IBM - Nallaiya Thiran Project
Assignment 1 - Smart Home

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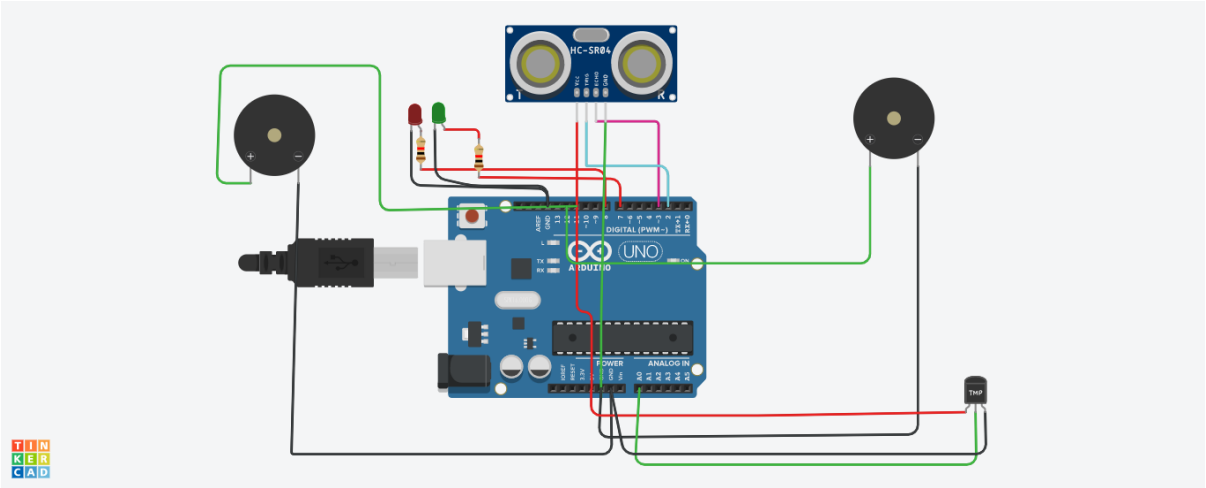
Circuit Diagram:



Source Code :

```
// C++ code
//
int t=2;
int e=3;

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

void loop()
{
```

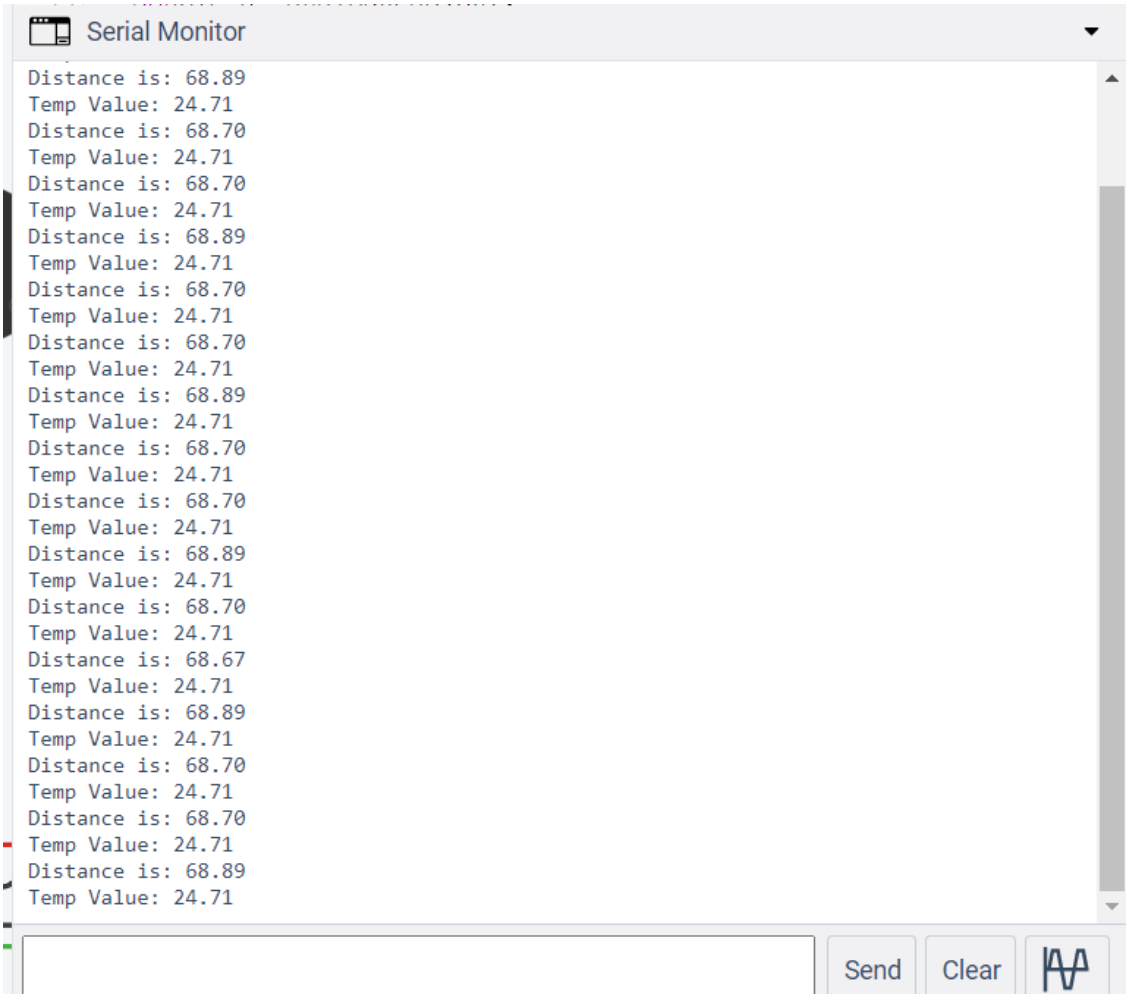
```
//ultrasonic sensor
digitalWrite(t,LOW);
digitalWrite(t,HIGH);
delayMicroseconds(10);
digitalWrite(t,LOW);
float dur=pulseIn(e,HIGH);
float dis=(dur*0.0343)/2;
Serial.print("Distance is: ");
Serial.println(dis);

  //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);
```

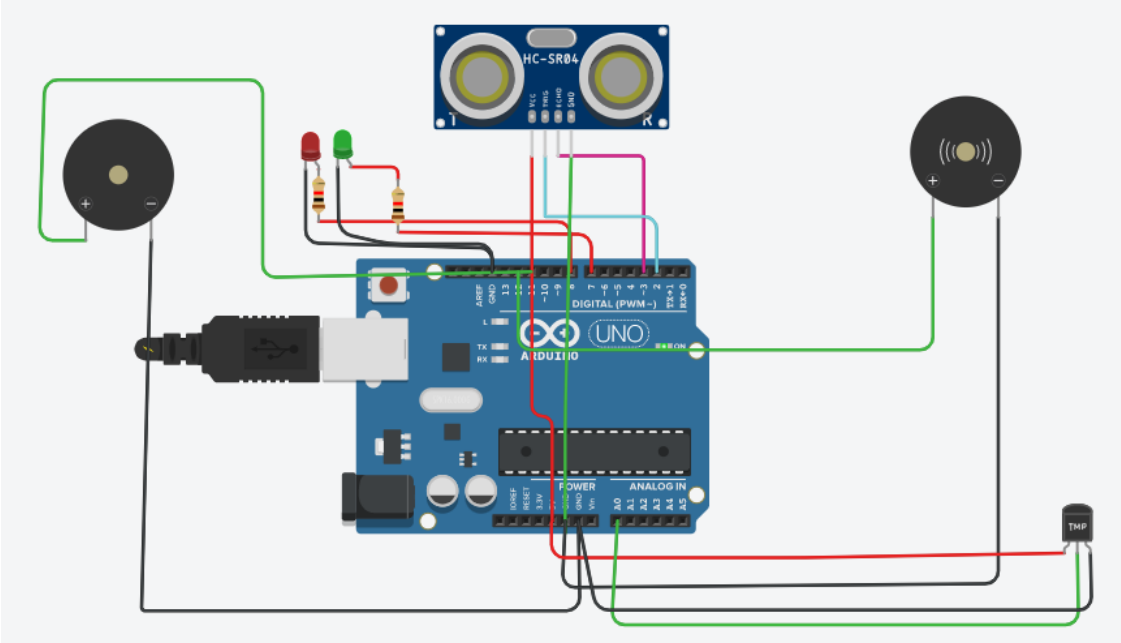
```
  //LED ON
  if(t>=20)//(in terms of celsius)
  {
    digitalWrite(8,HIGH);
    digitalWrite(7,HIGH);
  }

  //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);
  }
}
```

Tinkercad Link:

https://www.tinkercad.com/things/fZqAiSqqoUr-neat-waasa/editel?sharecode=Orf9dNG-ZKJmzrGCsmKvaGNbuouDQ8e4cR0MtBEBiYk

Output:


Serial Monitor
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: 68.67
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
Send
Clear


HC-SR04
UNO
TMP