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IJIEMR Transactions, online available on 30th Jul 2022. Link :http://www.ijiemr.org/downloads.php?vol=Volume-11&issue= Spl Issue 06

DOI: 10.48047/IJIEMR/V11/SPL ISSUE 06/02

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Volume 11, SPL ISSUE 06, Pages: 6-8

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Social Distancing Based Smart Cart

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ABSTRACT

Shopping is easy but waiting on a bill counter after shopping is too boring and tedious task. Huge amount of rush plus the cashier preparing the bill with a barcode scanner is too time consuming and results in long queues. Here discussed an innovative method which will be placed in the shopping trolley itself. The proposed system consists of a reader which is controlled by Arduino. So, whenever the shopper puts any product in the trolley it is detected by the reader module and it is displayed on LCD along with the price of the product. As the shopper adds more things, it is detected by the module and the price according to that increases. At the end of shopping the shopper will press the button which when pressed adds all the product along with their price and gives the total bill to be paid.

Keywords: Arduino Uno, Barcode Scanner, Ultrasonic Sensor, Buzzer, Switches

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INTRODUCTION

The main objective involved in this plan is to implement a smart shopping cart which gives social distance instructions with the help of barcode technology for improvising purchasing. The plan is to employ the barcode related surveillance implementation practice in the purchasing cart. In this plan barcode card is utilized as a protection entry for acquiring commodities in the Shopping malls [1-4]. If the commodity has been placed in the shopping cart the price of the product appears and accordingly the total amount will be shown and if we wish to remove the product from the trolley, you can take away the product and the amount of that specific product gets deducted from total amount.

In this, the technology used is for obtaining the products thereby which boosts security performance and speed while purchasing in shopping complexes. The technological objective for our presented problem in shopping complexes is the practice of barcode technology [5-6] for the instinctive recognition of commodity in the interior of the purchasing cart thereby annihilating shopper intervening in the task of commodity purchase and for payment [7-9]. The ultrasonic sensors are used to give social distance instruction if any one does not follow the social distance with people.

EXISTINGSYSTEM

In past days system was developed using complete hardware modules, and manual operating system.Soitisnotpossibletoscanning process in short time but here making system verysimple. And majority of projects are dependent on RFID technology only [10]. After all they doesn't include social distancing in projects in this Covid time.

PROPOSEDMETHOD

The system consists of a barcode scanner which is controlled by Arduino. So, whenever the shopper puts any product in the trolley it is detected by the barcode scanner module and it is displayed on LCD along with the price of the product[11]. As the shopper adds more things it is detected by the module and the price according to that increases. At the end of shopping the shopper will press the button which when pressed adds all the product along with their price and gives the total bill to be paid. Reducedcost, easy to billing, comfortable and easy to use are some of the advantages of this Gadget over existing technology.

As the shopper adds more things it is detected by the module and the price according to that increases. At

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the end of shopping the shopper will press the button which when pressed adds all the product along with their price and gives the total bill to be paid. It maintains social distancing in shopping. It takes less time of consumer in billing [12]. Also it requires less man power.

When the power supply is 'ON, a tag is attached to every product in the mall and the reader is attached to the trolley[13-18]. At the time of purchase, the tag attached to the product is scanned by the reader. Each tag has a unique EPC. Based on the EPC received by the Arduino, the information of the product is displayed on the LCD along with the updated cost. If the customer wants to remove the added product, the product should be scanned again. Then the cost of the corresponding product will be deducted from the bill. The push button is provided at the trolley to indicate the end of the shopping. On pressing the push button, the final bill is displayed on the LCD.

At the same time another parallel work will be initiated that to make a social distancing alarm I'm using Arduino Uno, Ultrasonic sensor, BUZZER, and LED. An ultrasonic sensor that has an Echo pin. It is connected to Arduino digital pin and the Trig is connected to another Digital Pin. Talking about LED and Buzzer Negative is connected together and buzzer positive wire will be connected to a pin and LED positive wire will be connected to the pin. After making all these connections the circuit is ready.

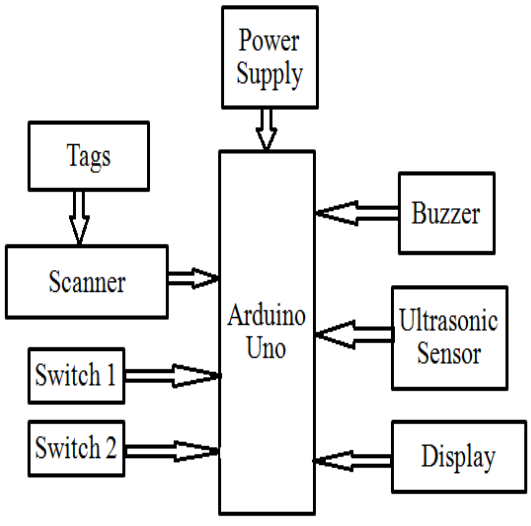

Figure 1: Block diagram of the proposed method

SOFTWARE USED:

The software used by the Arduino is Arduino IDE. Here Arduino IDE is a cross-platform application written in Java, and is derived from the IDE for the Processing programming language and the Wiring project. It is designed to introduce programming to artists and other newcomers unfamiliar with software development. It includes a code editor with features such as syntax highlighting, brace matching, and automatic indentation, and is also capable of compiling and uploading programs to the board with a single click. There is typically no need to edit makefiles or run programs on acommand-line interface.

RESULTS

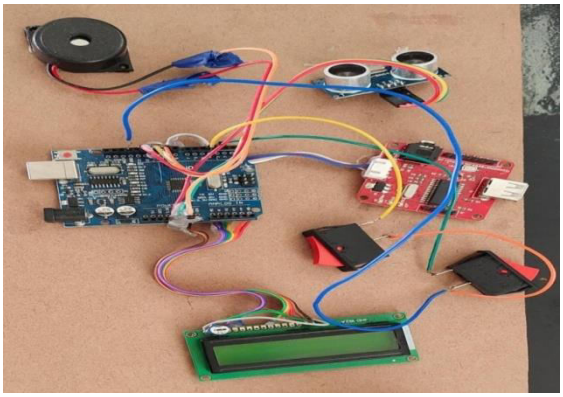

Figure 2:Circuit

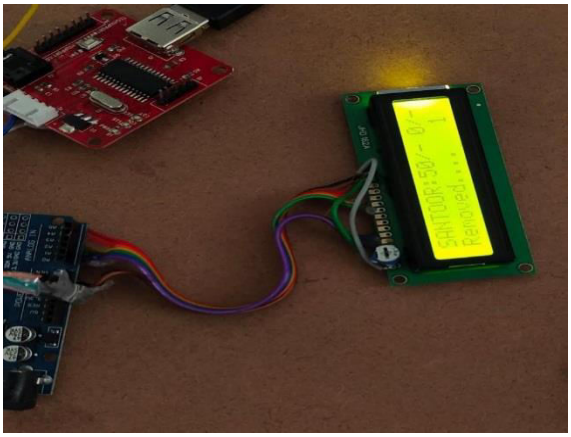

Figure 3: Scanning products in Cart

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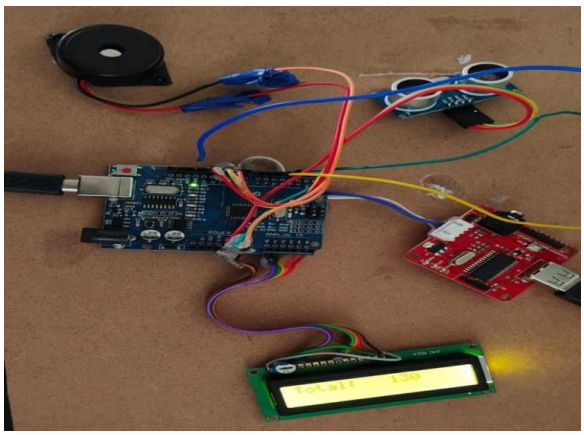

Figure 4:Displaying the total amount in the LCD Display

CONCLUSION

The progress of science and technology is a continuous process. The latest equipment and latest technology are being designed and developed. This application is used in shopping malls to help customers by saving a lot of time to buy basic products. In this project, barcode is used for secure access to items, which improves monitoring performance. This implementation launched an automated central billing system in shopping malls and supermarkets. With this billing process, the speed has increased and it has become much simpler. In addition to this capability, the mechanism also ensures the identification of thefts caused by fraudulent consumers, which makes the system more reliable and attractive to both customers and sellers. The automatic scanning mechanism will reduce long lines and help maintain social distancing. Different variables such as item cost and item name are continuously displayed on the LCD screen installed on the trolley.

It is also useful for the people to maintain social distance as it gives an alarm sound when anybody does not follow social distance.so it is useful to give social distancing instructions for the people in public areas such as shopping malls and super markets.

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