Smart Trolley System Based On Android

Ms. Sneha S. Udan,Ms. Sakshi R. Amrutkar, Ms. Triveni R. Meshram , Ms. Pranali R. Khode, Mr . Akshay B. Nichantem,Mr. Amit R. Jaunjal Ms. Sana Sheikh

UG Student Department of electronics & communication engineering

UG Student Department of electronics & communication engineering

UG Student Department of electronics & communication engineering

UG Student Department of electronics & communication engineering

UG Student Department of electronics & communication engineering

UG Student Department of electronics & communication engineering

Assistant ProfessorDepartment of electronics & communication engineering

Tulsiramji Gaikwad patil college of engineering & Technology (441108)

Abstract: *With the development of wireless technology there are various field within we can use this technology and use of wireless technology is favorable now a day in this project we present our views on an automated shopping trolley using android devices. In this project weare developing an application which is based on android.In this proposed system the customers have to scan barcode of everyproduct with android mobile which they wish to purchase and drop into the shopping cart and then proceed to checkout at thebilling counter. The billing process is quite tiresome and highly time consuming. We have proposed a "Smart Trolley SystemBased on Android" which aims to reduce and possibly eliminate the total waiting time of customers i.e. other system takes 10minutes while our proposed system takes 5 minutes, lower the total manpower requirement from billing counter and increaseefficiency overall.*

Keywords: *Mobile Barcode, Smartphone*

I. Introduction

Commonly as in vogue of now shopping has become an integral part of today's society. We can see a huge rush at the mall and supermarkets during weekends, holidays and sales. Major concern for the customer at mall and supermarket occur when there is a long waiting queue at the billing counter. Customer tends to leave the queue rather than standing for hours at the billing counter this turns out to be a trouble for the mall and supermarket owner. So, the automated shopping trolley which come together with a bar code scanner and a touch screen display is designed which would help the customer to pay for their goods in the mall and supermarket without being served by a sales associate. Every product in the supermarket will have a bar code the customer will pick the product scan the barcode with Android device. After scanning the barcode, the details and the price of the product will be displayed on the touch screen display along with the total bill of the items purchased. This system would also be beneficial for the customer with certain budget limit and saves long waiting time at the billing counter.

In this paper, we discuss a product "SMART TROLLEY SYSTEMBASED ON ANDROID" being developed to assist a person in every day shopping in terms of reduced time spent whilepurchasing.Low cost, easily scalable and robust system for assisting shopping to the customer. In modern aera, when thecustomer want to purchase an item then customer has to click a picture of barcode. After scanning barcode we are using analgorithm called as RGB to Gray scale. After words then corresponding data regarding product will be displayed on customerssmart phone screen. As we put the product the cost will get added to the total bill. Thus the billing will be done in applicationitself. At the billing counter the total bill data will be transferred to server side PC by proposed system. Static map given inthe proposed system will locate the product present in the mall with sectional specification for the ease of customer. Byusing this system , customer can buy the large number of product in very less time with less efforts .At the billing counter computer can easily interfacefor verification and bill printout.

II. Related Work

In existing system, when a person goes for shopping in any supermarket then he take trolley and after complete shopping hehas to go to counter for billing. Billing is done using barcode reader. It takes lots of time to complete the process. Inbarcode technology, there is need to scan each and every item based on position of that barcode label attached to that item. Itrequires more manpower to scan the label manually. It is not possible

to read the barcode from long distance. Environmentalchanges can damage the barcode. So our aim is to design automatic billing system which is based on ANDROID devices technology. Server will calculate the bill and it is displayed on LCD. Hence the time required for billing is less.

Hardware integration, software interface, wireless communication and network database are the four main elements used in thispaper. A microprocessor with an LCD, a wireless card, barcode reader, and a portable battery are used in this design. Thebarcode reader will be used to scan the items, and the Wi-Fi card will be used to connect wirelessly to the store'sdatabase.The device can be removed, so that it can be used from one cart to another. For ease of customer the design includesexternal speaker with voice prompt which is available on LCD screen . To keep small efforts in data addition someadequate measures are necessary to constantly increase wiring the sensors? Concerning the cost and complexity of a dataacquisition system, a wireless sensor network seems to be a convenient option. For this function, wireless networkstandard ZigBee is appropriate .An RFID reader was also installed on the shopping cart to record product related events. In this paper, the system uses android devices, because android based system are less bulky and also easilytransferable. Power requirement in this system is less. Hence the system is cost effective. It is easy to fit in robot as it requiresless space and easy installation. Barcode scanner:-In barcode black and white strips are present. All light transmitted bytransmitter are absorbed by black strips and are not reflected back. Light rays are reflected due to white strips.This is the basic principle of barcode scanner. At the transmitter section the control signals are transmitted using radiofrequency. Control signals are serially transmitted. At receiver section these signals receive and decoded. Now days purchasing and shopping at big malls is becoming a daily activity. We can see huge rush at shopping malls on holidaysand weekends. The rush is even more when there are special offers and discount. After purchasing the particular productpeople put them in trolley. After total purchase one needs to go to billing counter for payments. At the billing counter thecashier prepare the bill using barcode reader which is a time consuming process and results in long queues at billingcounters. Our aim is to develop a system that can be used in shopping malls to solve the above problem.

III. Existing System

The system which is recently in work uses barcode method. The customer select the items he wants to purchase then he has togo to the billing counter, the employee of mall will scan the barcode present on every product of each customer. This makesother customers to wait in a queue for longer time, which makes the shopping process very time consuming and frustrating. Onthe days of special discount and weekend the shopping mall has to increase billing counter to manage the increasing crowd from thebilling queue. Nowadays when customer wants to buy product from discounted offer because of misunderstanding of offersgiven by the mall he will get confused at counting the total bill before he reaches to the billing counter. After decision ofproduct which customer wants to buy he has to search for the product in the sectional arrangement of product provided by thesupermarket. Sometimes it is impossible to know the sub categories of the product available in the shopping mall.

IV. Proposed System

A.Block Diagram:
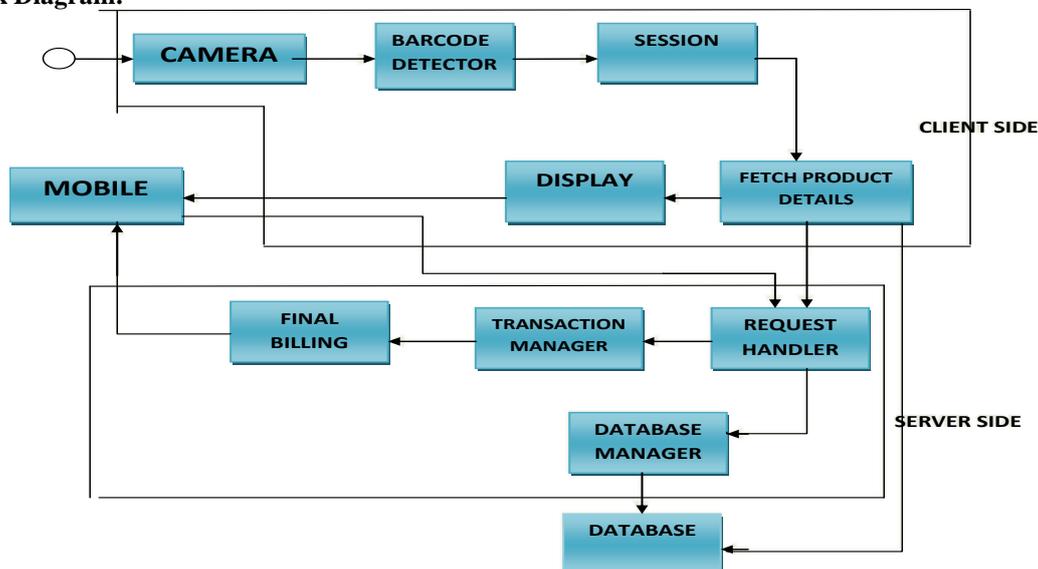
Fig. 1: System Block Diagram

B.SYSTEM ARCHITECTURE
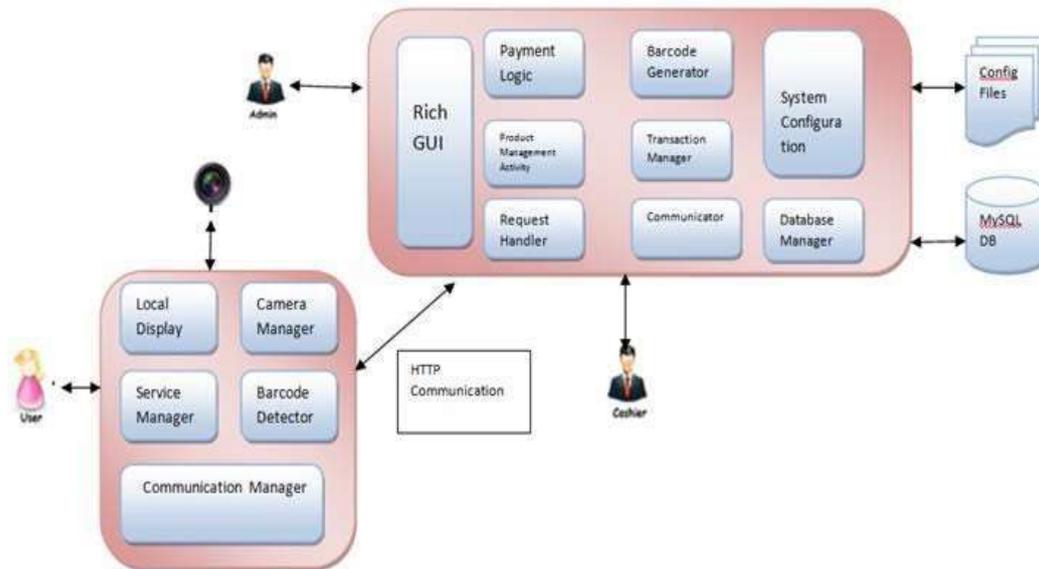
Fig. 2: System Architecture

The Automated Shopping system integrates a Shopping application with two sets of barcode that is barcode scanner and barcode generator placed at two different checkpoints – the entry and exit points respectively. It facilitates the user to self-scan the barcode of the purchased products which he intends to purchase. A wireless smart-phone makes notes of all the scnned commodities of the particular

application and is linked with the mall's backend database which contains details of the products etc, such as Cost Price, Available Stock, discounts and description of product, etc. The scanned products are automatically billed in the wireless smart device for their purchases, the total bill will be displayed on users smartphone thereby significantly reducing turnaround time and transmitted to the mall's central Billing program. This allows users to take out all their products which they scan, to the billing counter after that cashier will verify the bill and billing process will be done in short span of time, and the remaining thing is just to collect the product and proceed to the checkout point.

C.FLOW CHART
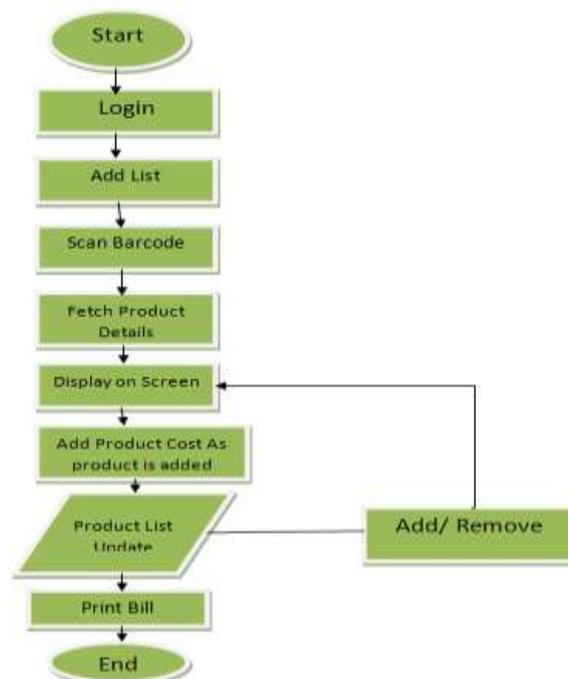
D. Algorithm
1. Start
2. Login
3. Add list of the product
4. Scanned Barcode of the product
5. After scanning details of the product fetch from the database
6. Show product details on the screen
7. If product is added then product cost will be show
8. If product is removed message display on the screen ADD or REMOVE
9. If product is cancel list will updated & show the reduced bill on the screen if not bill will be same
10. Submit final data to mall server
11. Proceed to billing
12. Exit

E. System Flow
1) Customer login.
2) Add list to the system.
3) Customer has to scan the barcode of each product he wants to buy, by clicking picture of barcode through his smartphone.
4) When barcode of product is scanned it fetches product's name ,cost and other details from the database and details are
5) displayed on the screen.
6) If user wants to remove any of the product from the list then he has to select the product and press the remove button ,then
7) his list will get automatically updated and product gets removed and the cost will get displayed on the screen and also this
8) changes will be monitored by the mall server.
9) When this process gets completed customer has to submit final data to the mall server.
10) Bill will get printed and copy will be sent to customer

V. Conclusion And Future Scope

This system is most certainly a definite necessity for the retail marketing industry to step up their portfolios and scope up with the advancement in technology. It also saves time and manpower. The Smart System was designed to function as a mobile selfcheckout system providing users the flexibility to make transactions from it within the retail store.It is designed to be highly efficient and fully synchronised with the retailer's current system.

The transaction and billing system can be linked with bank account of individual user and the system can be further designed to search products in mall and guide the user accordingly to the position of the exact product

References
[1]. Automatic Billing Trolley using RFID and ZigBee with Android Application Rewarding System. International Journal of Research In Science &Engineering Volume 1 Issue 6
[2]. Smart Cart to Recognize Objects Based on User Intention. International Journal of Advanced Research in Computer and Communication Engineering Vol.2, Issue 5, May 2013
[3]. Smart Trolley in Mega Mall. International Journal of Emerging Technology and Advanced Engineering
[4]. RFID Based Automatic Billing Trolley. Journal of Emerging Technology and Advanced Engineering
[5]. Raju Kumar, K. Gopalakrishna, K. Ramesha on "Intelligent Shopping Cart" in International Journal of Engineering Science and Innovative Technology(IJESIT) Volume 2, Issue 4, July 2013
[6]. An efficient hybrid shopping mall with advanced purchasing system, IEEE 2012http://ieeexplore.ieee.org/xpl/login.jsp?tp=&arnumber=6530321&url=http%3A%2F%2Fieeexplore.ieee.org%2Fxpls%2Fabs_all.jsp%3Farnumber%3D6530321
[7]. Forthroid on Android: A QR-code based Information Access System for Smart Phones Tasos Alexandridis, Paulos Charonyktakis, Antonis
[8]. Makrogiannakis, Artemis Papakonstantinou, and Maria Papadopouli-Department of Computer Science, University of Crete & Institute of Computer
[9]. Science, Foundation for Research and Technology – Hellas
[10]. Kindiling And Perception Of Qr-Images Using Raspberry-PI 1P.V.Vinod Kumar, 2K.Dhanunjaya- International Journal Of Engineering And Computer
[11]. Science ISSN:2319-7242 Volume 4 Issue 7 July 2015, Page No. 13082-13085Issue 7 July 2015, Page No. 13082-13085