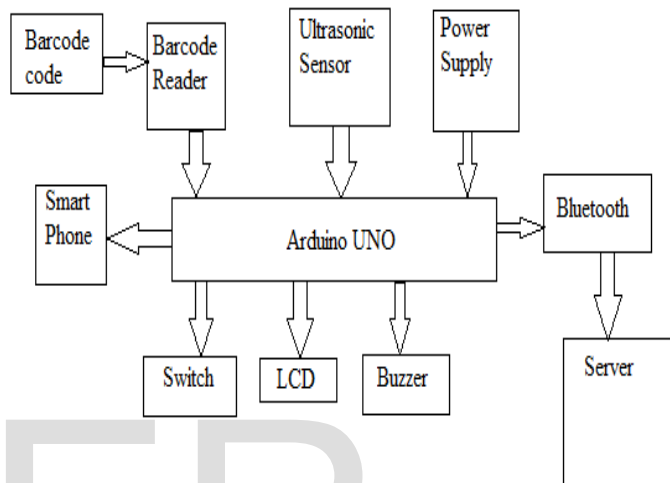## 4 EXSISTING SYSTEM

Fig 1.Trolley section.

Fig 2.billing section.

The existing system used RFID readers which were connected mainly to the embedded chip. The embedded chip was connected to the Zigbee, RFID reader, reset, buzzer, LCD, oscillator and keypads. The system was way more expensive and not scalable as well.
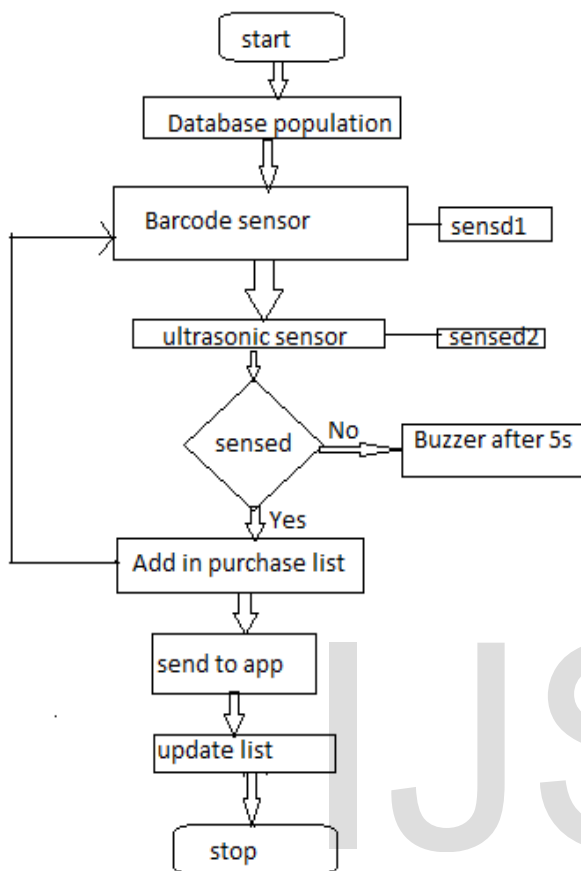
5 SYSTEM DESIGN

The system uses a Barcode reader which is connected to the Arduino UNO. The Arduino UNO are connected to the Bluetooth, Barcode reader, buzzer, LCD, Ultrasonic sensor and the smart phone. The communication is between the arduino and smart phone through a Bluetooth.
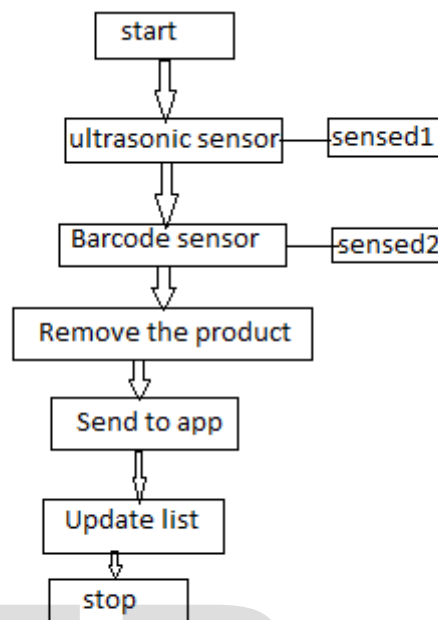
6 SYSTEM ARCHITECTURE

Flow Chart

Flow chart for add product

Flow chart for delete product

First we have to create a database in arduino and the smart phone. The products are purchased that are added in the trolley for this scanning the barcode on the product then ultrasonic sensor senses the product. This way product added in the purchased list that are send to the mobile application through the Bluetooth. Update list in the app. When ultrasonic sensor do not senses the product then buzzer is on for 5 sec. This tells that product was not added in the trolley.

We have to remove the product from the trolley for this first product senses the ultrasonic sensor then scan the barcode on the product.This way product removed from the purchased list that are send to the mobile application through the Bluetooth. Update list in the app.

7 CONCLUSION

The system demonstrates the possibility of using Bluetooth and Android for a better improvement. The system is thus highly reliable and time efficient. It is reliable and fair because of the effectiveness of wireless network combined with efficient use of technology. Thus, fulfilling the aim of minimizing the long queue at billing section.

8 REFERENCES

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