

## ASSIGNMENT 1

**Create a circuit with piezo alarm, PIR sensor, Temperature sensor consisting following features**

- 1. Alarm when temperature is above 60 degree celcius, and**
- 2. Alarm when motion detected using Passive Infrared sensor**

### **PROGRAM:**

```
// C++ code
int pir, buzz;
float temp;
void setup()
{
    pir = 3;
    buzz = 12;
    pinMode(pir, INPUT);
    pinMode(buzz, OUTPUT);
    Serial.begin(9600);
}

void loop()
{
    //Motion Monitoring
    int motion = digitalRead(pir);
    if(motion == 1)
    {
        tone(buzz, 50);
        Serial.println("Motion Status: Detected");
        delay(50);
    }
    else
    {
        noTone(buzz);
        Serial.println("Motion Status: Not Detected");
    }

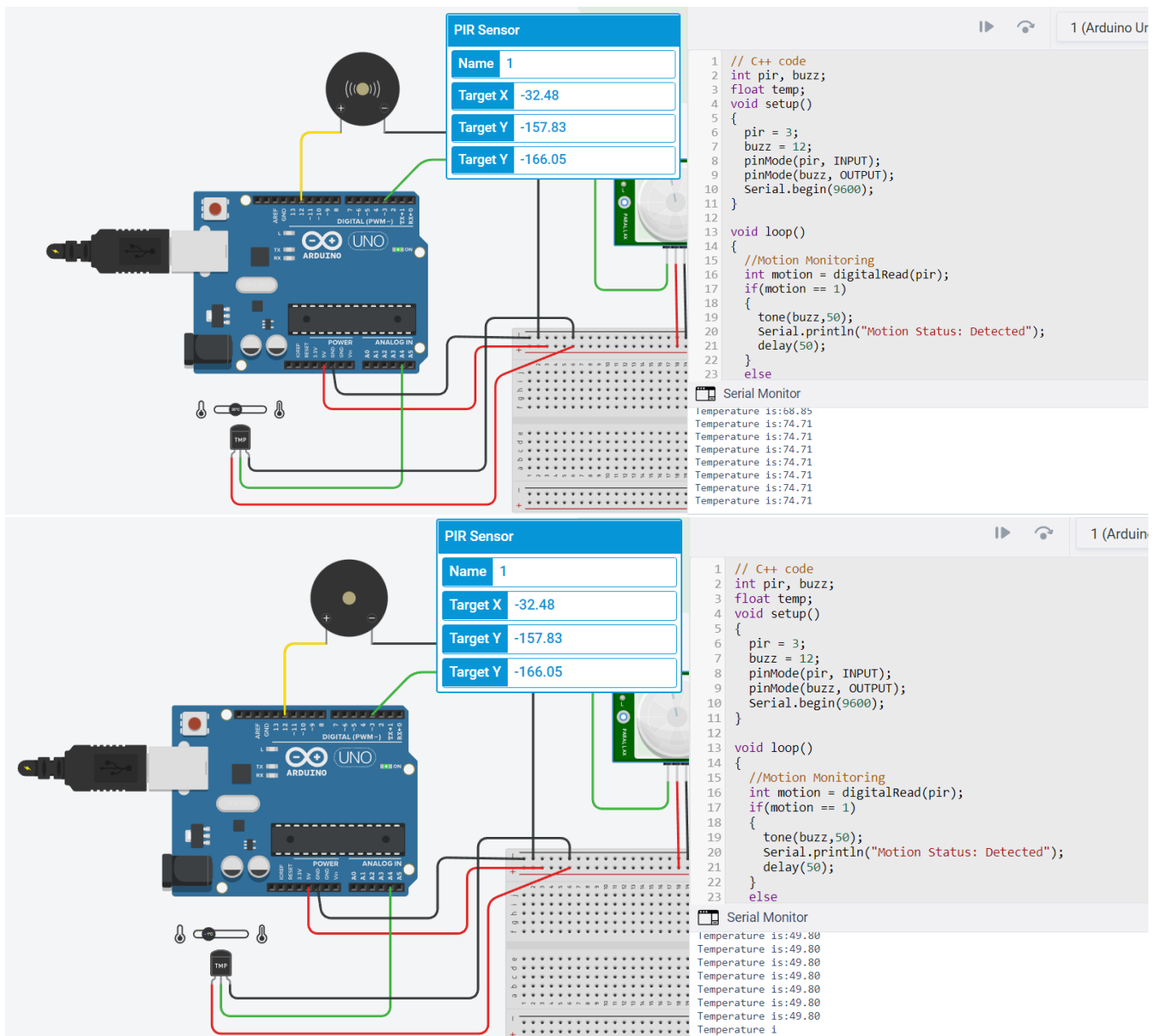
    //Temperature Measurement
    float data = analogRead(A4);
    float temp = (((data/1024.0)*5)*100);
```

```

Serial.print("Temperature is:");
Serial.println(temp);
if(temp>60)
{
    tone(buzz,200,200);
    delay(500);
}
else{
    noTone(buzz);
}
}

```

## OUTPUT :



The image displays two screenshots of an Arduino Uno project setup, showing the hardware wiring and the corresponding code in the Arduino IDE.

**Hardware Setup:** The Arduino Uno is connected to a PIR Sensor (Name: 1) and a buzzer. The PIR Sensor's VCC is connected to the 5V pin, GND to the GND pin, and the output pin to digital pin 3. The buzzer's VCC is connected to the 5V pin, GND to the GND pin, and the output pin to digital pin 12. A temperature sensor (TMP) is also connected to the analog input pins.

**Code Snippet:**

```

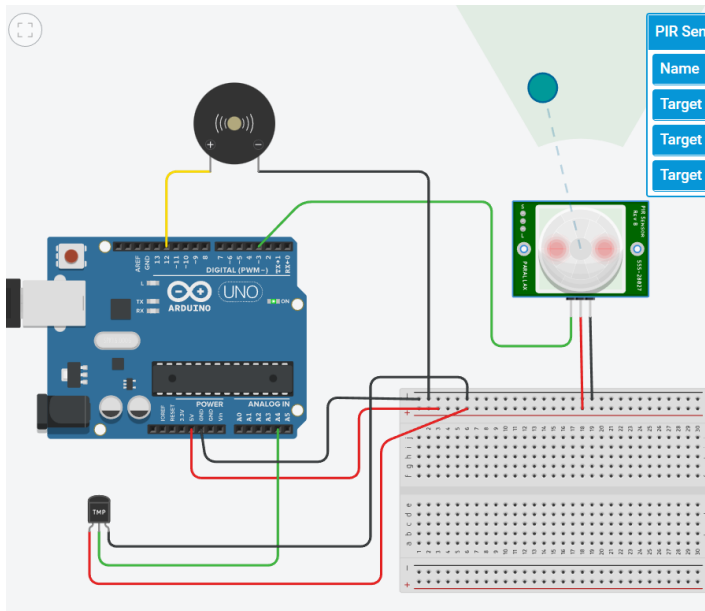
// C++ code
int pir, buzz;
float temp;
void setup()
{
    pir = 3;
    buzz = 12;
    pinMode(pir, INPUT);
    pinMode(buzz, OUTPUT);
    Serial.begin(9600);
}

void loop()
{
    //Motion Monitoring
    int motion = digitalRead(pir);
    if(motion == 1)
    {
        tone(buzz,50);
        Serial.println("Motion Status: Detected");
        delay(50);
    }
    else
    {
        //Temperature Monitoring
        temp = analogRead(A0);
        Serial.println(temp);
    }
}

```

**Serial Monitor Output:**

The Serial Monitor shows the output of the code. In the top screenshot, the temperature is 68.85, and the motion status is detected. In the bottom screenshot, the temperature is 49.80, and the motion status is not detected.



**PIR Sensor**

Name	1
Target X	-32.48
Target Y	-157.83
Target Y	-166.05

```

1 // C++ code
2 int pir, buzz;
3 float temp;
4 void setup()
5 {
6   pir = 3;
7   buzz = 12;
8   pinMode(pir, INPUT);
9   pinMode(buzz, OUTPUT);
10  Serial.begin(9600);
11 }
12
13 void loop()
14 {
15   //Motion Monitoring
16   int motion = digitalRead(pir);
17   if(motion == 1)
18   {
19     tone(buzz,50);
20     Serial.println("Motion Status: Detected");
21     delay(50);
22   }
23   else

```

**Serial Monitor**

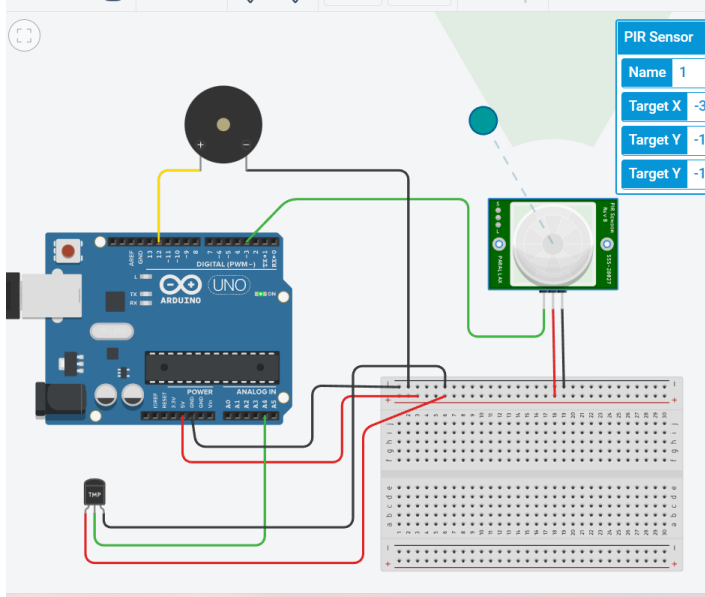
```

Temperature is:37.11
Motion Status: Detected
Temperature is:37.11
Motion Status: Detected
Temperature is:37.11
Motion Status: Detected
Temperature is:37.11
Motion Status:

```

Simulator time: 00:00:10.543

Code Stop Simulation



**PIR Sensor**

Name	1
Target X	-32.48
Target Y	-157.83
Target Y	-166.05

```

20   Serial.println("Motion Status: Detected");
21   delay(50);
22 }
23 else
24 {
25   noTone(buzz);
26   Serial.println("Motion Status: Not Detected");
27 }
28
29 //Temperature Measurement
30 float data = analogRead(A4);
31 float temp = (((data/1024.0)*5)*100);
32 Serial.print("Temperature is:");
33 Serial.println(temp);
34 if(temp>60)
35 {
36   tone(buzz,200,200);
37   delay(500);
38 }
39 else{
40   noTone(buzz);
41 }
42

```

**Serial Monitor**

```

Motion Status: Not Detected
Temperature is:40.04
Motion Status: Not Detected
Temperature is:40.04
Motion Status: Not Detected
Temperature is:40.04
Motion Status: Not Detected
Temperature

```