

ASSIGNMENT -1

SMART HOME

Assignment Date	16 September 2022
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Maximum Mark	2 Marks

PROGRAM

**/*Smart Home system with Temperature level indication LED,
Door opening Servo motor and High Temperature alarm*/**

```
#include <Servo.h>
```

```
Servo s;
```

```
void setup()
```

```
{
```

```
  Serial.begin(9600);
```

```
  pinMode(13,OUTPUT);
```

```
  pinMode(12,OUTPUT);
```

```
  pinMode(11,OUTPUT);
```

```
  pinMode(10,OUTPUT);
```

```
  s.attach(3);
```

```
}
```

```
void loop()
```

```
{
```

```
  noTone(13);
```

```
  digitalWrite(10,0);
```

```
  digitalWrite(11,0);
```

```

digitalWrite(12,0);
digitalWrite(10,1);//Green light will be ON to indicate normal temperature
double a = analogRead (A0);
double t = (((a/1024)*5)-0.5)*100;
Serial.print("Temperature value in Celsius:");
Serial.println(t);
if (t >= 50 & t < 80){
    Serial.print("High Temperature ");
    digitalWrite(12,1);//Yellow light will indicate HIGH temperature
}
if (t>=80){
    Serial.println("Critical Temperature ");
    digitalWrite(11,0);
    digitalWrite(10,0);
    digitalWrite(12,1);//Red light indicates CRITICAL temperature
    tone(13,131);//At 80 degree celsius the alarm will start

    {
        for (int i = 0; i <= 180; i++)
        {
            s.write(i);// The Servo motor will also start to open the doors to get out
            delay(10);
        }
        for (int i = 180; i >= 0; i--)
        {
            s.write(i);
            delay(10);
        }
    }
    delay(1000);
}

```

LIST OF COMPONENT USED

Name	Quantity	Component
U1	1	Arduino Uno R3
U2	1	Temperature Sensor [TMP36]
PIEZ02	1	Piezo
SERV01	1	Positional Micro Servo
D3	1	LED RGB
R2 R3 R4	3	200 Ω Resistor

The diagram illustrates the hardware setup for a temperature monitoring system. The Arduino Uno is the central component, connected to three external devices:

- Buzzer:** Connected to digital pin 12. The positive terminal is connected to the pin, and the negative terminal is connected to ground.
- Relay:** Connected to digital pin 5. The positive terminal is connected to the pin, and the negative terminal is connected to ground.
- Temperature Sensor (TMP):** Connected to analog pin A0. The positive terminal is connected to the pin, and the negative terminal is connected to ground.

The Arduino is powered by a USB cable plugged into its USB port. A red push-button is also connected to the Arduino's digital pins 12 and 5, with its ground connected to the Arduino's ground.

SCHEMATIC VIEW

