

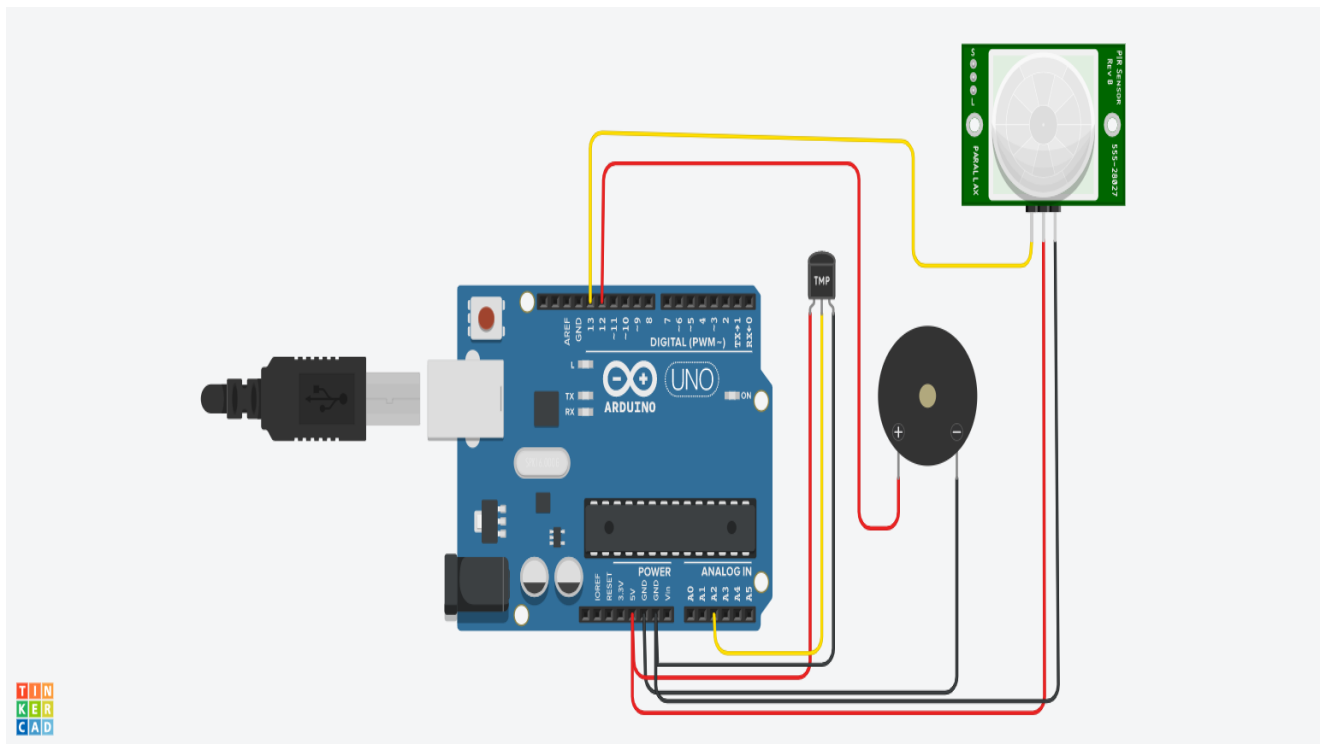
NAGARAPU SUMADHAR

Circuit Design using Piezo Alarm for Detection of Rise in Temperature using Temperature Sensor and Motion Detection using PIR Sensor

Features:

- ❖ Alarm buzzes when temperature is detected above 60 deg C.
- ❖ Alarm buzzes another sound if motion is detected.

Circuit Diagram:



Program:

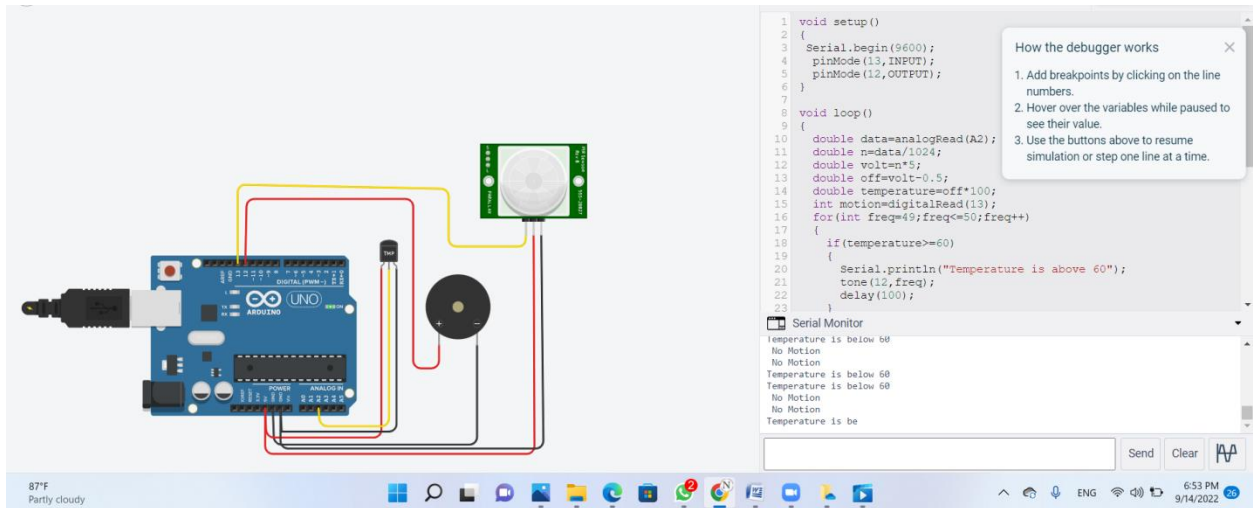
```
void setup()
{
    Serial.begin(9600);
    pinMode(13,INPUT);
    pinMode(12,OUTPUT);
}

void loop()
{
    double data=analogRead(A2);
    double n=data/1024;
    double volt=n*5;
    double off=volt-0.5;
    double temperature=off*100;
    int motion=digitalRead(13);
    for(int freq=49;freq<=50;freq++)
    {
        if(temperature>=60)
        {
            Serial.println("Temperature is above 60");
            tone(12,freq);
            delay(100);
        }
        else
```

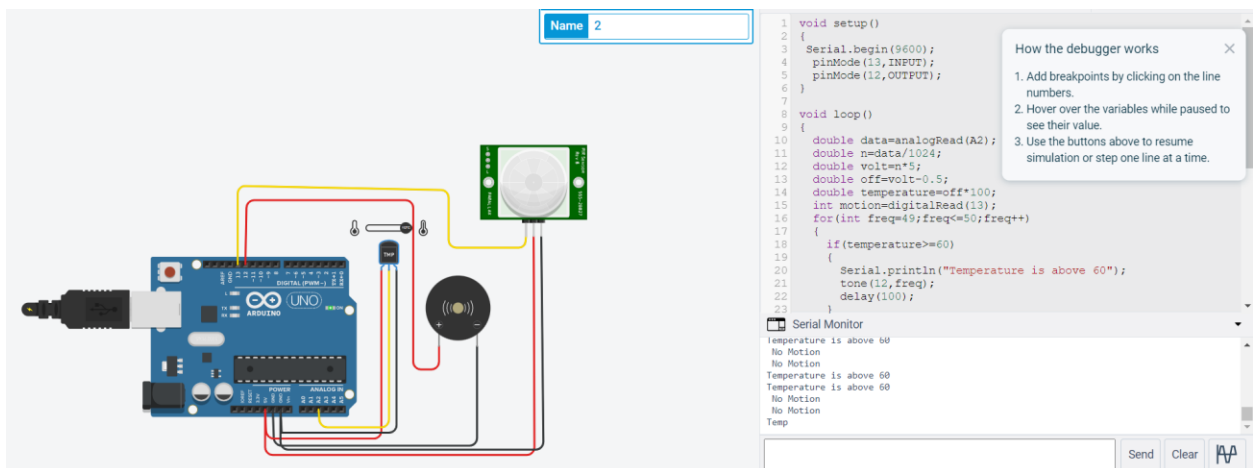
```
{  
    Serial.println("Temperature is below 60");  
    noTone(12);  
}  
}  
for(int freq=9;freq<=10;freq++)  
{  
    if(motion==1)  
    {  
        Serial.println("Motion Detected");  
        tone(12,freq);  
        delay(200);  
    }  
    else  
    {  
        Serial.println(" No Motion");  
        noTone(12);  
    }  
}  
}
```

Outputs:

Initial Condition



When Temperature is above 60 C



When Motion Detected

The screenshot displays the Arduino IDE interface for an Arduino Uno R3. On the left, a circuit diagram shows an Arduino Uno connected to a PIR sensor and a buzzer. The PIR sensor is connected to digital pin 13 (VCC), digital pin 12 (GND), and analog pin A2 (Signal). The buzzer is connected to digital pin 12 (VCC) and a common ground. A configuration window for the PIR sensor is open, showing the following values:

Name	Value
Name	1
Target X	-4.88
Target Y	-167.05
Target Z	-173.05

The C++ code in the main editor is as follows:

```
1 void setup()
2 {
3   Serial.begin(9600);
4   pinMode(13, INPUT);
5   pinMode(12, OUTPUT);
6 }
7
8 void loop()
9 {
10  double data=analogRead(A2);
11  double n=data/1024;
12  double volt=n*5;
13  double off=volt-0.5;
14  double temperature=off*100;
15  int motion=digitalRead(13);
16  for(int freq=49;freq<=50;freq++)
17  {
18    if(temperature>=60)
19    {
20      Serial.println("Temperature is above 60");
21      tone(12,freq);
22      delay(100);
23    }
24  }
```

The Serial Monitor shows the following output:

```
Temperature is below 60
Temperature is below 60
Motion Detected
Motion Detected
Temperature is below 60
Temperature is below 60
Motion Detected
Motion Detected
```

Video Link:

<https://drive.google.com/file/d/1g-LI3ePxCCu3v7roM4yPic6BJq7PjY1c/view?usp=drivesdk>