

# Development of Smart Trolley for Super Market

D.Sujatha

Faculty Guide, Dept of Mechatronics, PSG Polytechnic college, Tamil nadu, India

P.J.Jaishri, M.Prasanth, Aswin Balaji

Diploma Student, Dept of mechatronics, PSG Polytechnic College, Tamil Nadu, India

**Abstract** - As a result of the century's numerous inventions and advancements in information technology, our expectations and perspectives have also undergone significant change. Shopping is a major activity where people spend the most time. Based on a poll, it is estimated that people spend between one and one and a half hours shopping, and the majority of them always leave lines if they are too long. In the modern world, shopping carts and baskets are available for customers to keep their purchases in supermarkets and shopping centers. Customers must proceed to the billing counter for checkout once their purchasing is complete. Here, the billing procedure takes a long time, and more staff members are needed in the billing department. We are using RFID-based smart technology to solve this issue. trolley system to reduce traffic, save time, and reduce labor-intensive tasks. The improved features in our prototype will help us solve the queuing problem. The Arduino Uno, LCD display, RFID tag, RFID reader, and buzzer are all included in the smart trolley system. A product has the RFID tag connected to it. The product name, price, and quantity are shown on the LCD once the goods has been placed in the trolley by the RFID reader, which scans the items automatically.

**KeyWords:** shopping, RFID reader, RFID card, Smart Trolley, LCD Display, Easy Access

## 1. INTRODUCTION

Technology has been an enlightening path for innovative new ideas. Modern world has brought us many possible ways of connecting people with technology such as IoT and industrial automation. Right from the start innovations started in the world of technology to reduce unnecessary hardship and increase the productivity of humans. One of the most important modern world leisure activities is spending time shopping in malls, shopping complexes etc. Thus, an upbringing innovation in the field of shopping and retail stores can be the inclusion of smart shopping trolley systems in which the person has to just register with the help of his/her phone number and enjoy shopping with personalised billing system which helps the customer to view his total amount anytime while shopping which helps to maintain the budget, as automatic billing, reduces the hardships in waiting and standing in long queues in the shopping malls. Our project consists of RFID tags which can be attached to the required products, an RFID reader which is used for scanning the products after putting them in the trolley while dropping

them in the trolley the product will be scanned by EM-18, an LCD which will be used to show the items added in the trolley along with the total. Also, automated the movement of the trolley with the help of ultrasonic sensors, Arduino and motors. Using a GSM module which helps us in connecting the s s mobile phone of the registered customer with the trolley and after the billing is done a message will be sent to the registered customer's mobile number with the total description of the bill.

## 2. LITERATURE REVIEW

Pritha N, Sahana S, Selvin Stephy, Shiny Rose, Unnamalai, Smart Trolley System for Automated Billing using RFID and IoT (2018), Panimalar Engineering College, Tamil Nadu, India.

An automated smart shopping system is formed by introducing the concept of IoT to connect all items in the grocery shop. In this system, an inexpensive RFID tag is embedded within each product.

Prof. Kirti Mhamunkar, Himanshu Saroj, Prajakta Katkar, Akansha Tiwari, Rahul Jena, RFID BASED SMART TROLLEY (2019), Saraswati College of Engineering, Navi Mumbai, India

The interconnectivity of commonplace devices is transforming lives through the Internet of Things (IoT). These days, In major cities, going shopping at large malls is a regular activity.

## 3. DESIGN OF SYSTEM

### 3.1 Arduino Nano

The Arduino Nano is an open-source breadboard-friendly microcontroller board based on the Microchip ATmega328P microcontroller (MCU) and developed by Arduino.cc and initially released in 2008. It offers the same connectivity and specs of the Arduino Uno board in a smaller form factor.

### 3.2 RFID

RFID stands for radio-frequency identification. RFID cards are used for applications where tracking or identifying personnel is important or where access control is required. Various RFID frequency bands are utilized in cards today, including 125 kHz low frequency proximity, 13.56 MHz high frequency smart card and 860-960 MHz ultra-high frequency (UHF).

### 3.3 LCD Display

The term LCD stands for liquid crystal display. It is one kind of electronic display module used in an extensive range of applications like various circuits & devices like mobile phones, calculators, computers, TV sets, etc. These displays are mainly preferred for multi-segment light-emitting diodes and seven segments. The main benefits of using the module are inexpensive; simple program

## 4. CONCLUSION

The use of RFID tag/reader technology in shopping malls and supermarkets can greatly improve the shopping experience for customers and streamline the inventory management process. With automatic billing systems, long queues and wait times can be greatly reduced, making the overall shopping experience faster and more convenient. This can also lead to increased customer satisfaction and loyalty. Additionally, the use of RFID technology can provide retailers with real-time inventory data, allowing them to make more informed decisions about restocking and managing their products. Overall, the implementation of this technology can lead to increased efficiency and productivity, as well as cost savings for retailers.

The Work done with the help of Rfid technology, EM-18 reader and Arduino. It's aim is to reduce the time of billing in long queues so that the customers get benefited and the same time inventory management becomes so easy. It can be implemented in shopping malls where there is a large crowd and huge rush into malls. In the world of Automation, This automatic billing system plays a major role in the upliftment of technology. This technology will replace the present barcode system which is present being followed. Hence this technology can help people to make their life's easy and time saving too.

## REFERENCES

- [1] Pritha N, Sahana S, Selvin Stephy, Shiny Rose, Unnamalai, Smart Trolley System for Automated Billing using RFID and IoT
- [2] Prof. Kirti Mhamunkar, Himanshu Saroj, Prajakta Katkar, Akansha Tiwari, Rahul Jena, RFID BASED SMART TROLLEY
- [3] Anitha.R1, Dr. Subburam.S2, Keerthana.G3, K.H. Yoganandarajurs, SMART TROLLEY BILLING SYSTEM
- [4] <https://how2electronics.com/smart-shopping-cart-with-automatic-billingsystem-using-rfid-arduino>.