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XBEE-RADIOBEE Electrical Appliance Control Network with Arduino

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ABSTRACT : This is based on zigbee wireless sensor network technology. A kind of smart home design based on Zigbee wireless sensor network is proposed in this project.Arduino based Arduino uno board with ATMEGA328 microcontroller,was used in this system.The entire system is running on the embedded real-time multitasking opratin g system.User can this system by a Dynamic by Zigbee remote control.

KEYWORDS: AT 328, LM78XX3, Arduino Uno, Radio-Bee module, zigbee.

I. INTRODUCTION

Various progressive wireless communication standards were developed and implemented into praxis during last decade.GSM,WIFI,BLUETOOTH are well known by most people in the modern society.These standards have penetrated into their daily routine with outstanding popularity.Home Automation is one of the major industries that can change the way people live.Some of these home automation systems target those seeking luxury and sophisticated home automation platform. Using Xbee or Radiobee with arduino board we can developed this project. It can be ON and OFF the connected devices from 100m distance.In this project we control four devices but we can implement it for 15 devices maximum.In this project we use Xbee or Radiobee transverse module with arduino board to control.Arduino encodes,decodes transmitted data.Received data is processed by arduino and control the relay with the relay driver circuit.This relay can be used depend on our required current rating,normally 5Ah current rating relays are used to control electrical devices, like Fan,Tube,Bulb etc.

II. LITERATURE SURVEY

Automation performs an increasingly vital role in daily experience and global economy.Engineers strive to combine automated devices with mathematical and organizational tools to create complex system for rapidly expanding range of applications and human activities.The concept of home automation has been around seens the late 1970's. But with the enhancement of technology and smart services,people's expectations have changed a lot during the course of time to perfectly turns the traditional house into smart home,and also think that what a home should do or how the services should be provided and accessed at home to become a smart home and so has the idea of home automation systems.

III. OBJECTIVE

- To control electrical devices in home appliances
- Provides automation system for shops, molls.
- For security perpose.
- In robotic applications to control robot movements with remote control.

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IV. BLOCK DIAGRAM

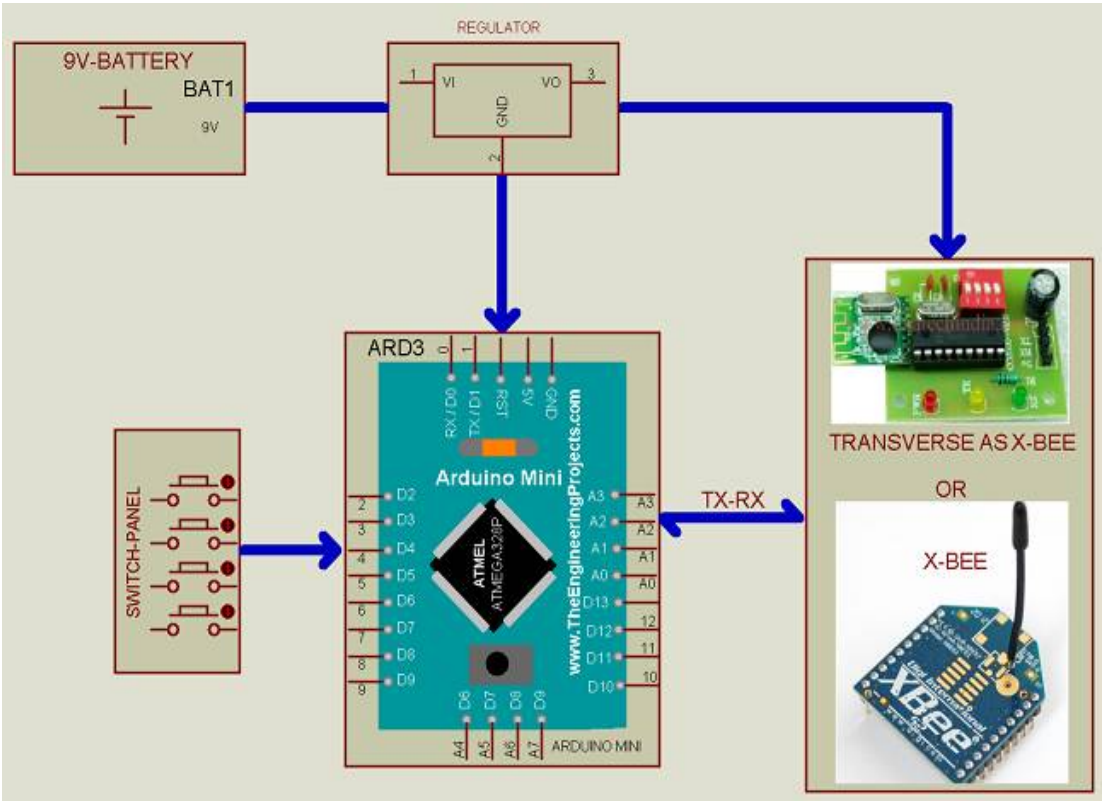

Figure 1: Block Diagram of Wi-Fi Controlled By Human Detection Robotic Vehicle Using Arduino

A. Arduino mini: The microcontroller on the Arduino minis physically smaller version of the chip on the USB Arduino boards.There are two extra analog inputs on the mini.Don't connect more than 9 voltsto the 9V pin or reverse the power and ground pins of your power supply.

B. **Power Supply :** Transmitter circuit requires 5V DC for the arduino mini board and Radiobee module.This power supply can be provided 9V battery with regulator of 5V.

C. **Switch Panel:** The circuit requires total four controls hence 4 switches are connected to the keyboard of the transmitter.Four switches for controlling devices like Fan,Tube,Bulb etc.depending upon our programming conditions we can manage particular switch for particular operation.

D. **ZigBee Module:** Zigbee is low power spin off wifi.Zigbee alliance is a group of more than 300 companies.Zigbee is suitable for the industrial applications.

E. **Relay Driver:** Arduino board has very low current output it can not drive current consuming sources,such like relay hence separate relay driver circuit requires.We can implement this circuit using related relay driver module.Buzzer is used for notification purpose like signal is received and device is ON or OFF.

V. WORKING

The home automation has two sides receiver and transmitter side.Transmitter circuit is powered with 9V battery.Battery 9V supply is converted in 5V with regulator IC LM7805.Regulated DC 5V is given to the respective pins of arduino board and radiobee module.Output of regulator is connected with LED blue via current limiting resistor

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of 1K, show circuit is ON condition.Pin2,3,4,5 are used as input pins that pins are pull-ups via 10K resistor and switch is connected to ground,initially that pins are high after switch press respective pin will goes low.

Receiver circuit requires 5V and 12V regulated DC supply.We used step down transformer.The output AC of transformer 12V is rectified by center tap rectifier.The rectified output is pulsating it is pure by the capacitor filter of 1000uf25V.In this arduino board works with 16MHz frequency.Reset pin is connected to resistor of 10K whenever reset requires the reset switch required pressing.Buzzer is connected to 6 no pin via (BC548) NPN Transistor amplifier in common emitter mode.LED's are connected to pin 6,7,8,9 to show respective devices are ON or OFF.

VI. RESULT

The home automation system helps to lower the expense of system, and it cosumes the human energy. It helps to overcome the problems of network interoperatability.

VII. FUTURE SCOPE

The ZigBEE technology is to use the devices unwired application so that it can reduce the cost of development of these network devices.

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