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Intelligent Smart Shopping System using Wireless Technology

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ABSTRACT

A shopping center or complex is where individuals purchase item/s for their general utilize. The clients need to hold up in long lines to get their items filtered utilizing standardized tag scanner and get it charged. To dispose of this, we have proposed another Smart Shopping Trolley utilizing RFID (Radio Frequency Identification). This usage is utilized to help a man while shopping and furthermore to abstain from remaining in long lines and accordingly sparing time. The savvy shopping trolley would comprise of a microcontroller, Android Device, RFID Reader and an Electronic Display. The items in the strip malls will have RFID labels to recover/get to data about it. At the point when a client puts an item in the keen trolley, the RFID Reader will read the Product ID and the data identified with it will be put away in controller. There will be correspondence between android gadget, principle server and charging framework (entryway framework) through ZigBee module. The aggregate sum of the items in the trolley will be computed utilizingandroid gadget and it will updated to the server using GPRS.

Keywords: RFID Reader, GPRS , ZigBee Module.

I. INTRODUCTION

Presently days acquiring and shopping at huge shopping centers is turning into a day by day action in metro urban communities. We can see colossal surge at shopping centers on vacations and ends of the week. The surge is much more when there are unique offers and rebate. Individuals buy distinctive things and place them in trolley. After aggregate buy one needs to go to charging counter for installments. At the charging counter the clerk set up the bill utilizing scanner tag per user which is a tedious procedure and results in long lines at charging counters.

Our point is to build up a framework that can be utilized as a part of shopping centers to tackle the previously mentioned challenge. The framework will be put in all the trolleys. It will comprise of a RFID peruses. Every one of the items in the shopping center will be outfitted with RFID labels. At the point when a man puts any items in the trolley, its code will be identified and the cost of those items will be put away in memory. As we put the items, the expenses will get added to add up to charge. In this manner the charging will be done in the trolley itself. Thing name and its cost will be shown on LCD. Likewise the items name and its cost can be declared utilizing headset. At the charging Counter the aggregate bill information will be exchanged to PC by remote modules.

Existing System:

In the Existing the Cost of the Items are just shown on the LCD with the assistance of the RFID Reader and IR Sensor. In the event that the User has finished his shopping the Total is additionally computed and shown on the LCD itself.

Disadvantages:

- ✓ No Billing is provided.
- ✓ Hard to place the Product in exactly in between Sensors to identify.
- ✓ Difficult to identify the Product.

Proposed System:

In the Proposed System we have implemented the system efficiently to transfer the Data Successfully to the Billing Session. In this System we are using RFID Reader and Zig-Bee to Data Transferring and updated to server using GPRS.

Block Diagram:

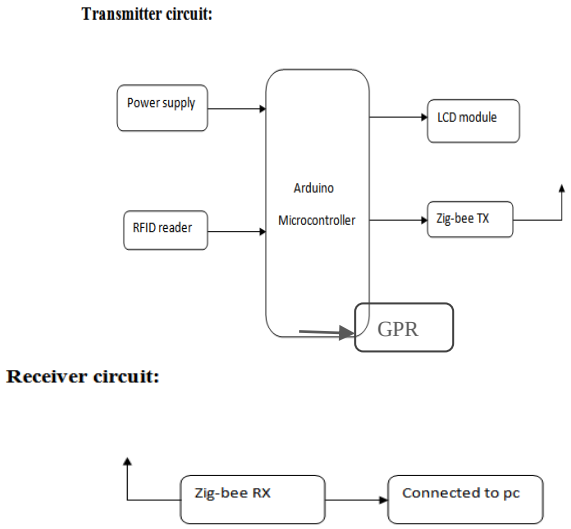

Figure 1

II. HARDWARE DESCRIPTION

Some Basic components used in Power Supply:

Transformers:

Transformers are contraptions which meander down a generally higher AC data Voltage into a lower AC yield voltage.

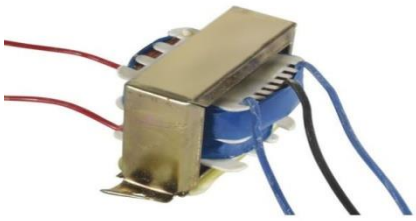

Figure 2

On the transformer, one side will have three terminals and the other will have two. The one with the three terminals is the meandered down yield of the transformer, and the one with the two terminals is the place the information voltage is to be accustomed.

Rectifier:

Rectifier is a contraption which is used to change over AC voltage to DC voltage. It is generally isolated into Full wave and half wave rectifiers.

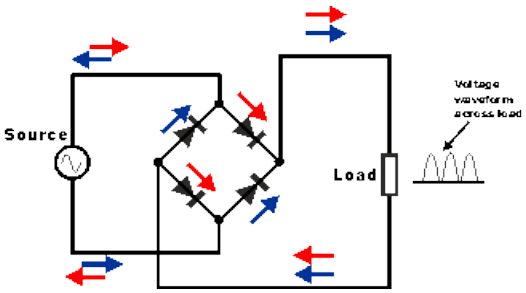

Figure 3

Capacitors:

Capacitors are used to get the impeccable and smoothest DC voltage in which the rectifier is used to get throbbing DC voltage which is used as a piece of the light of the present predetermination, from the connector.

Figure 4

Voltage regulators:

The 78XX voltage controller is mainly general used controller for voltage controllers. The XX addresses the voltage of which the voltage controller conveys as the respect the particular device. 7805 will convey and control the yield voltage of 5v and 7812 will make the yield voltage of 12v.

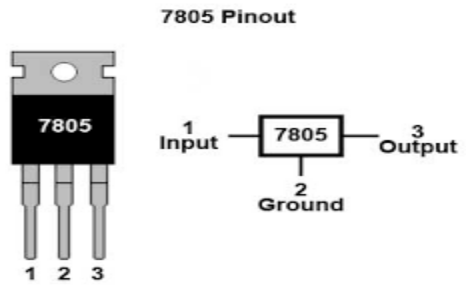

Figure 5

Arduino:

The Arduino Micro Controller is a greatly simple to use and introduced on an unmarried chip. It is an In-System-Programmable Device this suggests the client haven't any need to use the discard the IC, we can immediately join the Arduino to the PC and picking the most ideal COMM port

Figure 6

The Programming of the Arduino is either in C/C++. On the off chance that you're acquainted with C, programming of the Arduino is immediate to see.

ATMEGA328P FEATURES:

- ✓ Elite steadiness, Low Power utilization with 8-Bit Microcontroller.
- ✓ Progressed Reduced Instruction Set Computer (RISC) Architecture which has the accompanying components as takes after

LCD:

A 16x2 LCD implies it can show 16 characters for each line and there are 2 such lines. In this LCD each character is shown in 5x7 pixel framework. This LCD has two registers, specifically, Command and Data.

LCD (Liquid Crystal Display) screen is an electronic show module and locate an extensive variety of utilizations.

- ✓ Most executable instruction is single clock cycle.
- ✓ At 20 MHz it has the throughput up to 20 Million Instructions Per Second (MIPS)

III. RFID

RFID is a following innovation used to recognize and validate labels that are connected to any item, individual or creature. Radio recurrence Identification and Detection is a general term utilized for advances that influence utilization of radio waves keeping in mind the end goal to recognize questions and individuals.

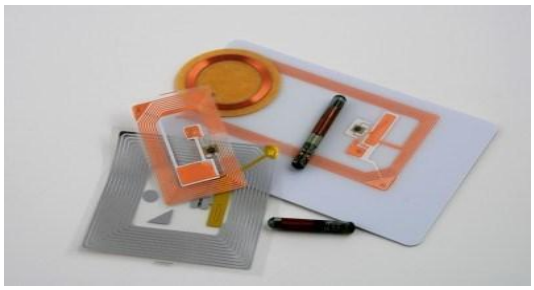

Figure 7

PinDiagram:

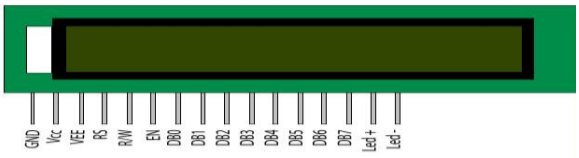

Figure 8

ZIGBEE MODULE:

ZigBee is a wireless networking standard that is aimed at remote control and sensor applications which is suitable for operation in harsh radio environments and in isolated locations.

ZigBee technology builds on IEEE standard 802.15.4 which defines the physical and MAC layers. ZigBee Module is a minimal effort, low-control, remote work organizing standard. The minimal effort enables the innovation to be broadly conveyed in remote control

and observing applications, the low power-use permits longer existence with littler batteries, and the work organizing gives high steady quality and greater range.Temco has built up an implanted radio wire of remote information correspondence module, which embraces standard ZigBee remote innovation. This module is in accordance with the Industry Standard uses of remote information correspondence module.

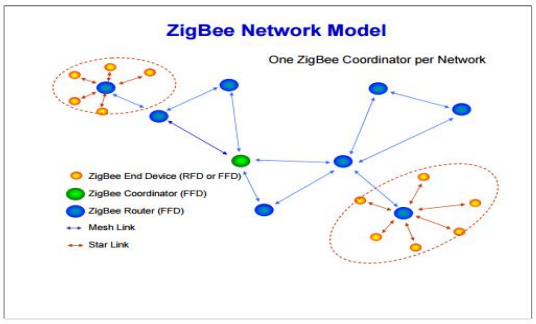

Figure 9

GPRS:

General Packet Radio Service (GPRS) is a Mobile Data Service accessible to GSM and IS-136 mobile phones users. This service is packet-switched and several number of users can divide the same transmission channel for transmitting the data.

Software Description:

ARDUINO IDE:

To program the Arduino (influence it to do what you need it to) you additionally utilize the Arduino IDE (Integrated Development Environment), which is a bit of free programming, that empowers you to program in the dialect that the Arduino gets it. On account of the Arduino the dialect is C. The IDE empowers you to compose a PC program, which is an arrangement of well-ordered directions that you at that point transfer to the Arduino. At that point your Arduino will do those

WORKING OF THE PROJECT:

The Working in this undertaking is straightforward and effectively reasonable, so would product be able to is dropped in the truck the RFID peruses the Tag information which is connected to the Product and the recover the Price and Quantity of the Tag. The Price and Quantity Data is specifically exchanged to the Serial window by the including every item the Price is naturally summed and if any item must be expelled from the truck at that point and leave catch is accessible, which you have hold and evacuate the item then it will consequently decrement the cost from the Total. After the Completing the entire shopping simply tap on the Completed the aggregate charging cost is sent to the Billing Section and from the billing section to cloud using GPRS.

IV. RESULTS

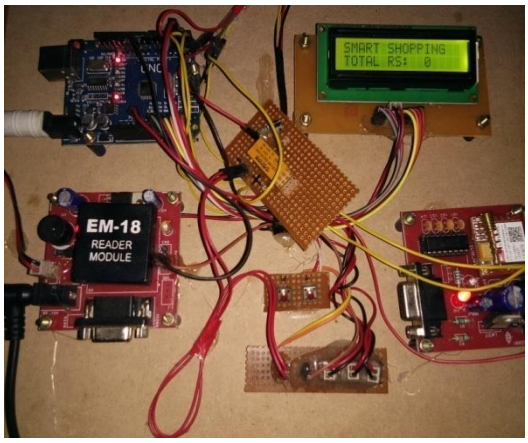

Figure 10. Smart shopping system

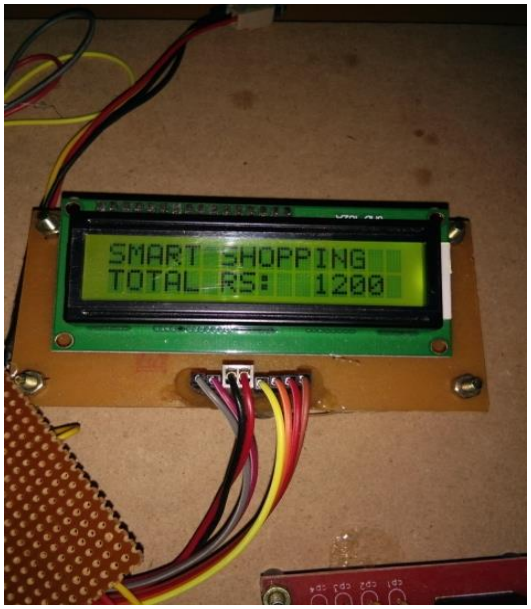

Figure 11. Displaying cost of the product on LCD

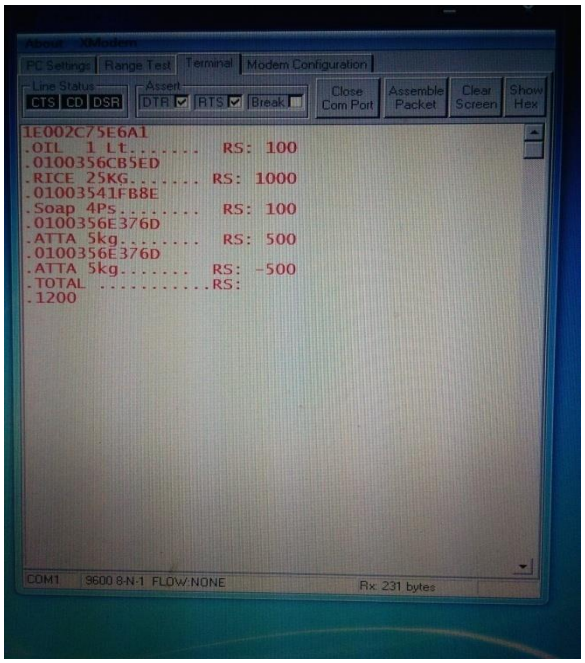

Figure 12. Displaying cost of the products using zigbee communication

APPLICATIONS:

- ✓ Easy shopping
- ✓ Super markets
- ✓ Industries

ADVANTAGES:

- ✓ Easy Handling
- ✓ Smart Usage
- ✓ No Waiting

V. CONCLUSION

Hence from the above proposed method we have described the Smart Trolley and its working. With this type of technology we can easily get the clarity about the shopping which we are doing and it looks Smart during the Usage.

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