RFID Based Smart Trolley Survey Paper

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Abstract- *For obvious reasons one when goes shopping in a mall requires trolley. There are various items and for each and every one of them the customer has to stroll the trolley along with him aisle to aisle. The person needs to pay attention to the quantity and price and at the same time keep a check on the fact that his bill does not exceed his budget. His journey does not end here he now has to wait in billing queues because he hasn't already wasted his time enough earlier. So in order to avoid all this hustle bustle, we have developed an IoT based TROLLEY which is completely automatic. This helps the customer while purchasing items. All that the the customer now needs to do is scan the Rfid tagon the product on the Rfid reader. This will fetch the details of the product. These detils will be displayed on the LCD mounted on the trolley. After comleting the shopping all the perso needs to do is press a button which will wirelessly send the bill details to the billing counter. By using this trolley, customers can buy huge amounts of products effortlessly without wasting any time either. At the billing counter, computer can be easily interfaced for verification and bill print out.*

I. INTRODUCTION

Shopping mall is a place where people purchase goods ranging from food products, clothes, electrical appliances etc. Now a day's number of large as well as small shopping malls have increased across the world due to increasing public demand & spending. Sometimes customers have problems regarding the incomplete information about the product on sale and waste of unnecessary time at the billing counters. Continuous improvement is required in the traditional purchasing and billing system to have better and speedy shopping experience to the customers. Another important objective for this project is that "How theory knowledge is applicable practically" so whatever subjects we taught to the students as per our academic, they are trying to apply this practically. So we are making a working model for the same.

All the products in the mall will have their own unique RFID tag attached to it. The reader will read the tag and get a unique identification code of that product. The total bill amount will be calculated by the raspberry pi and will be displayed on the LCD screen. After selecting all the products the customer has to manually press the send button, which will send all the product details to the billing counters wirelessly via a common server.

A new customer can use the trolley after pressing the reset button. The count of the products additionally will be kept by the IR sensor to prevent robbery.

The total bill amount will be displayed on the LCD screen and the payment has to be done at the counter. The product details will be sent to the billing counters only after the customer has pressed the send button. Continuous transfer of data will not take place. Accessing the purchase details on the mobile application is also possible. Most consumers worry the amount of money brought is not enough to pay for the total purchase until it's their turn to pay at the cashier. Consumers will be able to get information of all the items at shopping mall, total up the prices of items as they shop, and save unnecessary time at the cashier.

1. **THE SMART SHOPPING BASKET THAT CAN DETECT ANYTHING YOU PUT IN IT - AND EVEN AUTOMATICALLY BAG IT FOR YOU**.

Panasonic is joining the race to automate grocery store checkouts. The Japan-based electronics maker showed off its own solution with a checkout machine that can detect items in your shopping cart, tally the bill, and bag those items automatically as well. Panasonic's system would use a basket that scans items outfitted with electronic tags as they're being put inside. When a customer checks out, they can place their baskets on a machine where the bottom of the basket slides out. The items inside are gently dropped into a plastic bag while the customer pays the bill. The goal of this checkout machine is to help save time and improve self-checkout machines rather than eliminate the need for human employees within the store, which they consider to be a place of community. [8]

2. IS AMAZON GO SHUTTING DOWN THE CHECKOUT FOR GOOD?

The Amazon Go store is a response to the limitations of on-line Grocery shopping and less a new battle line for a full out assault on the brick and mortar Grocery industry. The ability to self-serve and package produce, match foods and

wines with a kiosk application and self-checkout including handing over the mobile cart contents to the store POS system (via self-checkout) or simply by turning in the scanner to an attendant (and completing the transaction) and exiting the store. Even today, mobile grocery shopping via mobile phone apps, or store provided scanners, are available in a wide range of retail chains today. Drawbacks faced :-

- ID Verification
- Security tags
- Infrastructure[12]

3. SMART TROLLEY SHOPS FOR YOU.

Shopping trolleys have their own checkout consoles attached. Using this console you scan the selected items and drop it in respective trolley which will automatically add the item's details to the person`s database. Console allows you to download shopping list and backed by network of in store sensors, warns you when you are approaching an item you wish to buy Self-service checkout systems are being trailed by all the big supermarket chains, and they are proving to be popular as an alternative to the old-fashioned manual checkout.[9]

4. FUJITSU TO UNVEIL AUSTRALIAS FIRST INTELLIGENT SHOPPING TROLLEY AT 2005 RETAIL BUSINESS TECHNOLOGY EXPO

The new wireless shopping technology is the latest development in Fujitsu's range of U-Scan self-service products which demonstrate Fujitsu's integrated approach to reaching customers in stores. It could take large retailers up to 10 days to change prices across all their stores in every device. With integrated approach, prices can be changed nationwide within a day. A software application for in-store grocery, liquor general merchandise channels; Retail Directions: a point-of-sale and retail merchandising management software application for specialty retailers.[10]

II. CONCLUSION

Achievements :-

A successful use of RFID system for the smart trolley has been demonstrated. The items can be detected irrespective of the tag orientation, size and shape. This may bring novel experience for shoppers as its time saving and reduced manual labor for the stored. It is reasonably justifiable that this can further be improved in several aspects.

By means of this project we intent to simplify the billing process, make it swift & increase the security. This will take the overall shopping experience to a different level. Different parameters such as the system parameters of smart trolley like products name, products cost, total cost etc. are continuously display Thus with the help of the conclusion we can say that: Automatic billing of products by using smart trolley concept will be a more viable option in the future. The system is efficient, compact and shows promising performance. The utility of trolley will be first of its kind for commercial use. This device records the data of the different products with help of the suitable sensors.

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