

Intelligent Trolley for Automatic Billing in Mall Using Internet Server

¹Gaikwad Payoj Dilip, ²Sable Manisha Ganpat, ³Halle Shital Sunil,
⁴Bobade Suraj Bhimrao, ⁵Mrs. Prof. N.P.Kadale

^{1,2,3,4,5} Department of Computer Engineering NBN Sinhgad School of Engineering, Pune-411041, India

Abstract: Now days purchasing and shopping at big mall becoming a daily activity in metro cities. We can see huge rush at malls on holidays and weekends. 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. Usually more time is consumed in preparing the bill than shopping. At the billing counter the cashier prepare the bill using bar code reader 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. The system will be placed in all the trolleys. It will consist of a RFID reader. All the products in the mall will be equipped with RFID tags. When a person puts any products in the trolley, its code will be detected and the price of those products will be stored in memory. As we put the products, the costs will get added to total bill. If the product is removed from the trolley its bill will be automatically deducted. Thus the billing will be done in the trolley itself. Item name and its cost will be displayed on LCD.

Further we will send the bill and other details of the product to a local server where all the information will be saved and that information will be useful for inventory management. We provide counters which will be useful for people for bill payment. This system will make shopping easy and will reduce time loss.

Keywords: RFID tags, Intelligent Trolley for Automatic Billing, LCD.

1. INTRODUCTION

Human beings have always developed technology to support their needs ever since the beginning of mankind. The basic purpose of innovation in technology, irrespective of the domain, has been in simplifying tasks and making everyday chores easier and faster.

In the modern world, every supermarket and hypermarkets employ shopping baskets and shopping trolleys in order to aid customers to select and store the products which they intend to purchase.

The billing process is quite tedious and highly time consuming and has created the need for shops to employ more and more human resource in the billing section, and yet waiting time remains considerably high.

In this paper, we seem it fit to propose the “Intelligent Shopping Basket” which aims to reduce, and possibly eliminate the total waiting time of customers, lower the total manpower requirement and expenses for markets and increase efficiency overall.

2. RELATED WORK

The design of smart shopping cart consisted of four main elements which are hardware integration, software interface, wireless communication and network database.

The Automated Shopping cart system integrates a Shopping cart (trolley) with 2 sets of barcode scanners placed at 2 different checkpoints – the entry and exit points respectively. It facilitates the user to self-scan the barcode of the purchased products

A wireless smart-device makes note of all the scanned commodities of the particular trolley (with allotment number) ; and is linked with the Supermarket's backend database which contains details of the products such as Cost Price , Available stock.

3. MOTIVATION

The objective of this project is to improve the speed of purchase by using RFID. This project is design to use RFID based security system application in the shopping trolley. This project is used in shopping complex to purchase the products.

In this project RFID card is used as security access for product. If the product is put in to the trolley means it will shows the amount and also the total amount. But in this project RFID card is used for accessing the products. So this project improves the security performance and also the speed.

4. DATA SET

The dataset used in this project has been collected from some of the Malls.

From the dataset, we pre-processed and selected only the attributes which are important for our project customer-ID, password, etc. And also cultivated area for every mall considered according to the metro cities.

5. METHODOLOGY

The design of smart shopping cart consisted of four main elements which are hardware integration, software interface, wireless communication and network database.

The Automated Shopping cart system integrates a Shopping cart (trolley) with 2 sets of barcode scanners placed at 2 different checkpoints – the entry and exit points respectively. It facilitates the user to self-scan the barcode of the purchased products

A wireless smart-device makes note of all the scanned commodities of the particular trolley (with allotment number) ; and is linked with the Supermarket's backend database which contains details of the products such as Cost Price , Available stock.

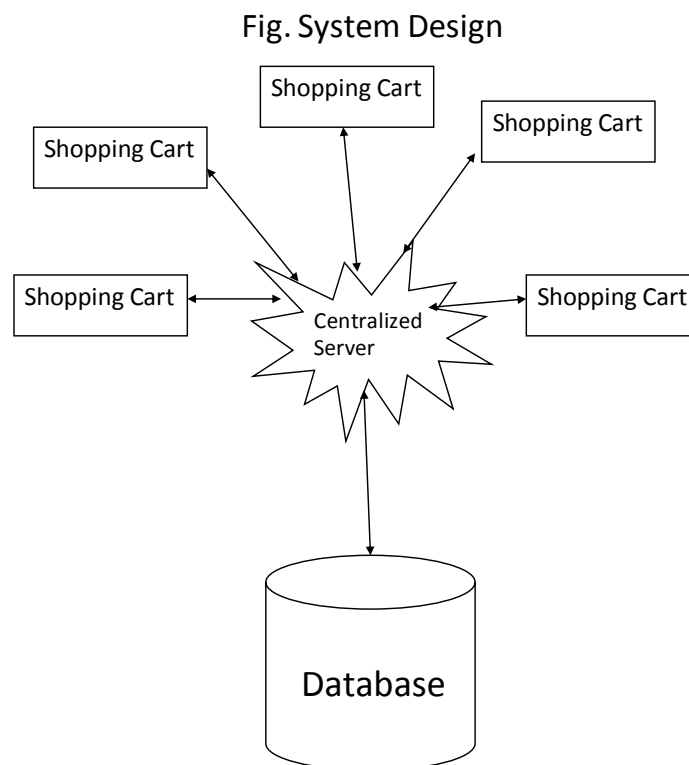


Fig: System Design

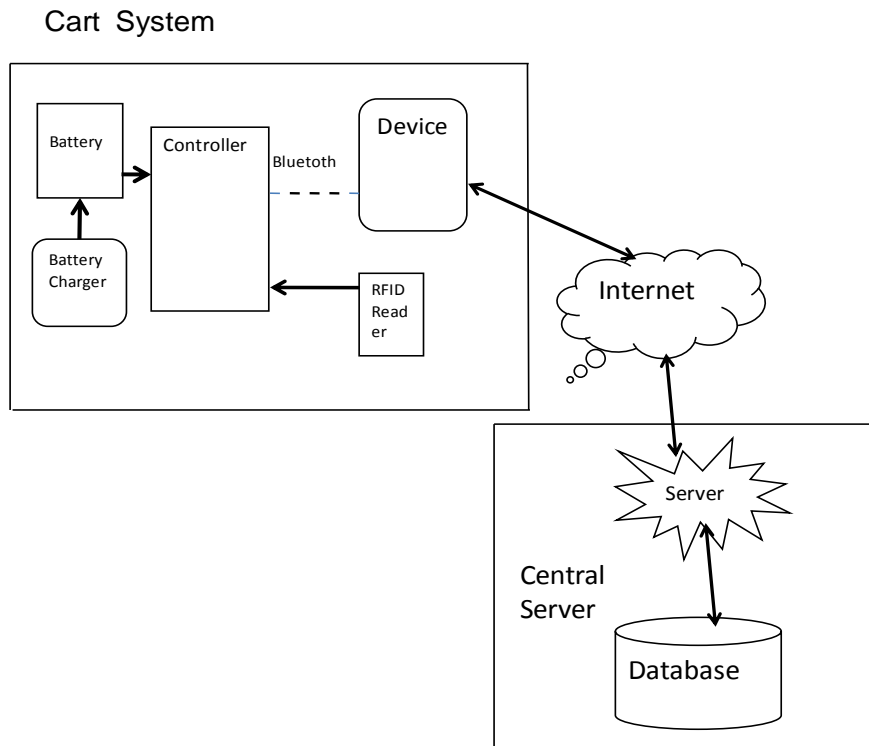


Fig: Cart System

6. RECOMMENDED SYSTEM

After getting all the result graph charts and tables, then we have write a program which takes into account the necessary tables from our results to post process the data and give the best result in order of preference to choose the products.

If there are not any correct choices the program simply outputs 'NONE' or Customer have to create Customer ID . These recommendations bases on a combination of CustomerID and password.

7. FUTURE WORKS

The challenges here are to not only make the system intelligent by automation, but also to handle the concerns that are raised due to the automation process such as probability of false alarms, energy consumption, cost-effectiveness, etc.

- 1) The basic function of calculating and updating users bill as and when s/he places the shopped products in the cart.
- 2) The customer may also track the details of the purchased items as well as the current bill amount on the monitor this is attached to the cart.
- 3) In addition to the mension above features, it also includes the handling of the following special cases, which ensures that the system is not feasible in all respects. All the cases mentioned below are detected by the system.
 - 1) Take away that products by keeping them into the cart not scanning barcodes.
 - 2) When the customer is scanned a product, but forgets to keep it in the cart.
 - 3) To scan one product, but place multiple products in the cart.
 - 4) Attempt to get away one product of high price by scanning the barcode of another product of lesser price.
- e) Since consumer is to change their mind, our implementation allows for removing any item already placed in the cart, not help from attendance.

8. CONCLUSION

Experience with Smart Shopping has indicated that there are several technical challenges to be met in deploying a pervasive retail system.

The model successfully reveals for developing a Smart Shopping System which automates the whole billing agenda. The system which is highly dependable, authentic, trust-worthy and time-effective. The benefits of using this scenario in terms of cost and time effectiveness may be summed up as:

The salary amount given by the mart to the employees will reduce since the manpower shall minimize as the whole system is becoming smart.

Cases of theft shall be controlled, which further is added to the cost efficiency

REFERENCES

- [1] H. Karl and A. Willig, "Protocols and Architectures for Wireless Sensor Networks," Chichester , England, 2005.
- [2] J. Awati and S. Awati, "Smart Trolley in Mega Mall," vol. 2, Mar 2012.
- [3] Singapore Management University, Tech. Rep.
- [4] "ZBar bar code reader," <http://zbar.sourceforge.net>, [retrieved: July 2, 201].