ASSIGNMENT NO.4

Aim: Design and implement IoT system for one of the applications like: Traffic Application, Medical/Health application, Social Application etc.

Code:

```
const int tempPin = A0;     // LM35 output
const int pulsePin = A1;    // Potentiometer as pulse sensor
const int ledPin = 7;       // Alert LED

void setup() {
  Serial.begin(9600);
  pinMode(ledPin, OUTPUT);
  Serial.println("Health Monitoring System Started");
  Serial.println("--------------------------------");
}

void loop() {
  // --- Temperature ---
  int tempValue = analogRead(tempPin);
  float voltage = tempValue * (5.0 / 1023.0);
  float bodyTempC = voltage * 100.0;  // LM35: 10mV/°C

  // --- Heart Rate (simulated with potentiometer) ---
  int pulseValue = analogRead(pulsePin);
  int heartRate = map(pulseValue, 0, 1023, 60, 120); // simulate 60–120 bpm

  // --- Alert LED logic ---
  if (bodyTempC > 38.0 || heartRate > 110) {
    digitalWrite(ledPin, HIGH);
```

```
  } else {
    digitalWrite(ledPin, LOW);
  }

  // --- Display readings ---
  Serial.print("Body Temperature: ");
  Serial.print(bodyTempC);
  Serial.print(" °C | Heart Rate: ");
  Serial.print(heartRate);
  Serial.println(" bpm");

  delay(2000);
}
```

Output:

Serial Monitor

```
Health Monitoring System Started
--------------------------------
Body Temperature: 74.78 Â°C | Heart Rate: 92 bpm
Body Temperature: 74.78 Â°C | Heart Rate: 92 bpm
Body Temperature: 74.78 Â°C | Heart Rate: 92 bpm
Body Temperature: 74.78 Â°C | Heart Rate: 120 bpm
Body Temperature: 74.78 Â°C | Heart Rate: 72 bpm
```