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## SMART SHOPPING TROLLEY for AUTOMATIC BILLING

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### ABSTRACT

We present an easily scalable, low-cost method to help clients with their purchasing. The majority of supermarkets employ the labor-intensive and time-consuming barcode-based product scanning method. The RFID technology enhances the overall shopping experience due to its significant advantages over existing barcode systems. The trolley has an RFID reader attached to it so that customers can scan each item to obtain discounts, features, and product information.. The system provides the location of a particular item if the user is unable to find the location. The system detects the expiry date of the product and alerts the user. It also provides product suggestions based on the customer's previous purchase and also popup the current offers. The customer can pay the bill using a prerecharged card or net banking.

**Keywords:** Automated Billing, RFID Technology, Seamless Transaction.

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### I. INTRODUCTION

Nowadays people find it easier to order online than go to a retail shop, so business owners need to come up with new technologies to improve shopping experience. These days, all supermarkets provide carts for customers to utilise to carry their purchases during the whole shopping experience.. In most the shopping centers or supermarkets, people face that aToday almost every supermarkets use a barcode system to identify products and generate the final bill. A barcode is made up of several vertical lines that are spaced apart and have varying thicknesses. These codes provide a distinctive identity for each product. When the customer is done shopping, they proceed to the bill payment area, where every item they remove from the cart is manually scanned using a barcode scanner. Thus, if there is an abundance of a purchased item, the scanning time increases steadily. This is the process that most department retailers use. The barcode reader is integrated into the trolley thanks to innovations in the smart trolley system, converting a standard shopping cart into a smart one. Additionally, it does away with the necessity for manual labour at the checkout counter. Subsequently, the LCD was added to the cart so that the consumer could see the total while scanning each item. This mostly aids the user in making decisions about purchases. The current barcode technology makes it simple to identify products by storing all of their information in a database. This system's primary issue is that it needs optical line-of- sight scanning.. It doesn't have read/write capabilities and it is also susceptible to environmental damage. If the barcode is scratched or crumbled it may cause problems while scanning.

### II. LITERATURE SURVEY

Radio frequency identification Technology has a key role in handling manufactured goods and providing efficient services. Unlike other Technologies like a barcode RFID doesn't need Line of Sight for the identification of materials [1]. The products are uniquely identified by using RFID tags. There were mainly two classes of RFID devices: active and passive. Active tags are either connected to a powered source or use stored energy in a battery. Passive tags do not require batteries or maintenance. The RFID reader is responsible for powering the tag and communicating with the tag. The tag antenna receives energy and transmits the unique tag ID. An important feature of the modern RFID is that the tag can contain more information. Due to its potential benefits, RFID can be used in many applications

### III. PROPOSED SYSTEM

The system is combination of hardware and software componants.

**a) RFID522 Module**

**b) Arduino UNO**

### c) LED Screen

### d) Circuit Diagram

### e) System Setup

### f) Working

### 3.1 RFID522 Module

#### 3.1.1 RFID Tags:

The RC522 RFID reader has a reading range of approximately 1 meter and is compatible with passive-type tags. It is a read/write chip created by NXP with low power consumption, cheap cost, and small footprint.. It is among the least priced RFID alternatives and typically includes a key fob tag with 1KB of memory and an RFID card tag.



Fig 1. RFID Module

#### 3.1.2 Arduino UNO

The Arduino Uno is a programmable microcontroller board that can be used in many electronic projects. It was first released in 2010 and is based on the ATmega328P microprocessor from Microchip. The Arduino Uno is programmable using the Integrated Development Environment (IDE) and can run on both online and offline platform.

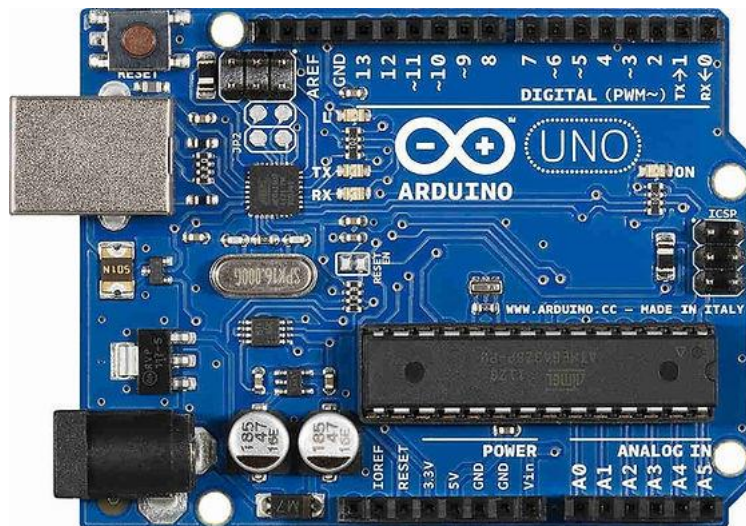


Fig 2. Arduino UNO

#### 3.1.3. LED Screen

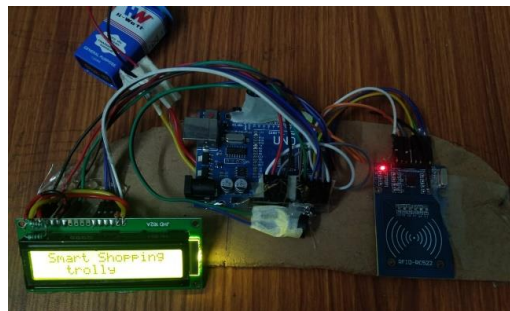
A screen display technology called light-emitting diode (LED) display employs an LED panel as the light source.. A variety of gadgets use LED screens, such as:

- Computer monitors
- Mobile phone and tablet screens
- Motor car dashboard displays
- Television screens



**Fig 3.** LED screen

### 3.1.3 CIRCUIT DIAGRAM



#### • SYSTEM SETUP



## IV. WORKING

After uploading the code, we start testing the device. Initially, the LCD will show the message “Welcome To Super Market”. The LCD will display the message to Add the item. You can add any item simply by scanning the item with an RFID tag.

## V. CONCLUSION

The basic idea is to make shopping more easy and comfortable in the overpopulated cities. This shopping cart is built with a system that enables the customer to bill their products at the cart itself without standing in long queues for billing. Finally, a system named smart shopping cart is designed in which the microcontroller (node MCU) and RFID technology plays a vital role in scanning the products, preparing bill, and displaying it on LCD and also uploading the same into the webserver. This helps the user to view the bill on his/her device.

## VI. REFERENCE

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