SMART TROLLEY USING RECHARGEABLE SMARTCARDS FOR SHOPPING MALL

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*Abstract –*In metro urban areas we can see you an enormous surge at shopping centers on siestas and ends of the week. This turns out to be significantly more when there are gigantic offers and limits. Presently a day's kin buy an assortment of things and put them in the trolley. After all, out acquiring one should move toward counter for charging reason. By utilizing standardized identification peruse the clerk readies the bill which is a tedious procedure. This outcomes in long lines at the charging counters. This undertaking presents a plan to build up a framework in shopping centers to defeat the above issue. To accomplish this all items in the shopping center ought to be furnished with RFID labels and all trolleys ought to be outfitted with a RFID peruse and LCD screen .When one places any item in the trolley its code will be recognized naturally, the thing name and cost will be shown on the LCD, along these lines the expense gets put on the absolute tab. In the event that we wish to expel the item from the trolley, you can remove the item and the measure of that particular item gets deducted from aggregate sum and a similar data goes to the focal charging unit. Thus, the charging should be possible in the trolley itself along these lines sparing a great deal of time to the clients.

Keywords – **RFID tag, LCD, RFID reader, Tag, Trolley, Central billing unit**.

I. INTRODUCTION

Presently a day's enthusiasm for shopping centers is generally expanding among individuals. In the present shopping centers, clients find different challenges. Those troubles are referenced underneath. 33% of significant customers purchase food supplies on a spending limit. A large portion of the occasions, it is just toward the finish of procurement customers come to realize that the general buy complete is more noteworthy than their financial limit. At that point they invest a lot of energy in looking for their ideal items lastly in general shopping process turns out to be additional tedious as well. Because of this, multiple times customers couldn't purchase all their ideal items and pass up a major opportunity hardly any things. Another serious issue looked by clients is that they need to sit tight in long lines for charging. Subsequently the proposed framework conquers every one of these disadvantages looked by customers in shopping centers. In the initial step of this venture, a portable application is created to make shopping process simple. This application is planned so that it holds data pretty much all the items accessible in the shopping center with cost. When the customer opens the application, rundown of things with cost gets showed. The client experiences the things and will choose the ideal things. In the wake of choosing, this application sorts the Chose things and showcases them rack astute for example rack1 things first, rack2 things second, etc. Everything in General store is labeled with a remarkable RFID mark. Each shopping basket is structured or executed with an Item Distinguishing proof Gadget (PID) that contains microcontroller, LCD, a RFID peruser. RFID Peruser perceives the items put in the truck. When everything is set, different data like thing name, cost of the item is shown in the LCD show set in the truck. Alongside this complete aggregate is additionally shown. The absolute bill sum will arrive at the bill counter quickly through Bluetooth innovation. At that point the client needs to pay only the aggregate sum and can leave. Hence Thing level arrangement of RFID innovation takes into account speedy checkout paths that output all items without a moment's delay and creates absolute naturally, taking out various sectional counters and long lines, which are reliably revealed as one of the most negative parts of store shopping.

II. LITERATURE REVIEW

Galande Jayshree, Rutuja Gholap, Preeti Yadav in the year 2014 proposed RFID Based Automatic Billing Trolley. This paper proposed a system that 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. Thus, the billing will be done in the trolley itself. Item name and its cost will be displayed on LCD. Also, the products name and its cost can be announced using headset. At the billing counter the total bill data will be transferred to PC by wireless RF modules. Several previous studies have also discussed the development of marketing applications, including the study entitled "Design of EMarketing at PT. Rajawali Nusindo" and "Design of Web-

based Marketing Information Systems at BMT (Baitul Maal Wattamwil) Cita Sejahtera". The purpose of this system is a media campaign for the company. This system other than as a promotional media can also process ordering goods, ordering transaction processing, and display the status of the goods, as well as providing reports the purchase of a product level. However, there are still shortcomings in the system, especially in terms of marketing, which is a form of promotion that is carried out is limited to display only items available. There is no specific approach to attract potential buyers to purchase the product supplied. Limited mobility and lack of customer personalization.
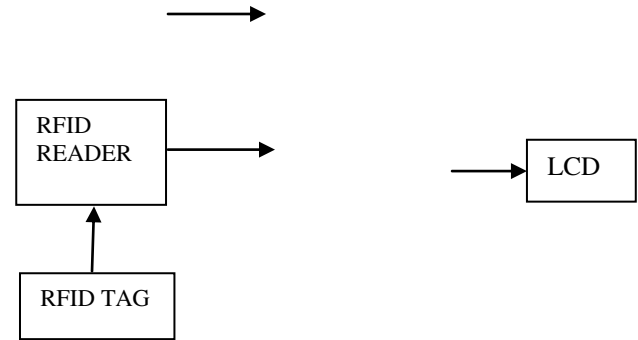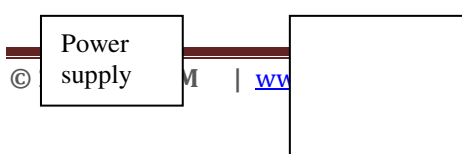
III. EXISTING SYSTEM

There has been an emerging demand for quick and easy payment of bills in supermarkets. This project describes how to build an automated and time saving system for the world of retail which will make shopping experience impetuous, customer friendly and secure. In this paper, smart cart is proposed that will be capable of generating a bill from the cart itself. The customer will make the payment in no time through a rechargeable credit card which will help to maintain database and introduce schemes and offers in stores accordingly. The designed cart eliminates the effort of self-packaging, makes the best use of cart storage space and involves security mechanism for theft control.

IV. PROPOSED SYSTEM

Technological developments have opened up new opportunities for the company to conduct its business activities. According to the report published by techinasia, there are several smart phone technology bases that have been popular among people and it plays a big part of a day to day necessity. The development of mobile technology is very rapid and it enables a new approach to e marketing. Today's consumers are surfing more, shopping more and socializing more on their mobile devices. In this paper, a mobile application is used. It displays the list of products present and its cost. The user is asked to select the products. Once the selection process is over, the products are sorted and displayed based on its location. Radio Frequency Identification (RFID) is becoming preferable technology as an alternative to barcode systems. RFID systems provide an automatic identification method, relying on storing remotely retrieving data using RFID tags or transponders. An RFID tag is an object that can be attached to or incorporated into a product, animal, or person for the purpose of identification using radio waves. Chip-based RFID tags contain silicon chips and antennae. In this paper, we have developed a smart shopping cart system that allows customers to manage their shopping list while shopping and only pay the bill at the checkout counter.

1.Block Diagram

The shopping cart has the ability to calculate automatically and display the total prices of all the products inside it. This makes it easy for the customer to know how much he or she has to pay while shopping and not at the checkout counter. This way the customer can receive faster service at the checkout. The advantage for the shop owners is that they would need fewer cashiers, which would result in a large cut in their costs.

V. HARDWARE DESCRIPTION

1. Power Supply
The AC supply is applied to 12V step down transformer. The transformer output is the 12V AC which is rectified using a diode bridge. The output of Diode Bridge of 12V DC is filtered by capacitors.

2. RFID Tags
Tags are of two types: passive tags which have no battery life and active tags which have battery life. RFID tags released for automatically identifying a person, a package or an item. These are transponders that transmit information. RFID tag contains two parts. One is integrated circuit for modulating, storing and processing information and demodulating radio frequency (RF) signal. The second is an antenna for receiving and transmitting signal.
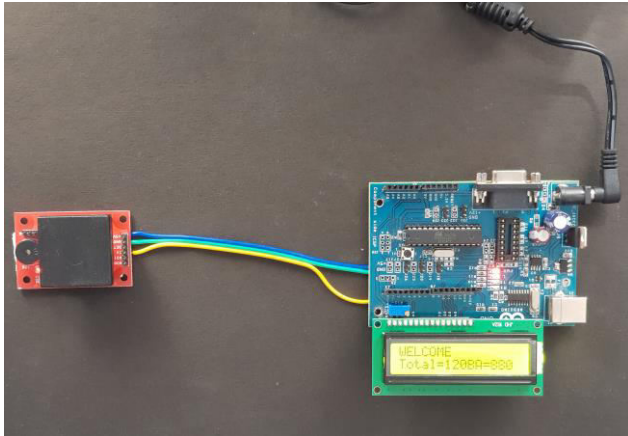
3. RFID Reader
RFID reader consists of an RF module that acts as a transmitter and receiver of radio frequency signal. Transmitter consists of an oscillator to create the carrier frequency; a modulator to make impact on data commands upon this carrier signal & a receiver that contains demodulator to extract the data returned.

4. LCD Display
LCD has the ability to display numbers, characters and graphics. The display is interfaced to I/O port of microcontroller (P0.0-P0.7). The display is in multiplexed mode i.e. only one display remains on at a time. Within 1/10th of a second the next display switches on. In this way sequentially on and off display will result in continuous display of count due to persistence of Vision.

1. SCREEN SHOT

Power supply

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VI. CONCLUSION

The progress in science & technology is a non-stop process. New things and new technology are being invented. As the technology grows day by day, we can imagine about the future in which thing we may occupy every place. This project is used in shopping complex for 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 show 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. By means of this project we intent to simplify the billing process, make it swift & increase the security using RFID technique. 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, product weight etc. are continuously display Thus with the help of the conclusion we can say that

1. Automatic billing of products by using RFID technique will be a more viable option in the future.

2. The system based on RFID technique is efficient, compact and shows promising performance.

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