

# **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 $\Omega$ Resistor

The diagram illustrates the hardware setup for a temperature monitoring system. The Arduino Uno is the central microcontroller. It is powered by a USB cable. The buzzer is connected to digital pin 12. The 5V relay module is connected to digital pin 5. The temperature sensor is connected to analog pin A0. The wiring is as follows:

- Buzzer:** Connected to digital pin 12.
- 5V Relay Module:** Connected to digital pin 5.
- Temperature Sensor:** Connected to analog pin A0.

The diagram illustrates a basic Arduino Uno circuit. An Arduino Uno (U1) is connected to a servo motor (SERVO1) and a potentiometer (U2). The servo motor is connected to a 5V power source. The potentiometer is connected to the 5V and GND pins of the Arduino. The LED (D3) is connected to a digital pin (D11) through a 200 ohm resistor (R3). The circuit is labeled with component names like U1, U2, and R3, R4.