Heart Rate Monitoring - IoT based Heart Rate monitoring system

Project Report

Submitted in the partial fulfilment of the requirements for the

award of the degree of

Bachelor of Technology

in

Department of Electronics and Communication Engineering

By

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DECLARATION

The Project Report entitled " Heart Rate Monitoring - IoT based Heart Rate monitoring system" is a record of bonafide work of B.Vishvesh (190340011) ,C.Roshan Sai submitted in partial fulfilment for the award of B.Tech degree in the Department of Electronics and Communication Engineering K L University, Hyderabad. The results embodied in this report have not been copied from any other departments/universities/institutes.

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CERTIFICATE

This is to certify that the Project Report entitled Heart Rate Monitoring - IoT based Heart Rate monitoring system submitted by B.Vishvesh(190340011) and C.Roshan Sai (190340026) in partial fulfilment for the award of B.Tech degree in Department of Electronics and Communication Engineering K L University, Hyderabad is a record of bonafide work carried out under our guidance and supervision.

The results embodied in this report have not been copied from any other departments/universities/institutes.

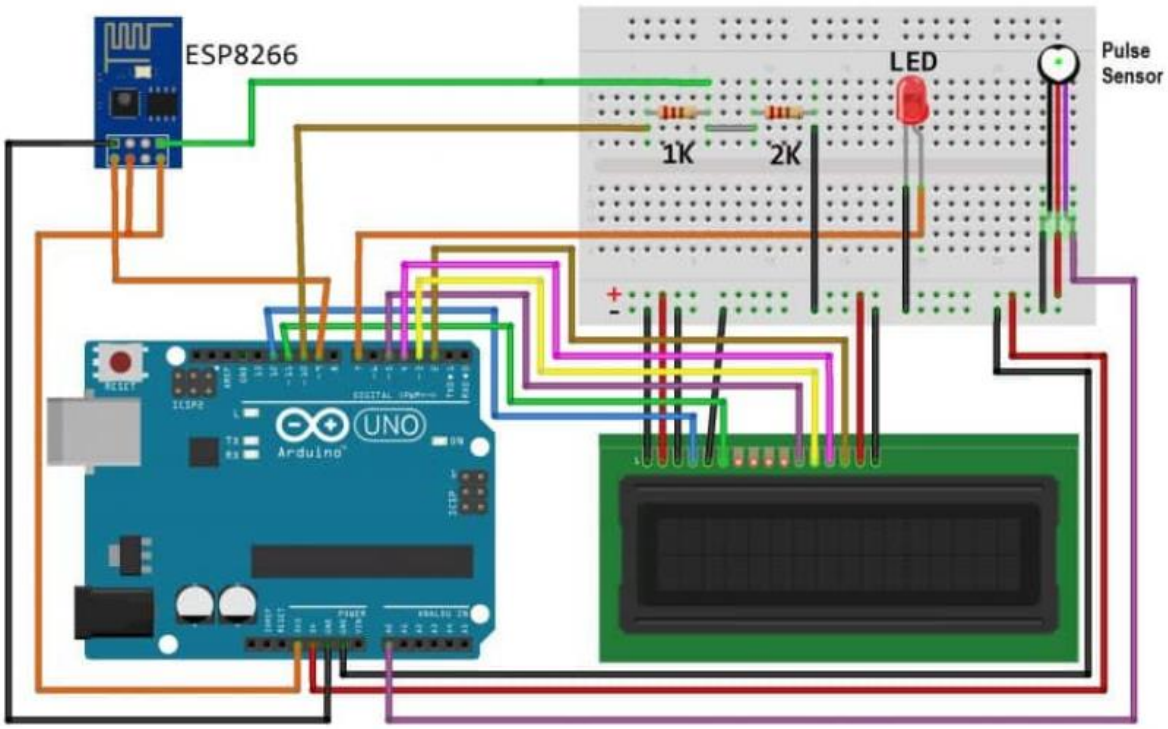
ABSTRACT

In this project, we made an IoT BPM Monitoring on ThingSpeak using Pulse Sensor, ESP8266 & Arduino. The device will detect the pulse rate using the Pulse Sensor and will show the readings in BPM (Beats Per Minute) on the LCD display. It will send the readings to the ThingSpeak server via the Wi-Fi module ESP8266. This will help us to monitor the heartbeat via the Internet from any part of the world.

COMPONENTS

S.N.	COMPONENTS NAME	
1	Arduino Board	Arduino UNO/Nano or any other Board
2	ESP8266-01	ESP8266-01 Wifi Module
3	LCD Display	JHD162A 16X2 LCD Display
4	Potentiometer	10K
5	Pulse Sensor	
6	Resistor	2K
7	Resistor	1K
8	LED	5mm LED any Colour
9	Connecting Wires	Jumper Wires 10-20
10	Breadboard	

Circuit Diagram & Connections



1. Connect Pulse Sensor output pin to A0 of Arduino and other two pins to VCC & GND.

2. Connect the LED to Digital Pin 7 of Arduino via a 220-ohm resistor.

3. Connect Pin 1,3,5,16 of LCD to GND.

4. Connect Pin 2,15 of LCD to VCC.

5. Connect Pin 4,6,11,12,13,14 of LCD to Digital Pin12,11,5,4,3,2 of Arduino.

6. The RX pin of ESP8266 works on 3.3V. Therefore, it will not communicate with the Arduino when we will connect it directly to the Arduino. So, we will have to make a voltage divider for it which will convert the 5V into 3.3V. This can be done by connecting the 2.2K & 1K resistor. Thus the RX pin of the ESP8266 is connected to pin 10 of Arduino through the resistors.

7. Connect the TX pin of the ESP8266 to pin 9 of the Arduino.

CONCLUSION

An IoT-based human heartbeat rate monitoring and control system is developed. This system uses the capability of a heart pulse sensor for data acquisition. A human's heartbeat is captured as data signals and processed by the microcontroller. The processed data are transmitted to the IoT platform for further analytics and visualization. The implemented device can be deployed to the medical field to assist the medical practitioners to efficiently and reliably do their work without difficulties.