

IBM ASSIGNMENT

Project details:

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Smart Solution for Railways

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Project description:

This is a connection setup of an Arduino Uno, LED light (3), temperature sensor, humidity sensor and a buzzer. Initially the Arduino is connected to the temperature sensor and with LEDs. When the temperature varies different LEDs glow. Then the Arduino is connected to the PIR sensor which is connected to a buzzer. The PIR sensor senses the movement of humans and produces output according to the movement.

Apparatus required:

1. Arduino UNO
2. LEDs(blue,green,red)
3. PIR sensor
4. Temperature sensor
5. Buzzer

Coding:

```
const int hot = 87; //set hot parameter
```

```
const int cold = 75; //set cold parameter
```

```
int Buzz= 8; // Define Buzzer pin

int PIR= 5; // Define PIR pin
int val= 0; // Initializing the value as zero at the
beginning void setup()

{
pinMode(A2, INPUT); //sensor
pinMode(2, OUTPUT); //red
pinMode(3, OUTPUT); //green
pinMode(4, OUTPUT); //blue
Serial.begin(9600);

pinMode(Buzz, OUTPUT);
pinMode(PIR, INPUT);
Serial.begin(9600);
}

void loop()

{
int sensor = analogRead(A2);
float voltage = (sensor / 1024.0) * 5.0;
float tempC = (voltage - .5) * 100;
float tempF = (tempC * 1.8) + 32;
Serial.print("temp: ");
Serial.print(tempF);
```

```
if (tempF < cold) { //cold
digitalWrite(2, HIGH);
digitalWrite(3, LOW);
digitalWrite(4, LOW);
Serial.println(" It's Cold.");
if(val == HIGH)
{
digitalWrite(Buzz, HIGH); // Turn Buzzer ON
Serial.println("Movement Detected"); // Print this text in Serial
Monitor }
else if (tempF >= hot)
{ //hot
digitalWrite(2, LOW);
digitalWrite(3, LOW);
digitalWrite(4, HIGH);
Serial.println(" It's Hot.");
}
else { //fine
digitalWrite(2, LOW);
digitalWrite(3, HIGH);
digitalWrite(4, LOW);
Serial.println(" It's Fine.");
```

```
digitalWrite(Buzz, LOW);  
Serial.println("Movement not Detected");
```

```
}  
delay(1000  
); }  
}
```