

RFID based voice enabled calling bell system

The project mainly aims in designing an automated calling bell system using RFID and voice module. This system is very much helpful at homes and offices to announce the visitor details using voice module and RFID is used to identify them.

Automation is the most frequently spelled term in the field of electronics. The hunger for automation brought many revolutions in the existing technologies. One among the technologies which had greater developments is RF communications. The result of this is the RFID cards which transmit a unique identification number. This number transmitted by the RFID can be read with the help of a RF reader.

Zigbee is mainly used for data transmission. The range of transmission can be varied by increasing number of ZigBee modules. It has more advantages when compared to other wireless transmission techniques. In Zigbee even though we have multiple receivers we can transmit the data to a unique receiver so that the data is highly secure.

The project consists of a RFID module, LCD, voice module, Zigbee module and two microcontroller mother boards. When any person visits the house/office the RFID tag with the person is decoded by the RFID reader at the door and this information is transmitted using Zigbee. The Zigbee module receives the information from the Zigbee transmitter and is fed as input to other microcontroller. The microcontroller alerts the system about the details of the visitor using voice module and also displays on the LCD.

Micro controller is the heart of the device. It stores the data of the visitors and the RFID reader which is interfaced to the microcontroller decodes the RFID tag with the visitors. Whenever the person reaches the home/office the system gives an alerting voice message of the visited person and also displays on LCD. This device is designed to provide with a greater advantage producing voice based announcement for the user using wireless technology based on Zigbee.

The main features of this project are:

1. User-friendly interaction.
2. Highly sensitive.
3. Easy to operate.
4. Real time authentication system
5. Low power consumption.
6. Long life.
7. Displaying the visitor details.
8. Audible and visual alerts.

This project provides learning's on the following advancements:

1. Characteristics of voice module.
2. Microcontroller based smart calling bell system.
3. Voice generation circuit.
4. RFID module.
5. LCD display.
6. Zigbee wireless transmission.
7. Embedded C programming.
8. PCB design.

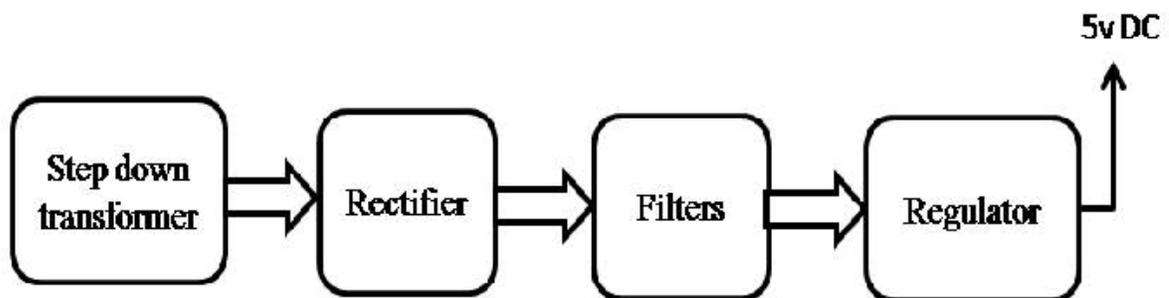
The major building blocks of this project are:

1. Regulated Power Supply
2. RFID reader with tag.
3. Voice circuit.
4. LCD with driver
5. Micro controller.
6. Reset.
7. Zigbee module.
8. Crystal oscillator.
9. LED indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

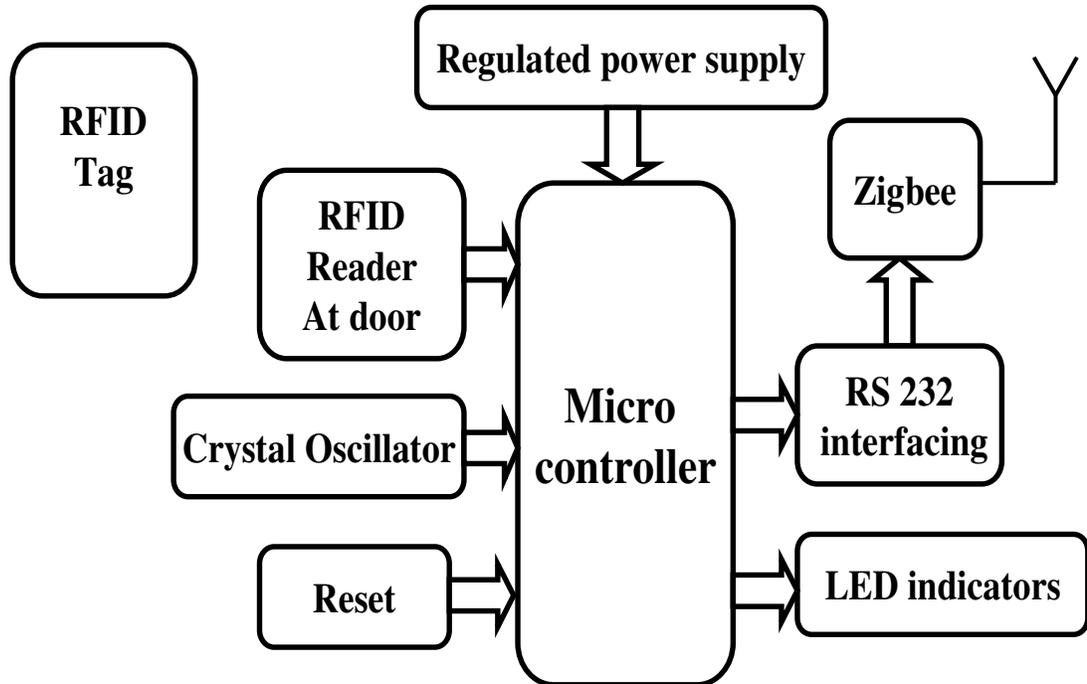
Regulated power supply:



Block diagram:

RFID and Zigbee based voice enabled calling bell

1. Transmitter



RFID and Zigbee based voice enabled calling bell

2. Receiver

