

Internet Of Things

Lab - 11

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Aim :

To design a COVID-19 Social Distance Monitoring tool with the help of Tinker-CAD and concepts of IoT.

Software :

Tinker-CAD Software.

Methodology :

Instructions given by our faculty , was followed.

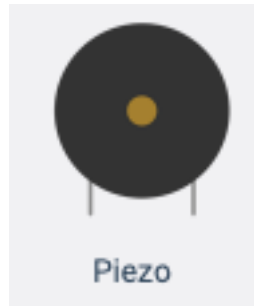
Simulation And Output :

1) Components Used

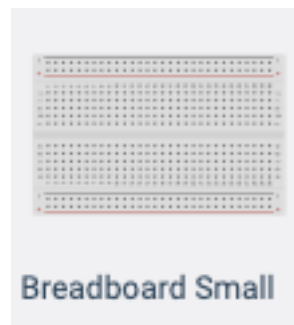
(1.1) Ultrasonic Distance Sensor



(1.2) Piezo Alarm



(1.3) Bread Board



(1.4) Arduino UNO



2) Arduino Code

```
int buzzerPin= 2;  
int echoPin= 6;  
int trigPin= 5;  
int minDistance = 100;  
int maxDistance = 300;  
  
void setup()  
{  
  pinMode(buzzerPin, OUTPUT);
```

```

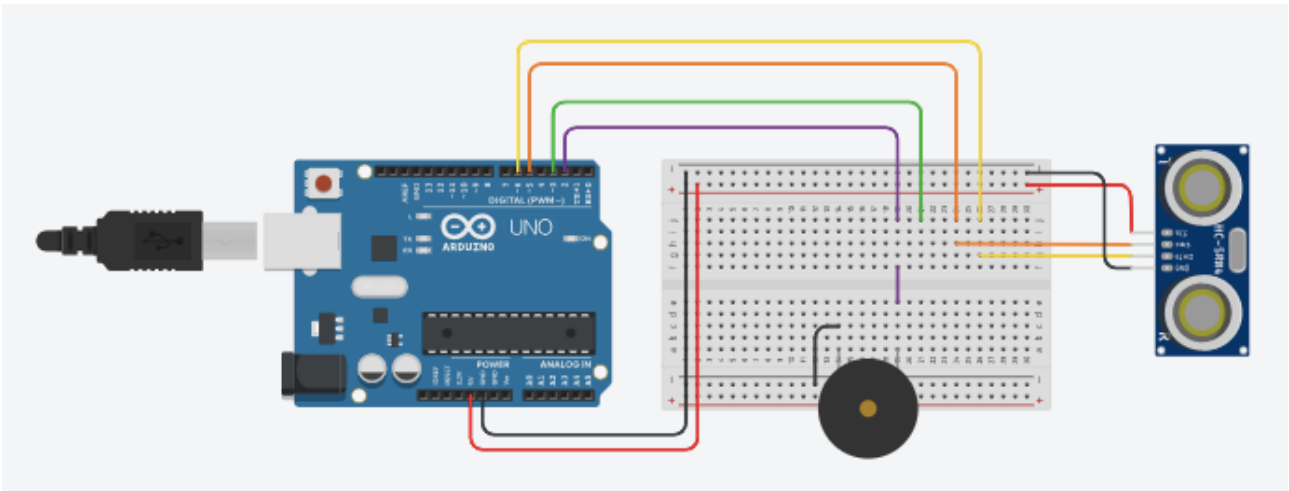
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
Serial.begin(9600);
}

void loop()
{
  int distance = calcDistance();
  int ledsToGlow = map(distance, minDistance, maxDistance, ledNo, 1);
  if(ledsToGlow == 12)
  {
    digitalWrite(buzzerPin, HIGH);
  }
  else
  {
    digitalWrite(buzzerPin, LOW);
  }
  delay(50);
}

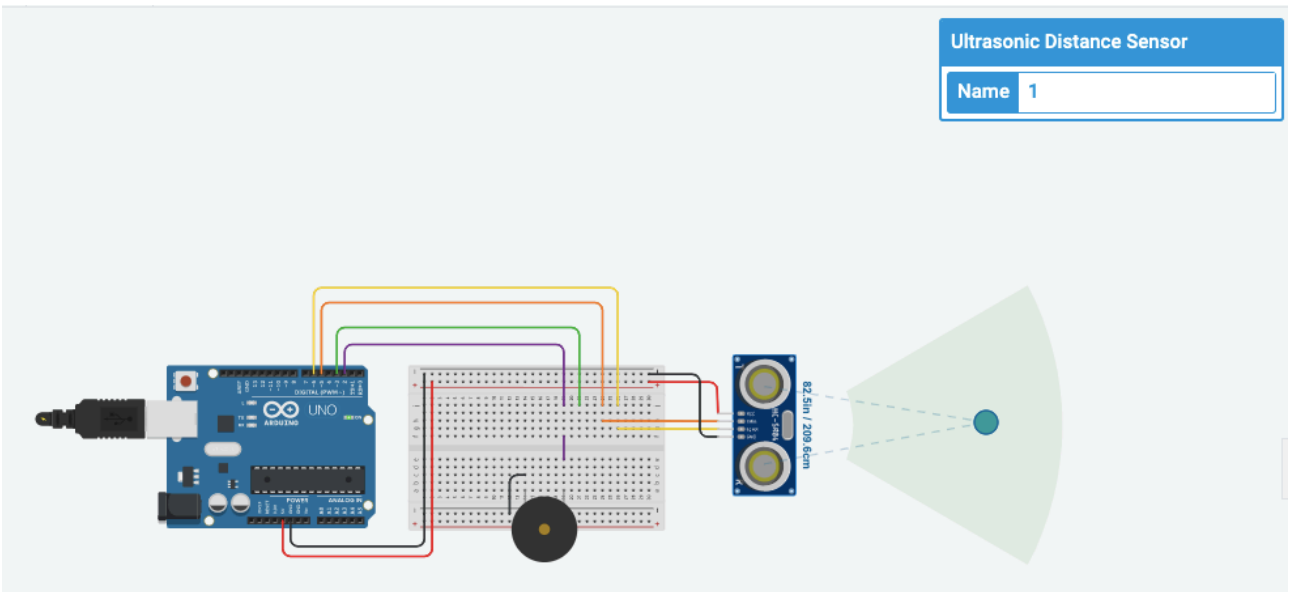
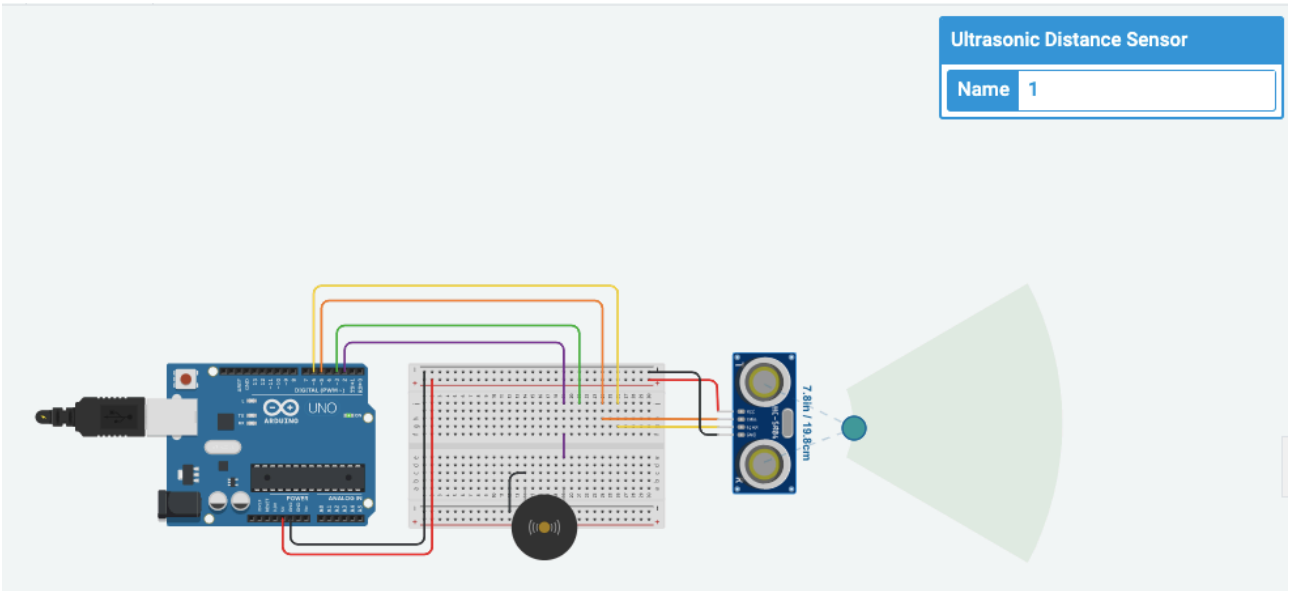
int calcDistance()
{
  long distance,duration;
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration / 29 / 2;
  if(distance >= maxDistance)
  {
    distance = maxDistance;
  }
  if(distance <= minDistance)
  {
    distance = minDistance;
  }
  return distance;
}

```

3) Complete Circuit Diagram



4) Output



Result :

Thus, with the help of Tinker-CAD we have designed a Social Distancing Monitoring tool and have thus analysed it using Node Red thereby putting the learnt IoT concepts to practical use.