

## **Human body temperature and heart rate monitoring on mobile screen over Bluetooth wireless technology**

The project aims in designing a system which helps in monitoring heartbeat, body temperature and alerts when the body temperature or heart rate is increased/decreased a preset value for elderly people with display on Bluetooth enabled mobile phone.

Technology is being used everywhere in our daily life to fulfill our requirements. We are employing different sensors for different applications sometimes we may even use same sensors differently for different applications. Whatever it may be the final output is life has increased its speed with the technology boosters. One of the ideal ways of using technology is to employ it to sense serious health problems so that efficient medical services can be provided to the patient in correct time. This idea is used to provide efficient health service to patients has given birth to the project heart beat and temperature monitoring and alerting using Bluetooth technology.

The modules in the project are: heartbeat sensor which continuously gives the heartbeat, temperature sensor which gives the temperature and mobile phone with Bluetooth to display the monitored parameters.

Heart beat monitor and display system is a portable and a best replacement for the old model stethoscope which is less efficient. The heart beat rate is calculated manually using stethoscope where the probability of error is high because the heart beat rate lies in the range of 70 to 90 per minute whose occurrence is less than 1 sec. So this device can be considered as a very good alternative instead of a stethoscope.

The functioning of this device is based on the truth that the blood circulates for every one heart beat which can be sensed by using a circuit formed by the combination of an LDR and LED. Depending upon the rate of circulation of blood per second the heart beat rate per minute is calculated.

The temperature is read by the ADC (Analog to Digital Converter) module of the microcontroller Unit. This ADC data is processed and converted into the actual temperature reading by the microcontroller.

This device consists of a micro controller which takes the input from the heart beat sensor and temperature sensor and it calculates the heart rate and temperature of the patient. The micro controller takes the responsibility to display the same on the mobile phone using Bluetooth wireless technology. Also, they are displayed LCD display.

**The main objective of this project is:**

1. Continuous monitoring of the heart beat and temperature of the patient.
2. Display on Bluetooth enabled mobile phone.

**The project provides learning's on the following advancements:**

1. Developing a sensor based on LED and LDR.
2. LDR characteristics.

3. Bluetooth technology.
4. Temperature sensor.
5. Interfacing Heartbeat sensor to Microcontroller.
6. Conversion of AC supply to DC supply.
7. Interfacing Bluetooth module to Microcontroller.
8. Embedded C programming.
9. PCB design.

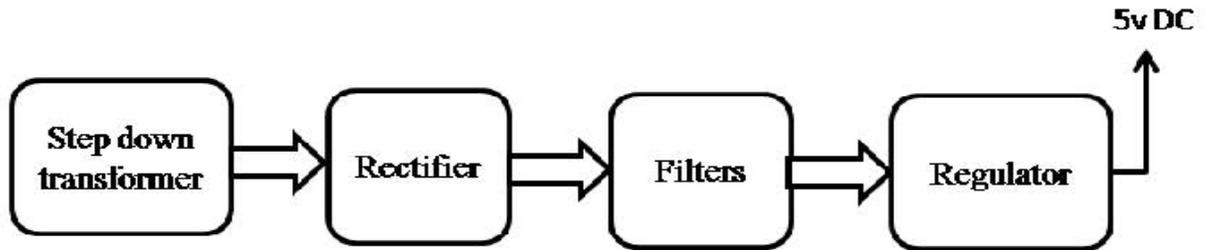
**The major building blocks of this project are:**

1. Regulated power supply.
2. Micro controller.
3. Heart beat sensor.
4. Temperature sensor.
5. Bluetooth module.
6. LCD with driver.
7. Reset.
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:**

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