



# Smart Billing Trolley

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**Abstract:** - Nowadays, searching and buying the daily essentials at shopping complexes is becoming regular in subway cities. Customers buy different products and put them in the shopping trolley. After the shopping finished, customers have to go to the cashiers for further payment procedure and hence the customers have to stand in long queues for the cashier to prepare their bill using barcode scanner to scan the barcode on the products. This paper is targeted to reduce the rush at the billing counter in the shopping malls. Smart shopping trolley does the same task by showing all the product items and their prices on the LCD display, the customers purchased and they can do the payment also by themselves and can leave with the items. There is no need to waste their time in long queues. The hardware that are used in smart shopping trolley are Arduino Uno, RFID card, RFID reader modules, ATM card reader, LCD display, etc. It replaces the traditional way of billing and payment methods of scanning of the products at the counter and speeds up the entire process of shopping. Since, the billing is automated in Smart shopping trolley, it decreases the human error possibility up to a great extent.

**Keywords:** Shopping, RFID, Arduino, Smart billing

## Introduction:

A smart billing trolley is an automatic billing trolley which a customer can take to the mall. First, the customer selects the product which he/she wants to purchase and then scans the product through the RFID tags on the product using RFID card reader on the trolley and places it inside the trolley. The RFID tags contain the product name, product price and other details, total product items and total product price are shown on the LCD display in smart billing trolley. For billing payment, the customer has to stand in long lines, which wastes a lot of time of the customers. The smart billing trolley has been created to solve this problem. It also has an ATM card reader so that our total payment is automatically credited. This is one of our advantages so that we do not have to wait in long queues for hours at the counter for the billing the entire process.

## Literature Review:

A novel "Cost-efficient intelligent shopping Cart" by doctor Surya Prasad J proposed to develop a cost-efficient intelligence

shopping Cart which can assist the customers to go for looking and selecting the product and inform the customers on any special offers there on any product as they move around for shopping within the shopping mall. Amire Karmouche proposed in "Asil-level scanning for pervasive and RFID based Shopping applications" that to develop a system which can scan the products in shopping complexes using an RFID reader. In a novel "Developing a multitasking shopping trolley based on RFID Technology", Satish Kamble considered to develop a system to assist the clients in purchasing everyday used materials by reducing the time spent while purchasing for themselves. The main purpose of the proposed system is to produce a technology aligned, cost-efficient, easily scalable system to assist the shopping in person. Mr. P Chandrasekar proposed to create a shopping Cart with a PID product identification device that consist of a microcontroller and an RFID reader and an LCD, EEPROM and a Zigbee module. This proposal is listed in "Smart shopping Cart using automatic billing through RFID and zig bee". Mr. Vatisha L et al. Considered "Automation of shopping Cart by using RFID". This system uses RFID tags instead of barcode readers to scan the price of products and the price of the product is displayed on the LCD display. It also uses Zigbee transmitter and receiver for communication at the cart and the billing centre.

## Methodology

The purpose of smart billing trolley is to make regular shopping quicker and simple. For this, a unique circuit is designed for the shopping mall in which the circuit is attached to the trolley and RFID technology and LCD display have been used in this circuit.

- **Shopping trolley using RFID technology-**

RFID technology is a wireless technology which is known as radio frequency identification. RFID technology is used for scanning the product.

RFID tags stores information like product name, product price in a database. RFID technology is a wireless technology which is known as radio frequency identification. RFID technology is used for scanning the product. RFID tags stores information like product name, product price in a database.

- **Shopping trolley using LCD display -**

LCD display is attached at the top of the trolley. All the product details like total product items and total product items cost are shown on the LCD display. All the information about the products which are available at discount in the supermarket and the product which are out of stock is also shown on the LCD display.

- **Shopping trolley with smart billing method -**

Smart billing cart system using RFID and Zigbee by Chandra Shekhar P, and T. Sangootha IEEE 2014. Smart shopping mall using IOT 2<sup>nd</sup> international conference on IOT and computing. An advanced feature has been added to the automatically make billing payments in the smart shopping trolley and the ATM card reader has been used in the circuit which is used to scan the ATM. After scanning the ATM, the billing payment process is done automatically.

### **Conclusion**

The product is designed based on the working of the shopping trolley. Smart shopping trolley helps customers in such a manner that customers take products and put in the trolley, trolley will automatically do the customers payment by using ATM Card reader on the trolley or any other online payment methods. RFID

technology is used to scan the products and LCD displays are used to show all the product details such as total product items and product prices, etc. Its main purpose is to minimize the customers time while shopping. This smart billing trolley plays an important role in the super market. This technology can help people to make shopping quicker and simple.

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