

Smart Trolley for Smart Shopping

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ABSTRACT

Shopping malls, super market Big Bazaar's, D -Marts are the place where thousands of customers visit every day to purchase many products. We can see huge rush at malls on holidays and weekends. Today purchasing various products in malls or supermarkets require a trolley. The rush is even more when there are special offers and discount. People purchase different items and put them in trolley. After total purchase one needs to go to billing counter for payments. At the billing counter the cashier prepare the bill using barcode scanner which is a time consuming process and results in long queues at billing counters. Our aim is to develop a system that can be used in shopping malls to solve the above mentioned challenge. In our project the customers have to scan barcode of every product through the use of barcode scanner which they wish to purchase and drop into the shopping cart and then proceed for billing. This is implemented using an android application and barcode scanner.

Keywords : D –Marts, Smart Shopping, Smart Trolley, Barcode Scanner

I. INTRODUCTION

The electronic shopping system intends to assist shopping in person that will minimize the time spent in shopping as well as intended to aid the store management with real-time updates on the inventory. The emergence of new technologies, such as barcode scanner and wireless networks, makes the shopping processes faster, transparent and efficient. Our aim is to develop the shopping system which can be used in shopping malls to solve the problem mentioned above. The Shopping system is equipped with barcode scanner for product identification and a consistent Wi-Fi connection with the shop's server. Besides, it also has an LCD display that informs customers about product prices and the total bill. As soon as the object is purchased, the barcode reader identifies the product and updates the bill. When the customer is done with shopping, he can just press the 'End shopping' button in android application and the

details are sent to the shop's server and the customer can pay amount by using their android phones.

A. ADVANTAGES

- ✓ Saves valuable time of customers
- ✓ Reduction of long queue
- ✓ Secure, safe and reliable transaction
- ✓ Efficient maintenance of customer's data
- ✓ Reduces human resources on billing sections
- ✓ Increases profit
- ✓ Customer satisfaction

II. OBJECTIVES

- ✓ The main objective of the project is to reduce and eliminate time taken in billing counter in super markets by designing an android application which uses barcode scanners allow users to self-checkout and increase productivity time.

- ✓ The objective of the project is to display the product's expiry date to the customers.
- ✓ Generating bill through the smart trolley.
- ✓ Location of the product can be identified.

III. LITREATURE REVIEW

In [1], This paper explains developing an application which is based on android. In this proposed system the customers have to scan barcode of every product with android mobile which they wish to purchase and drop into the shopping cart and then proceed to checkout at the billing counter. Here they were used RFID for linking trolley with server but it is costlier.

In [2], In this paper hardware is based on Arduino Uno, RFID Reader Module, RFID Card and Buzzer. It eliminates the traditional scanning of products at the counter and in turn speeds up the entire process of shopping. Here RFID tags are attached to each product but it is costlier as compared to barcode.

In [3], This paper explains Smart Trolley which integrates with Barcode Scanners, Arduino, GSM module, Weighing Sensor in it. The scanned items by the customer which will automatically log into the database and thereby can generate bill for items purchased. The weighing sensor which will check the weight of the items send to the database. These modules are integrated into an embedded system and are tested to satisfy the functionality. But customer should wait in queue for payment.

IV. EXISTING SYSTEM

In present scenario, the shopping process in shopping mall is as follow:

The customers pick a basket and fetch the desired product they want to purchase and next process is billing section. The billing process in the shopping system is quite tedious and time consuming and each

one waiting in queue for their turn to generate bill because each and every product whether the basket contain more or less items. Due to this reason there is requirement of more & more human resources on such billing section but still the scenario is same *ALONG QUEUE*

Limitations of the manual system:

- It is tedious and time consuming.
- It consumes lot of manpower to better result.
- It lacks of data security.
- Retrieval of data takes lot of time.

Hence, an android application to reduce the queue in existing system is proposed The new system completely removes all manual burdens and provide efficient on the entry.

V. PROPOSED SYSTEM & METHOLOGY

The Automated Shopping system integrates a Shopping application with a cam-scanner which will act as a barcode scanner. It facilitates the user to self-scan the barcode of the purchased products which he intends to purchase. A wireless smart-phone makes note of all the scanned commodities of the particular application and is linked with the mall's backend database which contains details of the products such as Cost Price, Available Stock 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 user's 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. All the items in the mall will be equipped with barcodes. When a person puts any item in the trolley

its code will be detected and that code is sent to the master billing counter, in the master billing counter side we are using PC, to store the entire in the database. Once the PC receives that code it sends the particular product cost to the controller part, price of that item will be stored in memory. As we put the items, the costs will get added to total bill. Thus the total bill will be displayed in the trolley itself. For detecting different items barcode reader will be used. Barcode is used to uniquely identify products respective details. LCD is used to display item names, item cost etc. Whenever a product is purchased it automatically checks for the expiry date. So it helps us to remove the expired product. Navigation facility helps us to locate the items which we want. The customer will be able to know all the details of the items in the trolley itself, that is displayed on the LCD of the trolley.

VI. REQUIREMENTS SPECIFICATION

The requirement analysis includes the functional and Non-functional requirements and Hardware and software requirements. The functional requirements are the activities that admin performs with the trolley section and database interactions. The non-functional requirements include feasibility, reliability, scalability. The hardware requirements are inclusive of Arduino pro mini, barcode reader, LCD, display. The software requirements include the programming languages like Also, Microsoft access acts as an intermediate to access the database.

Functional Requirements

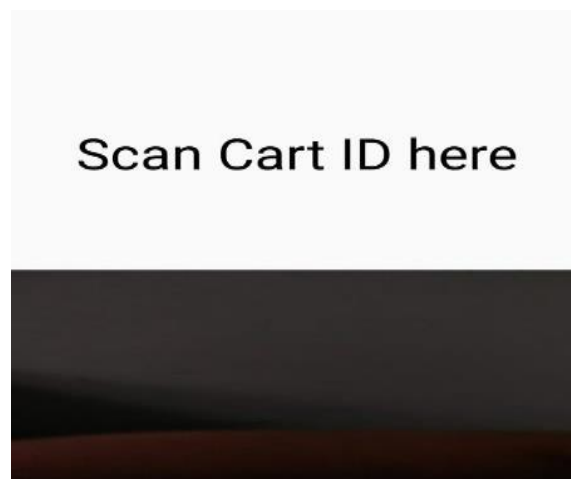
Functional requirements for Customer

- 1) Customer need not wait for Long Queue, Saves valuable time of Customers.
- 2) Customers gets a satisfaction in shopping. As their bill can be generated in the trolley, depending on their budget customer have to add or remove the items in the trolley.

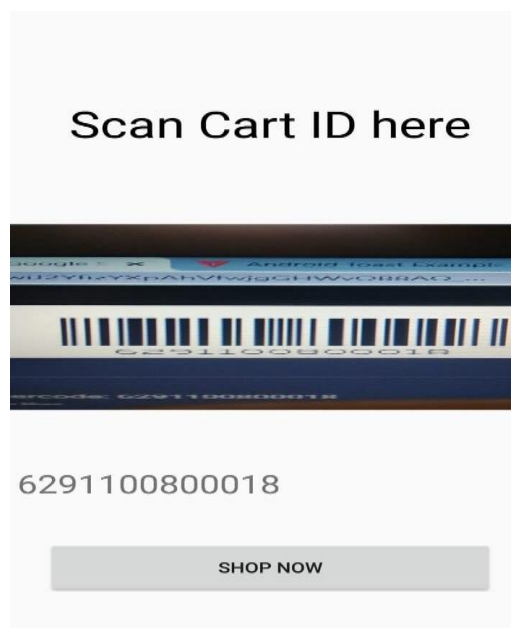
Functional requirements for Server side

- 1) Stocks are updated by super markets. And they have to maintain each trolley details.
- 2) They need to take care of Customer database and their payment status.

VII. Results



Scanning of Product Barcode



We can see like this once product is recognized. Once the entire products have been scanned the respective bill will be generated to the customer on his cart.

Bill	
asuszen	10000
asus	11000
Bottle	249
chalk	100
Liondates	75
Total	21424

UPI PAY

Finally he can click on pay button can complete his payment process and can exit from the shop without waiting in the queue for payment.

VIII. CONCLUSION

As Smart phones become more and more popular in today's life, we are reducing efforts through smart devices and smart phones. With the help of barcode scanner and android application in smart phone customer can scan the items to be purchased and add product directly into the trolley. The different products purchased by the customer will be maintained in the application. The automatic bill gets generated after the shopping. The customer can pay bill by online.

IX. REFERENCES

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