

https://www.youtube.com/watch?v=f_OVuQ4A00

Smart Shopping Cart using RFID

This project aims in designing a user friendly, automatic shopping trolley and data storing system of the number of goods on trolley in big shopping malls using RFID technology along with cost details and display on the LCD (Liquid Crystal Display). The system sends the selected item details along with cost to the billing counter automatically using wireless zigbee communication modules. The system also alerts the shop keepers from being goods stolen using RFID reader which is placed at the exit for the malls.

The RFID reader is interfaced with the microcontroller and RFID tag is attached to each and every good package. When the goods are placed in the trolley the RFID tags attached to the goods are decoded by the RFID reader interfaced to the microcontroller and the information is stored and displayed on LCD. The system automatically sends the selected goods number along with cost onto the PC of billing counter using wireless ZigBee.

The proposed system consists of two sections:

- (i) Trolley section (user)
- (ii) Billing section

The Trolley section consists of RFID module, Zigbee module, LCD display and microcontroller. The input module is the RFID reader which gives the information of the goods when it decodes the RFID tag of the good, this information is displayed on the LCD along with cost details. The output modules is LCD. The RFID reader continuously checks the placing of the goods package inside the trolley or removing from the trolley using RFID tag attached to it and these details along with the cost is automatically uploads onto the PC section or billing counter section. Costumer will pay the bill through Bluetooth using mobile and send this data like cart no and paid money to the PC using wireless ZIGBEE.

The monitoring or billing section mainly connected with the computer at the bill counter consists of another RFID reader interfaced with microcontroller along with LCD, buzzer modules. The details of selected items along with costs are automatically fed as input to microcontroller using zigbee module and displayed on to the monitor of PC. The RFID reader which is located at the exit section will check the RFID tags attached to the goods have been made hidden with customers and alerts the shop keepers with panic alarming unit. The entire data related to goods are stored in the microcontroller and also displays on LCD. This application is very useful in big shopping malls to store data of all the goods in the departmental stores, and to display on LCD using RFID technology.

Features of this project:

1. User-friendly interfacing.
2. Information related to the goods display on LCD.
3. Automatic billing with selected items onto the billing counter PC using wireless zigbee
4. Audible and visual alerts using LCD and buzzer
5. RFID based Wireless Communication.
6. Automatic Hidden items or stolen items identification and alerting using RFID and buzzer.

This project provides exposure to the following technologies:

1. Behavior of RFID module.
2. Interfacing RFID module with the PIC.
3. RFID reader and Tags.
4. Interfacing geared LCD and driver with microcontroller.
5. Embedded C programming.

6. PCB designing.

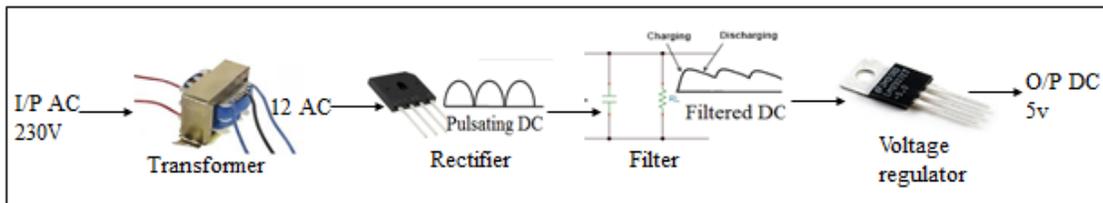
The main building blocks of the project are:

1. Regulated Power Supply.
2. PIC Microcontroller.
3. RFID reader.
4. RFID tag.
5. Zigbee module
6. Reset.
7. Crystal oscillator.
8. LCD display with driver.
9. Buzzer with driver
10. Bluetooth.
11. LED indicators.

Software's used:

1. PIC C compiler for Embedded C programming.
2. Express SCH for Circuit design.
3. Proteus for hardware simulation.

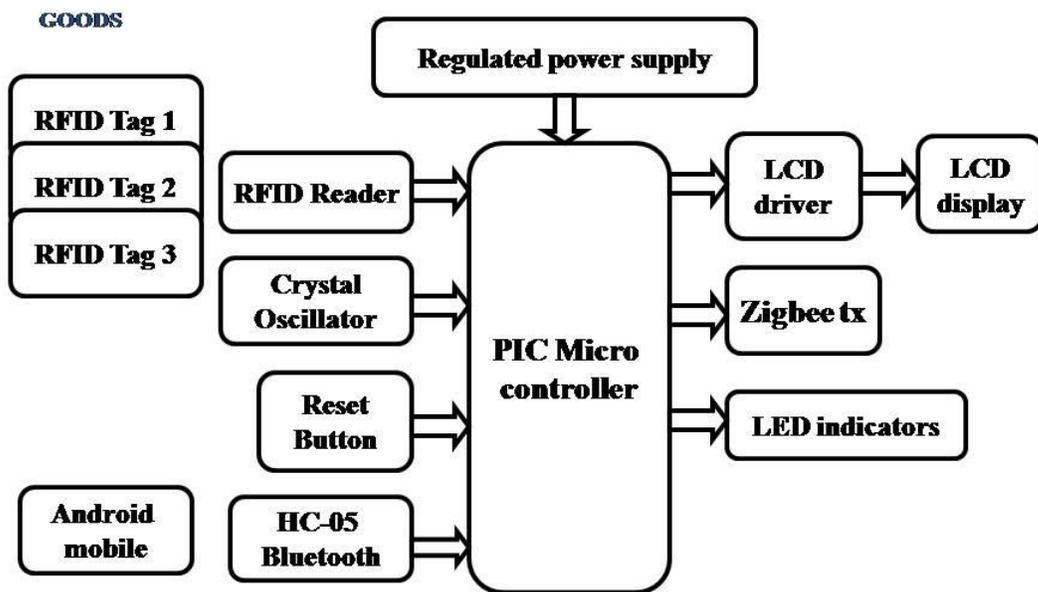
Regulated Power Supply:



Block Diagram:

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1. Trolley Section (user)



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2. Billing section

