

RFID BASED SMART SHOPPING TROLLEY

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ABSTRACT

When making a purchase at a supermarket, we can choose the things we want, put them in the container, and only learn the final price when the bill is sent. Additionally, we must wait in queue to bill such things. To get around this, we can create an RFID-based trolley to make purchases simpler and more pleasant. To make the transaction more comfortable, the trolley is equipped with an RFID Reader and an electrical hardware. Each item has an RFID card attached, and the card's price is pre-programmed. The cost of the item is added to the purchase bill and is displayed on the receipt when it is displayed to the reader (fitted in the cart). The option to remove products from the trolley after deducting their costs from the overall cost also included. The microcontroller allows us to establish a limit value for the purchase price; after the products are added, the cost is totaled, and if it exceeds a predetermined threshold, an alert signal is sent to let us know. A payment option is also made available to the customer along with this. The customer can pay their bill with ease by choosing a payment method. MCU sends data through SMS to the customer's side via the GSM module that shows the total amount paid for the transaction.

I. INTRODUCTION

The importance of automation in the global economy and in day-to-day life is rising. Systems that are automatic are preferred to those that are manual. We attempted to demonstrate an RFID-based grocery cart using this effort. One of the technologies that is quickly gaining popularity for tracking and identifying things is RFID. The usage of an item (usually referred to as an RFID tag) affixed to or incorporated into a product, animal, or person for the purpose of identifying and tracking via radio waves is known as radio-frequency identification (RFID). Some tags are readable beyond the reader's line of sight and from distances of several metres.

In many areas of daily life, electronic technologies have gradually taken the place of mechanical equipment and human operation for recognising persons or things in recent years.

An electronic tag attached to an object and a reader work together to exchange data via radio waves as a means of identification and tracking. This technology is known as RFID.

1.1 PROBLEM STATEMENT

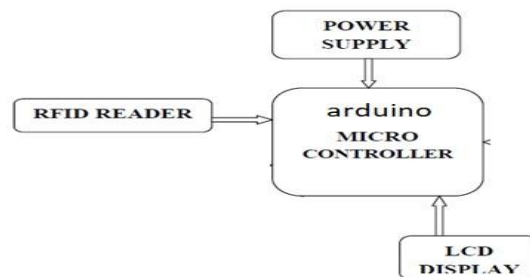


Fig.1 - Basic Str.

Shopping and making purchases at large malls is now an everyday pastime in major cities. On weekends and holidays, there is a significant rush at the malls. When there are discounts and One must proceed to the billing counter to make payments after making the entire purchase.

II. METHODOLOGY

DESIGN OVERVIEW



Block diagram of RFID based smart trolley for supermarket automation

Fig.2 - Methodology

2.1 FLOW CHART

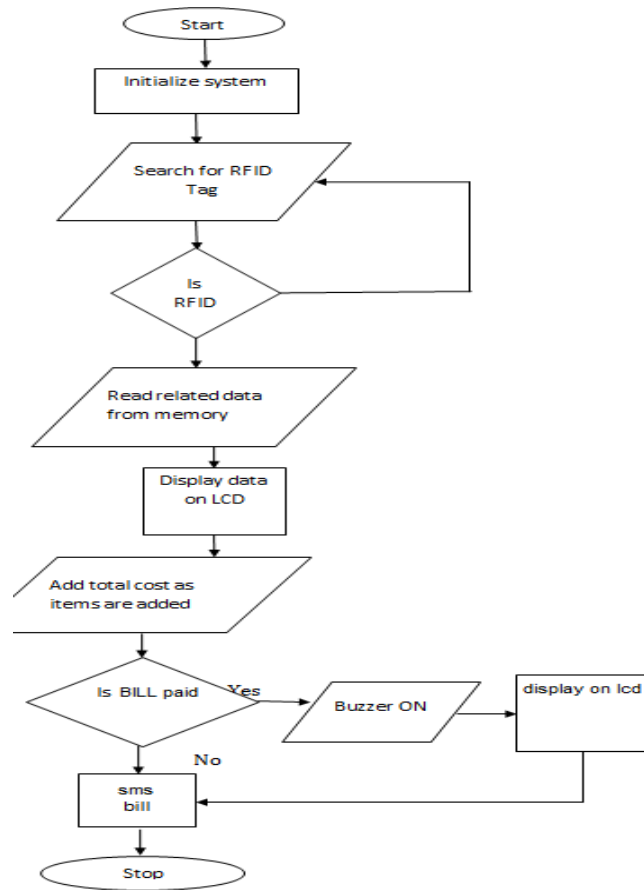


Fig. 3 Flow chart

1. RFID tags will be attached to every item in the mall. The RFID scanner, which is connected to the processor, will detect an item's code when a person places it in the trolley. Atmega 16 is serially interfaced with an RFID reader. It needs a 12V power source to operate, and once it has the tag code, it interrupts the controller.
2. Reader sends this code to the atmega 16, which compares it to codes in memory and reads the item's name, price, and other information. Then it makes an LCD display. On the LCD, the information about each item, including its name, price, and total cost, is presented.
3. The costs will be added to the total when we place the products. So, the billing is finished. Immediately, every aspect
4. Internal memory is utilised to store the item pricing and total billing information.
5. A 4-bit LCD interface is used with a microcontroller.

2.2 CIRCUIT DIAGRAM

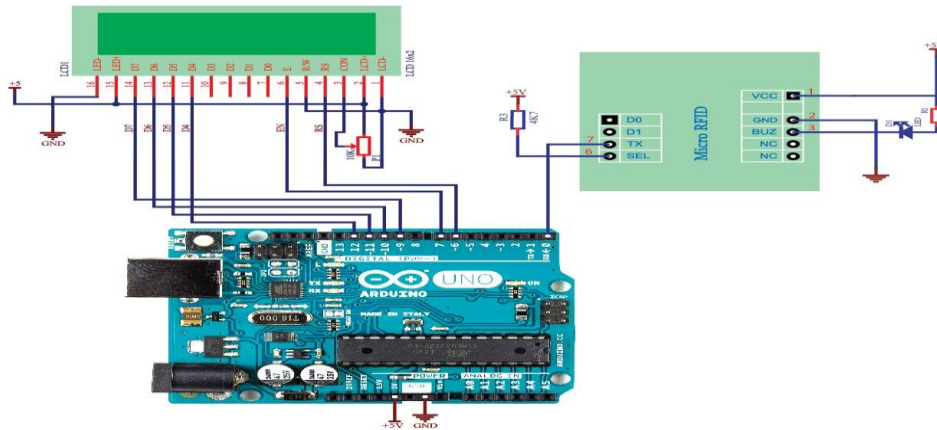


Fig.4- Circuit diagram

II. CONCLUSION

In the study, our team described a safe, smart, and contemporary shopping system that makes use of contemporary RFID technique. The use of ultrahigh frequency RFID to improve the shopping experience was new. In the context of the contemporary secure and intelligent shopping system, security issues are discussed. We created a model or prototype to test aforementioned technology after carefully outlining the ideas of a brand-new system.

Additionally, our team developed a secure network protocol and presented the security analysis performance results of the protocol. According to the trial findings, the suggested correspondence convention can effectively supply correspondence steadfast quality, and the human recognition and following technique can correctly identify the real zone in all cases of unique advances.

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