

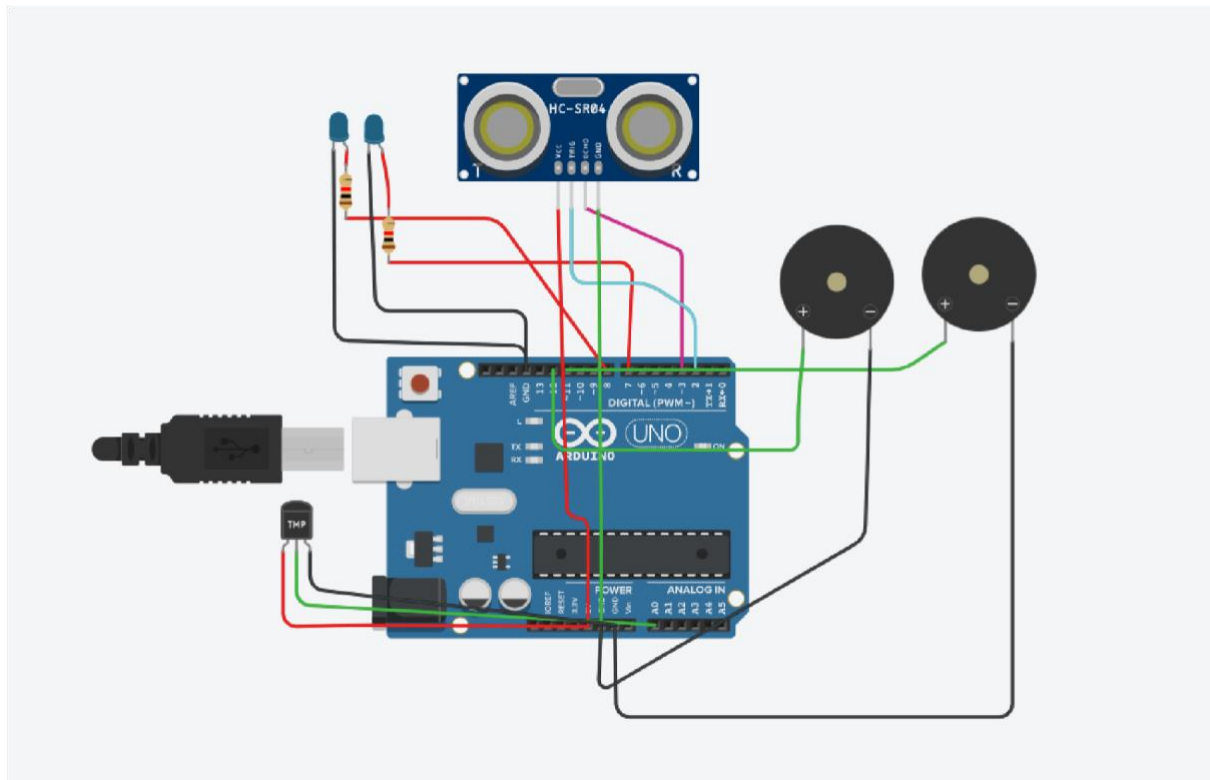
# **IBM - Nalaiya Thiran Project**

## **Assignment 1**

### **Smart Home**

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#### **Circuit Diagram:**



#### **Source Code :**

```
int t=2;  
int e=3;  
  
void setup()  
{  
  Serial.begin(9600);  
  pinMode(t,OUTPUT);
```

```
pinMode(e,INPUT);
pinMode(12,OUTPUT);
}
```

```
void loop() { //ultrasonic
sensor  digitalWrite(t,LOW);
digitalWrite(t,HIGH);
delayMicroseconds(10);
digitalWrite(t,LOW); float
dur=pulseIn(e,HIGH); float
dis=(dur*0.0343)/2;
Serial.print("Distance is: ");
Serial.println(dis);
```

```
    //LED ON
    if(dis>=60)//(in terms of centimeter)
    {
        digitalWrite(8,HIGH);
        digitalWrite(7,HIGH);
    }
```

```
    //Buzzer For ultrasonic Sensor
    if(dis>=60)
    {
        for(int i=0; i<=5; i=i+1)
        {
            tone(12,i);
            delay(1000);
            noTone(12);
            delay(1000);
        }
    }
```

```
    //Temperate Sensor  double a=
    analogRead(A0); double
    t=(((a/1024)*5)-0.5)*100;
    Serial.print("Temp Value: ");
    Serial.println(t);
    delay(1000);
```

```
//LED ON
if(t>=20)//(in terms of celsius)
{
    digitalWrite(8,HIGH);
digitalWrite(7,HIGH);
}

//Buzzer for Temperature Sensor
if(t>=20)
{
    for(int i=0; i<=5; i=i+1)
    {
        tone(12,i);
        delay(1000);
        noTone(12);
        delay(1000);
    }
}

//LED OFF
if(t<20)
{
    digitalWrite(8,LOW);
digitalWrite(7,LOW);
} }
```

## **Output:**

□ **Serial Monitor:**

A screenshot of a 'Serial Monitor' window. The title bar is light gray with a small icon on the left and a dropdown arrow on the right. The main area is white and contains a list of text lines. The lines alternate between 'Distance is: ' followed by a value and 'Temp Value: ' followed by a value. The values for distance are 68.70, 68.67, 68.89, 68.70, 68.70, 68.89, 68.70, 68.70, 68.70, 68.89, 68.70, 68.70, 68.70, 68.89, 68.70, 68.70, 68.70, 68.89, 68.70, 68.70, 68.70, 68.70. The values for temperature are consistently 24.71.

```
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.67
Temp Value: 24.71
Distance is: 68.89
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.89
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.89
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.89
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.89
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
Distance is: 68.70
Temp Value: 24.71
```

**□ Circuit Diagram:**

