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IOT BASED SMART SHOPPING CART

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ABSTRACT

In spite of the presence of E-commerce, people prefer to buy product from supermarkets and malls for the sake of their own satisfaction. One of the difficulties faced by the consumers is, they have to stand in a long queue in the entire process of scanning of each product and also while performing the billing procedure. Their intent to buy only one or two products results in, time consuming process. Moreover, it is inconvenient as people live in a busy life. Money and average time spent on each consumer is more, especially in over-crowded malls or supermarket. In the existing scenario, Barcode technology is used, which comes with a lot of limitations. By implementing this smart machine, it will minimize human efforts and also automate the billing procedure. So, in our prototype we are using RFID technology for identification of the purchased product and it reduces the scanning time of the consumer. The main objective behind making this project is to improvise the shopping experience. This system will be more efficient as compared to all the other system used for inventory management.

INTRODUCTION

In busy world, waiting in the long queue during shopping as become tedious process. And this consume the lot of time of the user in the shopping market. To avoid this problem, we are proposing a futuristic shopping system. This reduces the billing time of the user. And user no longer need to wait in the long queue for billing. This is system will replace conventional and time-consuming system. The proposed system used emerging technology like Internet of Things along with Android and RFID. User can experience prepaid shopping system, where user have to recharge the cart with amount of his/her requirement. And for every item that he/she includes in the shopping cart the amount will be automatically detected. Amount will be credited to user prepaid shopping account, if added item is taken out of the cart. Near Field

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Communication system (RFID) is used here, to uniquely identifies the each item in the super market and to know about other details like price. Entire system is communicated via IoT.

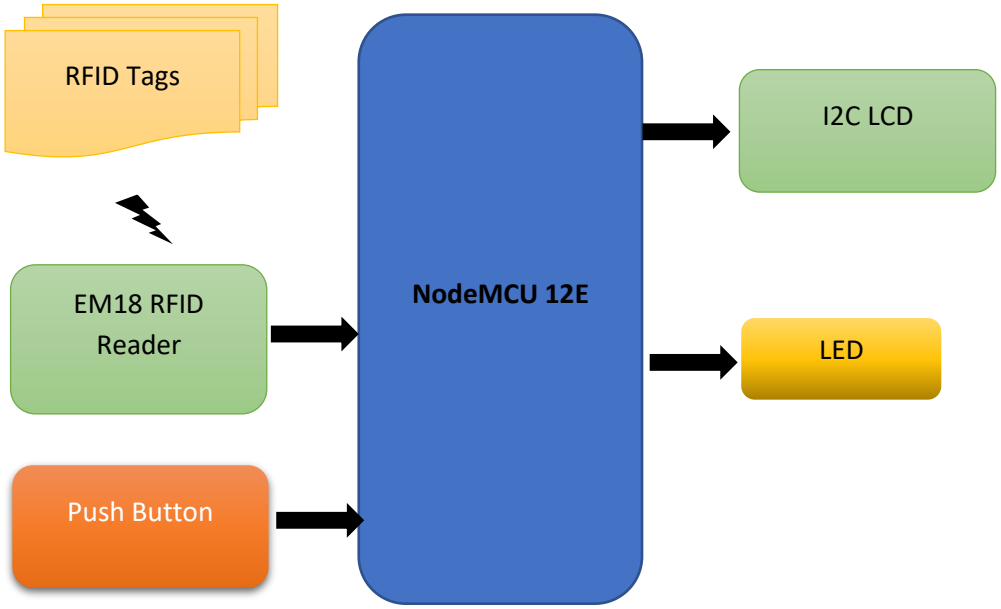

Figure.1 Block diagram of Iotbased Smart shopping cart

LITERATURE SURVEY

Introduction to IoT in Retail and Smart Shopping Carts:

Begin by understanding the role of IoT in the retail industry and how it has revolutionized shopping experiences.

Explore literature that introduces the concept of IoT-based smart shopping carts and their potential benefits for retailers and customers.

Design and Architecture of IoT Smart Shopping Carts:

Investigate research papers and articles that discuss the design principles and architecture of IoT-based smart shopping carts.

Look for studies that describe the integration of sensors, actuators, microcontrollers, and communication modules to enable smart functionalities.

Customer Experience and Personalization:

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Review literature on how IoT-enabled smart shopping carts enhance the customer shopping experience.

Explore studies that discuss features such as personalized product recommendations, location-based promotions, and interactive displays that engage shoppers.

Inventory Management and Stock Replenishment:

Examine research papers and articles that explore how IoT-based smart shopping carts facilitate inventory management and stock replenishment for retailers.

Look for studies that describe how real-time tracking of products within the cart enables automatic updates to inventory systems and alerts for out-of-stock items.

Checkout and Payment Integration:

Investigate literature on how IoT-enabled smart shopping carts streamline the checkout and payment process. Explore studies that discuss features such as self-checkout options, mobile payment integration, and automatic billing based on the items in the cart.

PROPOSED SYSTEM

All the products in the mall will be tagged with Unique RFID cards. When a person adds an item to the trolley, the card will be scanned by the RFID reader. Reader sends this code to NodeMCU which further reads the product's code and sends it to the cloud, where the product database is available. Then a smart shopping cart application fetches the data and displays it on Lcd. The item details like name, price & total bill of things inserted in the cart are displayed on the Web page. As we add the items, the costs will get added to the total. Thus, the billing is done. Simultaneously all details are displayed on the Webpage. And additionally if we would like to get rid of some inserted item, then that product can be removed by pressing the push button and scanning it again from the trolley. The cost of the removed product will be deducted from the total amount which will be displayed on the mobile app. Every trolley will have a separate Identification number. The smart shopping cart would be able to automatically read the products that have been put into the cart by scanning RFID. A Led is used for giving an intimation when a product is added or removed.

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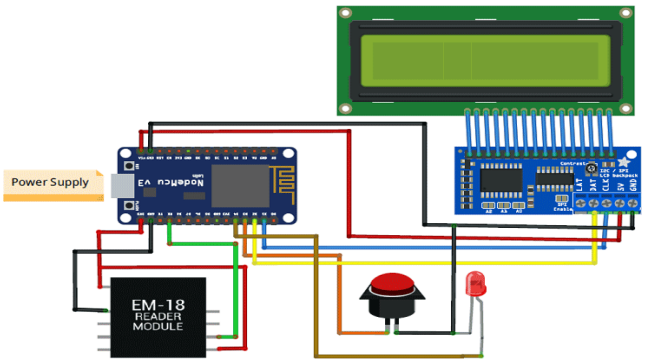

Figure.2 Schematic Diagram

RESULT

The result was positive and the system responded well. The diagram below shows the complete prototype implementation of the proposed system.

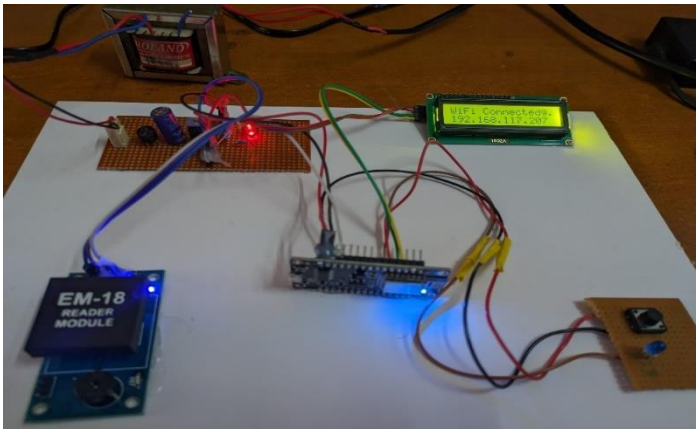

Figure.3 Displaying IP address on LCD

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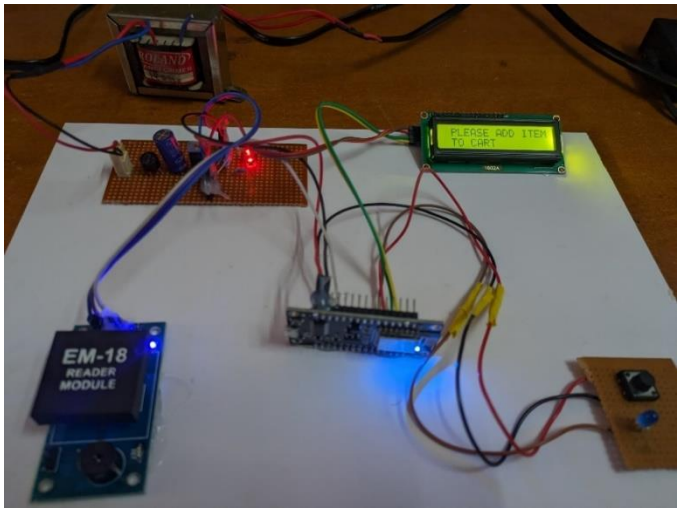

Figure.4 Add the item

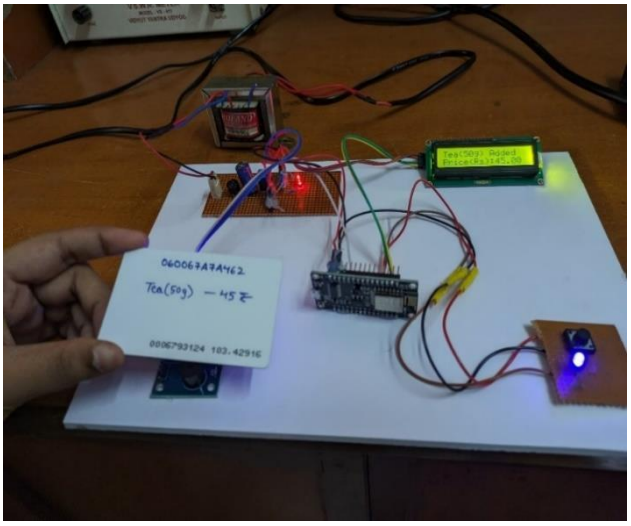

Figure.5 RFID reader reading the item

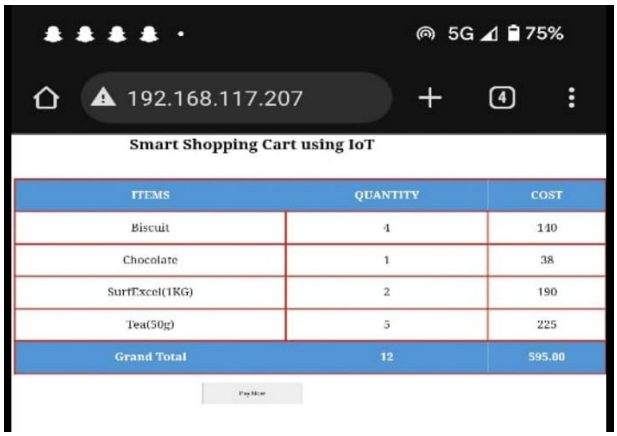

Figure.3 Website Output

CONCLUSION

The Internet of Things is one such technology that connects various objects in The Internet of Things is one such technology that connects various objects in a network and is a milestone in the era of the smart world. The smart shopping cart features these technology enabling users to shop efficiently. Internet of things is the leading technology that makes the world experiences a seventh sense. By the year 2030, around 1 billion objects will be connected thus making the world smart. Thissmart shopping cart is implemented in such a way that it allows the customer to scan the item that he/she wants to purchase and automatically updates the bill thus preventing

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long queues at the checkout. Also, another interesting feature of this smartshopping cart is the cart-to-cart communication that helps the customers to shop parallelwith friends and family. Asking to shop as owner Pop up asking Email IDPop up asking Email ID of partner. Shopping with the saved list.

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