

Zigbee device access control and reliable data transmission in Zigbee based health monitoring system

The project aims in designing a system which is capable of controlling electrical appliances and transmission of heartbeat and body temperature to display them on LCD wirelessly.

The modules in this project are: control buttons to operate electrical appliances wirelessly through Zigbee, heart beat sensor which gives heart beat of a person continuously, temperature sensor which is capable of giving body temperature, Zigbee modules to establish wireless communication, Relay and Triac were connected to electrical appliances that are to be controlled, LCD to display heart rate and body temperature.

The controlling device of the whole system is a Microcontroller. This system consists of two Microcontrollers; one at patient and other at devices. Heart beat sensor, temperature sensor and control buttons are interfaced to the controller at the patient. Relay and Triac along with LCD display are interfaced to the controller at other end. The controllers are programmed such that whenever user presses a control button a unique data related to that button will be transferred to other end along with temperature and heart rate. The relay and Triac are operated accordingly and heart rate and body temperature will be displayed on LCD. The Microcontrollers are programmed using Embedded C language.

The main objectives of the project are:

1. Controlling of electrical appliances.
2. Monitoring of heart rate and body temperature,
3. Wireless data transmission.

The project provides the following learning's:

1. Zigbee technology.
2. Heartbeat sensor.
3. Interfacing heart beat sensor to Microcontroller.
4. Temperature sensor.
5. Conversion of AC supply to DC supply.
6. Embedded C programming.
7. PCB design.

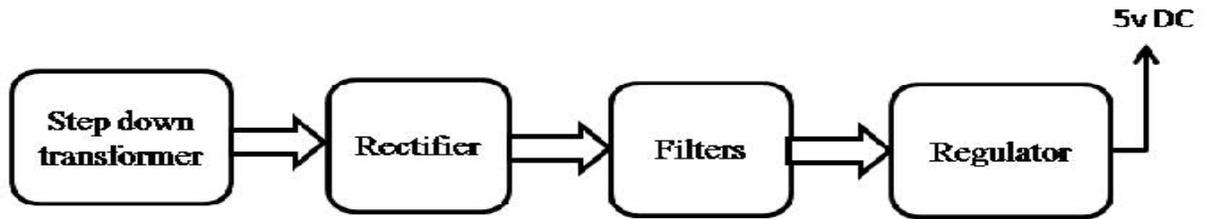
The main building blocks of the project are:

1. Regulated Power Supply.
2. Microcontroller.
3. Heart beat sensor.
4. Temperature sensor.
5. Zigbee modules.
6. Relay with driver.
7. Triac with driver.
8. Control buttons.
9. LCD display with driver.
10. Crystal oscillator.
11. 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.

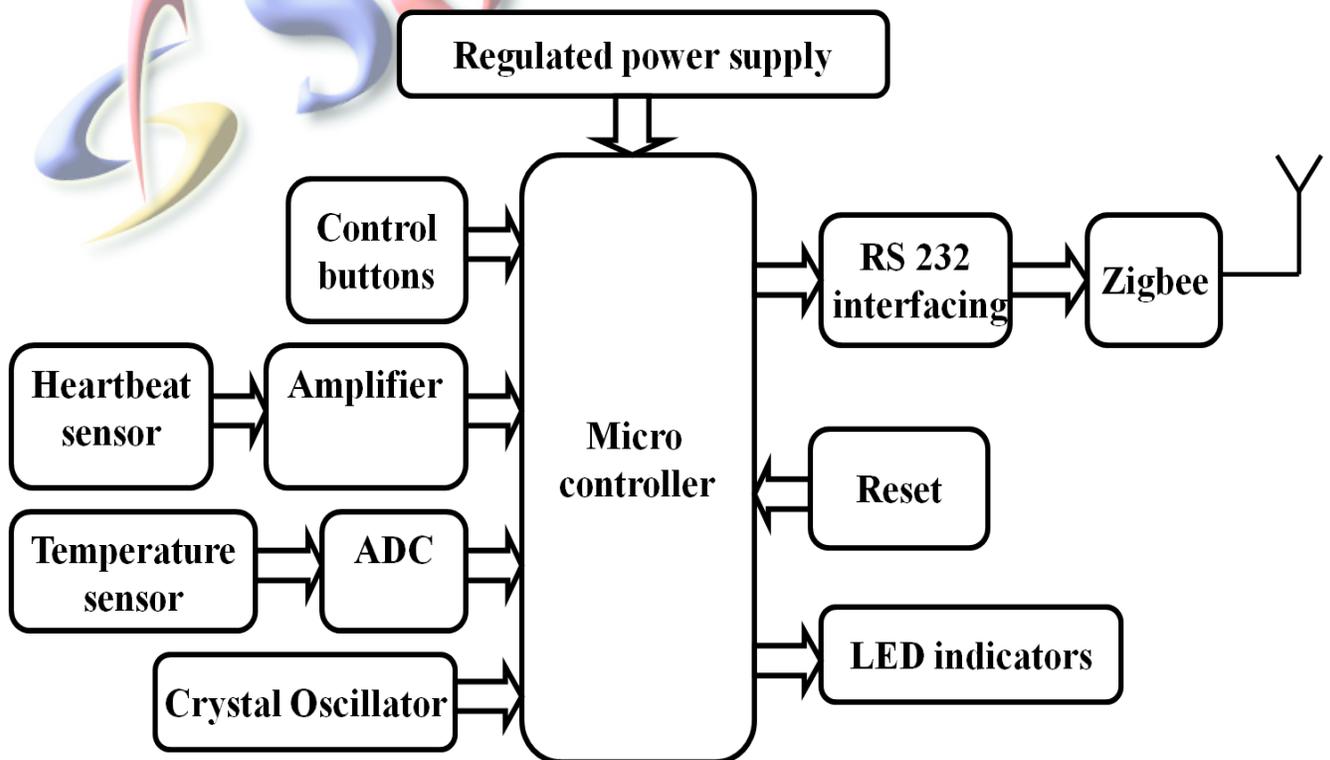
Regulated Power Supply:



Block diagram:

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1. Transmitter



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2. Receiver

