

Smart Billing Cart

Sujay Ekal¹, Sonal Suryawanshi², Siddhant Warke³, Mrs. P.P. Gundewar⁴

^{1,2,3,4} Department of Electronics and Telecommunication, MIT College of Engineering, Kothrud, Pune, India

Abstract - A market is a place where customers come to purchase their daily using products and pay for that. When they go for paying their bill at billing side customer has to wait for long time in queue, because scanning of product and total bill will take at billing side. It becomes hectic for customer to stand in queue for long time. Hence proposing to develop a smart billing cart that will scan and make a bill within cart. In this system every product has a barcode and every cart will be having a barcode reader and Wi-Fi attached to it. There will be centralized system.

Key Words: Barcode reader, Smart Billing Cart, Wi-Fi, DC Motors, Atmega 328.

1. INTRODUCTION

Nowadays people in the mall put their product in carts and once the shopping is done that person have to stand in the queue for billing. In the billing process a sell person scan barcode of each and every product and gives final bill. This process is very time consuming and it becomes worst on holidays, special offers or weekends. This makes a problem at the cash counter because of increasing number of consumers. The customers have to stand in the billing lines for a lot more time than actual shopping time sometimes. The solution to the problem has been given by smart carts using different techniques till date. One of the technique is to use barcode scanner attached to cart that will scan product within cart and each item in Supermarket is tagged with a unique barcode.

In the proposed system, a shopping cart is designed or implemented with a Product Identification Device (PID) that contains Atmega328, Liquid Crystal Display (LCD) and Barcode reader. Barcode Reader recognizes the products put in the cart. As soon as each item is placed, various information like item name, price of the products are displayed on the LCD display placed in the cart. Along with this total sum of the purchased products is displayed. The total bill amount will reach the bill counter immediately through Wi-Fi technology. Then the user has to pay just the total amount and can walk away. Thus Item-level deployment of Barcode technology allows for quick checkout that scan all products at once and generates total bill automatically, eliminating different sectional counters and long queues, which are consistently reported as one of the most negative aspects of supermarket shopping.

2. LITERATURE SURVEY

[1] RFID reader is used to scan the product when product is put in cart. RFID reader is used in automatic mode. Along with Rfid this paper mentions the use of Zigbee for sending the data from cart side to billing side. Here a mobile device is used to make the payment of a bill via mobile applications. This system is simple to use. Working of this system is mainly based on RFID and mobile application. The small circuit situated on cart makes the shopping easy and less time consuming. Working of Zigbee and mobile application is not explained in detail.

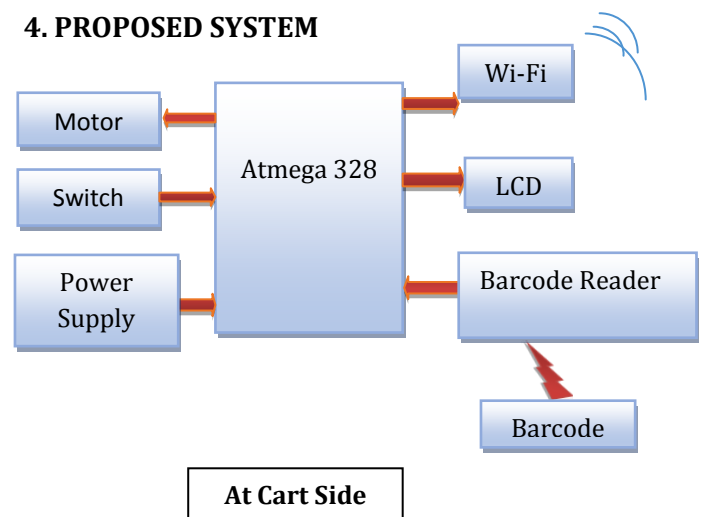
[2] RFID and Zigbee are used for product scanning and billing. Extra features where added like expiry date and product information. Flow chart need to be included about the Working Flow of system.

[3] Along with RFID reader and Zigbee, IR sensors are used which is used for counting, adding and subtracting the amount of product. In this Paper, cancel button is used to remove the product from cart. The cost of Zigbee is more, so instead of it Wi-Fi can be used. Working of IR sensor is not explained in brief

3. MARKET SURVEY

According to survey, existing mall use barcode reader at billing side. In this existing system, customer purchase their product and put in cart, then they have to wait in queue for billing. At billing side, the sales person scans all the purchased product and make a bill. . Due to this system, customer has to wait in queue for a long time and this is time consuming.

4. PROPOSED SYSTEM



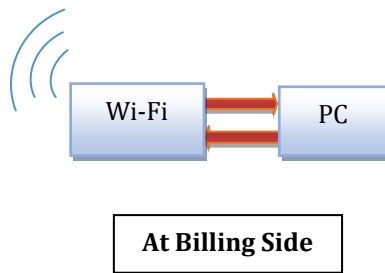


Figure1- Block Diagram of Smart Billing Cart

4.1 ATMEGA 328

Atmega 328 is the heart of the system. Entire functioning of system depends on this board. When barcode reader scan the barcode of product then corresponding Barcode number will be sent to Atmega 328 and it will get displayed on LCD along with cost and Name of product and simultaneously these data will be send to web page server through Wi-Fi.

4.2 BARCODE READER

Barcode Reader is used to read Barcode of product. Basically each cart will have Barcode reader attached to it. Barcode Reader has two modes one is manual scanning that means by pressing the button over the barcode reader it will scan the product, when products barcode is in line of sight but these would require labour work of customer. So, another mode that is Automatic mode which will scan the product barcode automatically when it is in line of sight and send the data to Atmega 328.

4.3 MOTOR (DC MOTOR)

DC motor is used for opening and closing of flap cover. As soon as barcode reader scans the product flip cover will open and product can be put in cart. After specific delay flap cover will get closed. If User want to remove the product from cart then user have to push the button and flap cover will be opened and product is removed and these products is again scanned through barcode which will subtract this cost of product from total cost

4.4 LIQUID CRYSTAL DISPLAY (LCD)

LCD is used for displaying the product name& total cost. When product is put into cart after scanning, it will show the cost and name and if second product is scanned, then second product cost will get added and it will be displayed on LCD.

4.5 Wi-Fi MODULE (ESP8266)

Wi-Fi stands for Wireless Fidelity. The main purpose of using Wi-Fi is to transfer the data from cart to web server. These data is nothing but the product name and cost of each corresponding product. So when customer goes to billing side, billing person will cross check total value from LCD and server and bill is paid Wi-Fi.

4.6 WEBPAGE (HTML)

Webpage is used for displaying the cost and name of product on server that receives from ESP8266 Wi-Fi module which is at billing side. HTML stands for Hypertext Markup Language. It is a standard markup language for creating web pages and web applications. Web browser receives HTML documents from a webserver or from local storage and render them into multimedia web pages.

5. FLOW CHART

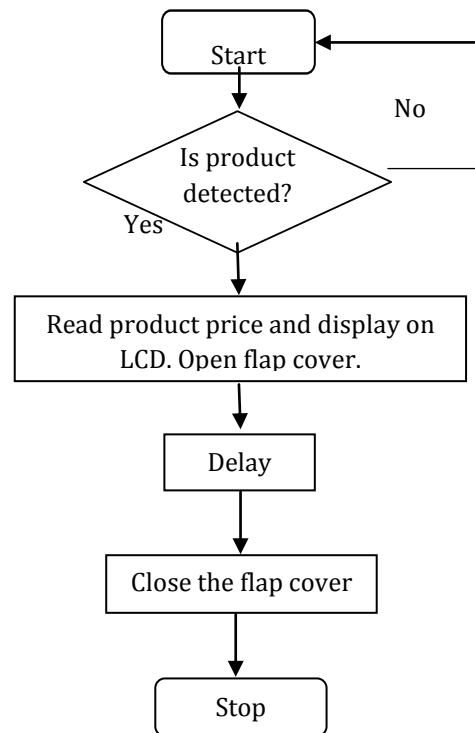


Figure 2. Flowchart of Proposed System

6. CONCLUSION

The payment of bill by standing in long queue is a tedious factor when people want to purchase products from marts. Though people can pay instantly using electronic money facility, they have to wait in the queue for longer time. The idea which is proposed using this technology will overcome the problem and it gets the task easier. It will save time, energy and manpower of Customer, Owner and supplier. There are many technologies which are currently being used for billing systems in supermarkets. The selection of the technology depends upon the performance and efficiency of the technology regarding to particular task and environment

7. FUTURE SCOPE

The project mainly aims to scan the product within cart and make total billing count at cart side .The main improvement for the future is to develop application for shopping within mall. In that application before going to

market user can note the products that he want to buy and make a checklist. Another feature that can be added is that it will give suggestion to buy products based on our daily needs and can make online transaction through this application.

REFERENCES

[1] Raju Kumar, K. Gopalakrishna, K. Ramesha. "Intelligent Shopping Cart"(International Journal of Engineering Science and Innovative Technology (IJESIT) Volume 2, Issue 4, July 2013)

[2] Muhib A. Lambay , Abhishek Shinde , Anupam Tiwari , Vicky Sharma "Automated Billing Cart" (International Journal of computer science and technology(IJCST) – Volume 5 Issue 2,Mar – Apr 2017)

[3] Ms. Rupali Sawant, Kripa Krishnan, Shweta Bhokre , Priyanka Bhosale "The RFID Based Smart Shopping Cart" (International Journal of Engineering Research and General Science Volume 3, Issue 2, March-April, 2015 ISSN 2091-27)

[4] Kalyani Dawkhar ,Shraddha Dhomase ,Samruddhi ,Mahabaleshwarkar "Electronic Shopping Cart For Effective shopping based on RFID" (International journal of innovative research in electrical, electronics, instrumentation and control engineering ,Vol. 3, Issue 1, January 2015.)

[5] Zeeshan Ali ,Reena Sonkusare "RFID Based Smart Shopping and Billing" (International Journal of Advanced Research in Computer and Communication Engineering Vol. 2, Issue 12, December 2013)