

# **IBM - Nallaiya Thiran Project**

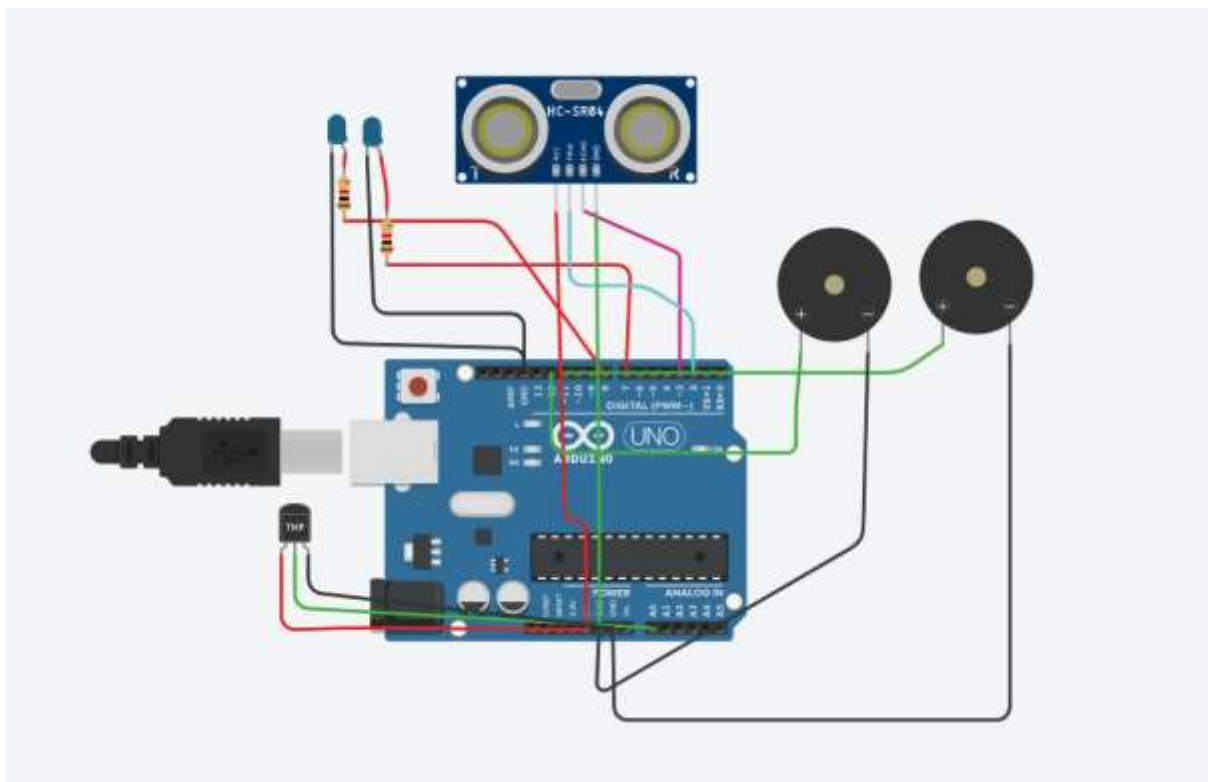
## **Assignment 1**

### **Smart Home**

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**2019503555**

#### **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);
}
}
```

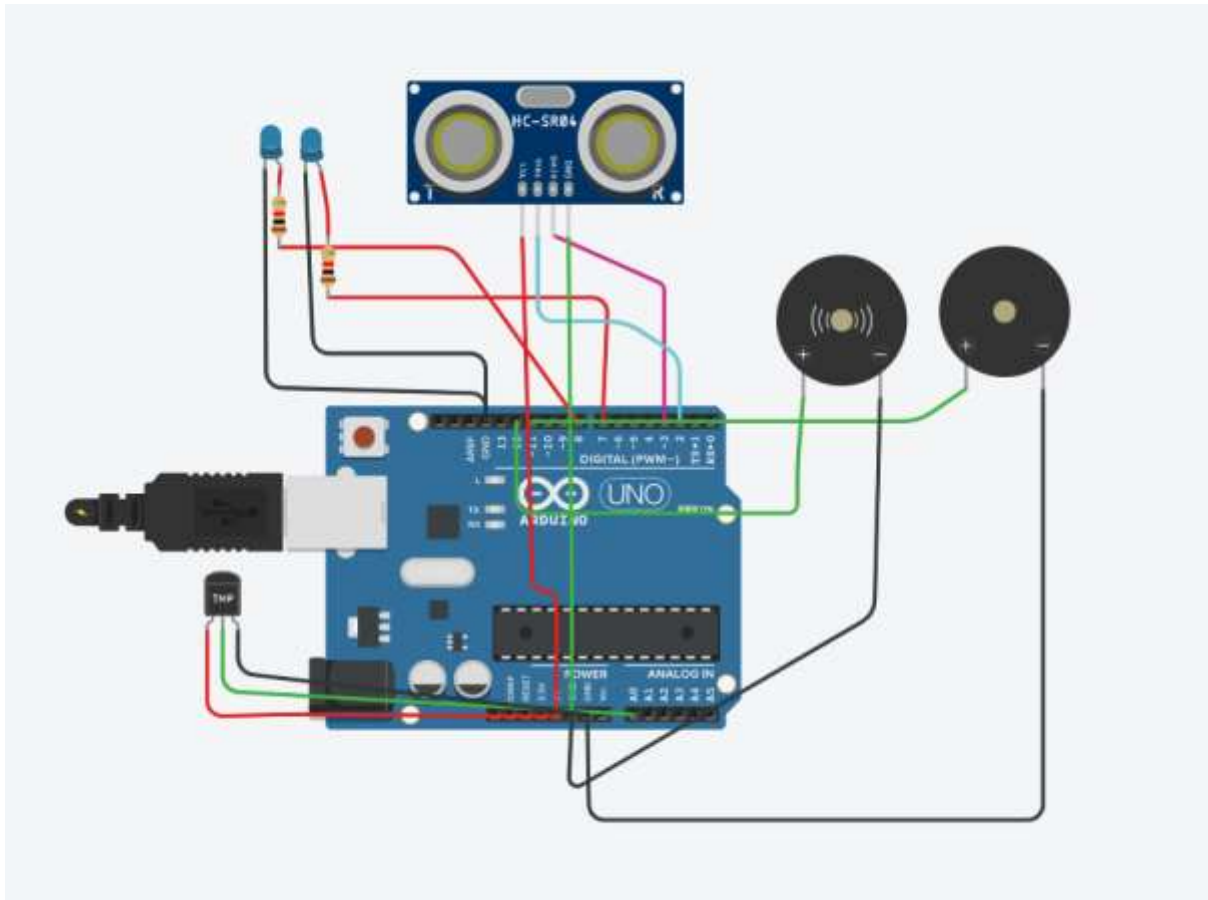
**Output:**

- **Serial Monitor:**

```
Serial Monitor

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
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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:**



**Tinkercad Link:**

<https://www.tinkercad.com/things/f7CMXFU13JU-ibm-assignment-1-smart-home/editel?sharecode=8L8ftnLaTN3dzkouSmt43CQjO7XNqdQ31LHnOy7lz7c>