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Vellore Institute of Technology

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Fall Semester 2025-26

Embedded Systems and IoT Lab

ISWE401P

ASSIGNMENT-2

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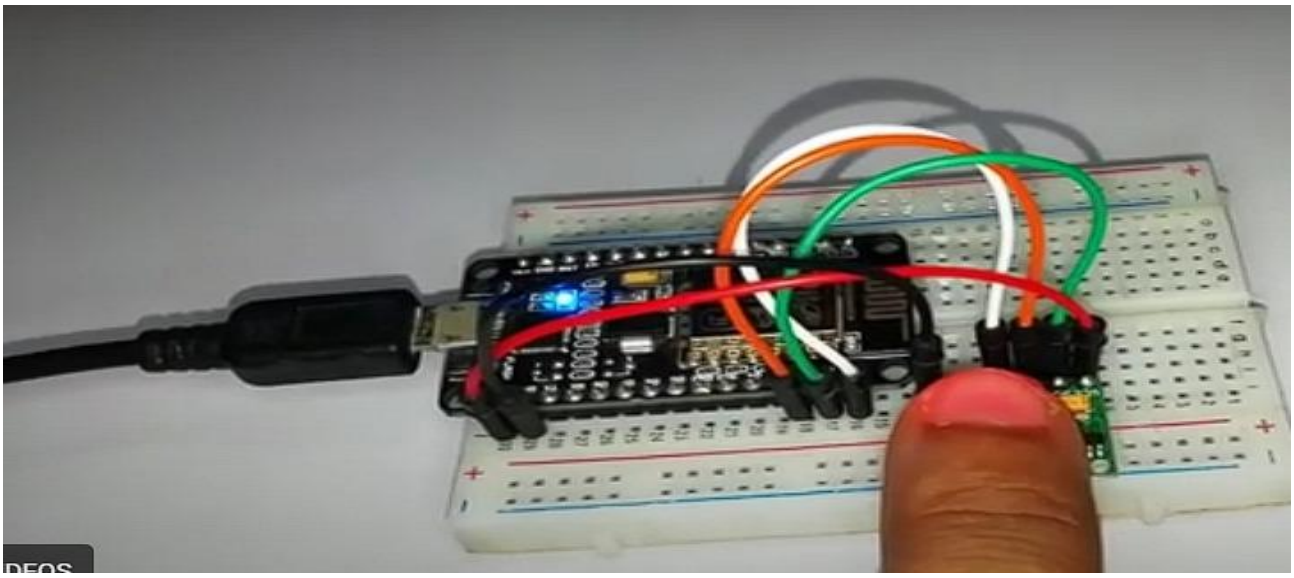
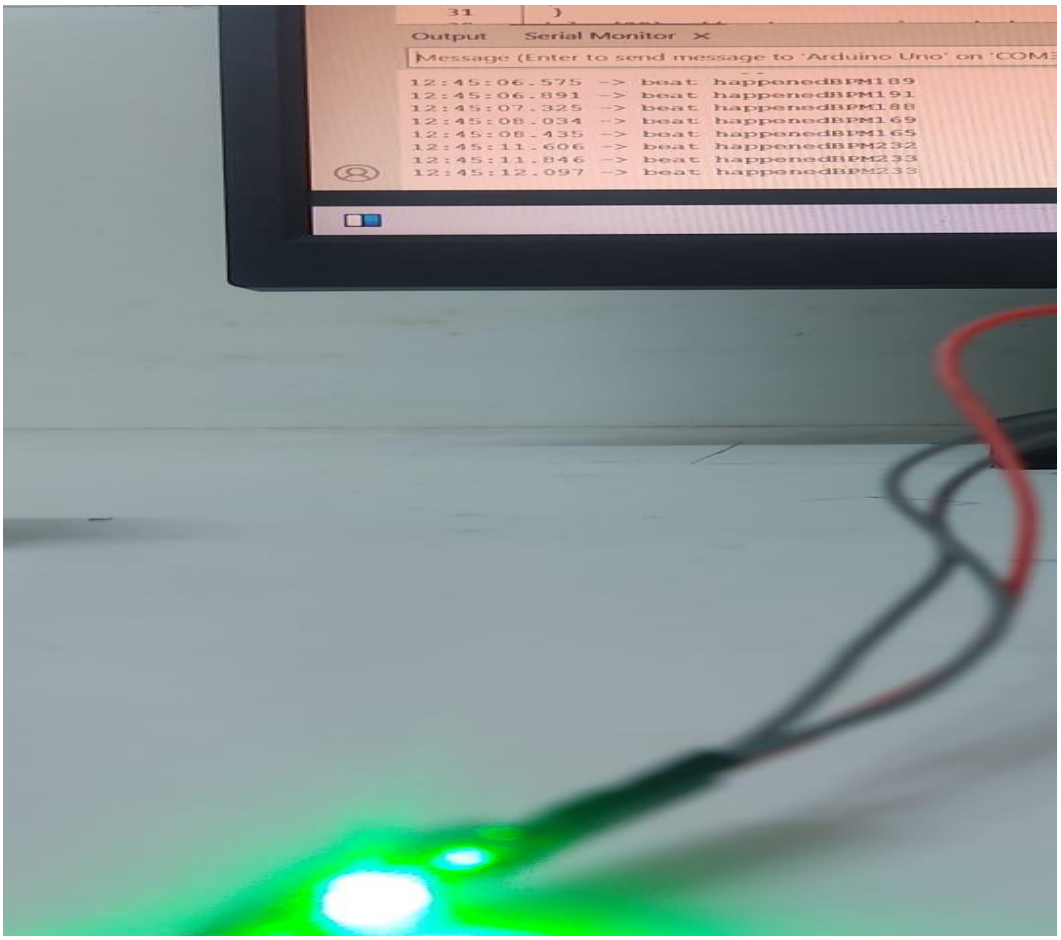
IoT Heart Rate Monitor ESP8266

```
#include <ESP8266WiFi.h>
#include <WiFiClient.h>
#include <ThingSpeak.h>

const char* ssid = "YOUR_WIFI_SSID";
const char* password = "YOUR_WIFI_PASSWORD";

WiFiClient client;

unsigned long myChannelNumber = OUR_CHANNEL_NUMBER;
const char* myWriteAPIKey = "YOUR_API_KEY";

int pulsePin = A0;
int bpm = 0;

void setup() {
  Serial.begin(115200);
  WiFi.begin(ssid, password);
  ThingSpeak.begin(client);
```

```
  Serial.println("Connecting to WiFi...");
  while (WiFi.status() != WL_CONNECTED) {
    delay(1000);
    Serial.print(".");
  }
  Serial.println("\nConnected!");
}

void loop() {
  int signal = analogRead(pulsePin);
  bpm = map(signal, 0, 1023, 60, 100);
  Serial.print("BPM: ");
  Serial.println(bpm);
  ThingSpeak.setField(1, bpm);
  int x = ThingSpeak.writeFields(myChannelNumber, myWriteAPIKey);
  if (x == 200) {
    Serial.println("Data sent to ThingSpeak.");
  } else {
    Serial.println("Error sending data.");
  }
  delay(15000);
}
```

OUTPUT:




31 }
Output Serial Monitor
Message (Enter to send message to 'Arduino Uno' on 'COM
12:45:06.575 -> beat happenedBPM189
12:45:06.891 -> beat happenedBPM191
12:45:07.325 -> beat happenedBPM188
12:45:08.034 -> beat happenedBPM169
12:45:08.435 -> beat happenedBPM165
12:45:11.606 -> beat happenedBPM232
12:45:11.846 -> beat happenedBPM233
12:45:12.097 -> beat happenedBPM235