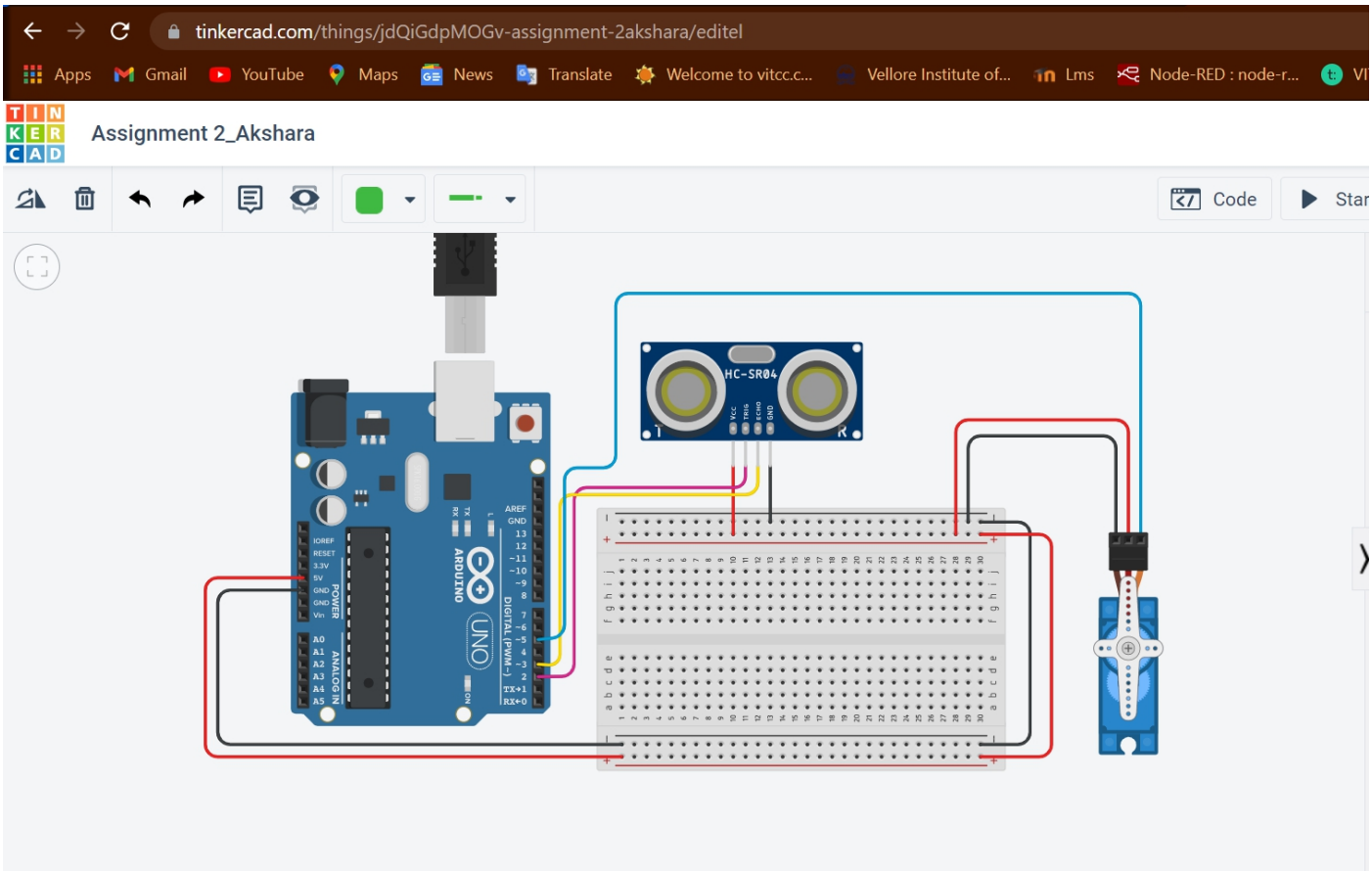
M.AKSHARA

ASSIGNMENT 2

Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

CIRCUIT



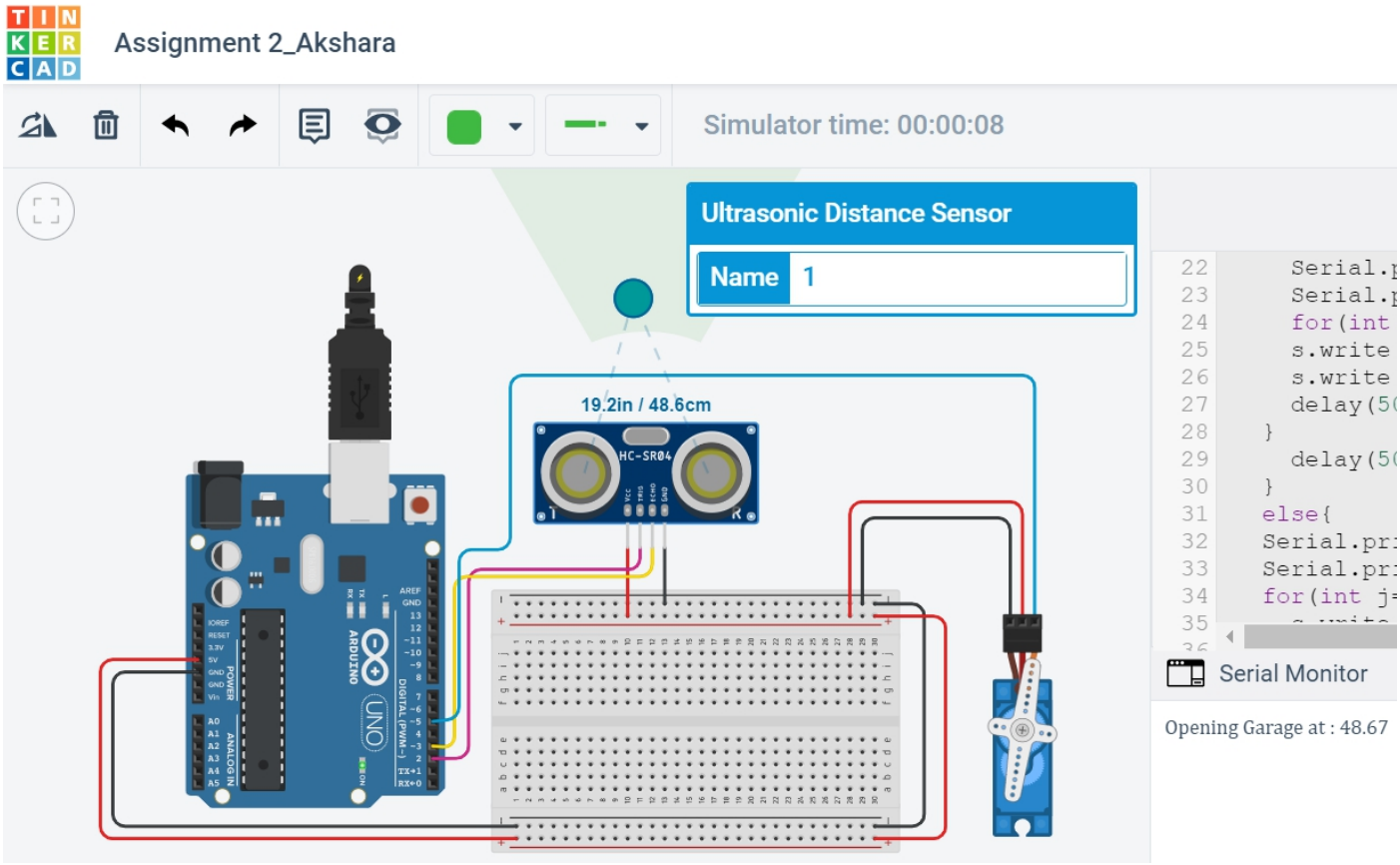
CODE

```
#include<Servo.h>
Servo s;
int t = 2;                          //we can use both int and define
int e = 3;
void setup()
{
  s.attach(5);
  pinMode(t, OUTPUT);
  pinMode(e,INPUT);
  Serial.begin(9600);
}

void loop()
{
  digitalWrite(t,LOW);                //to avoid avg distance
  digitalWrite(t,HIGH);
  delayMicroseconds(2);               //time to measure
```

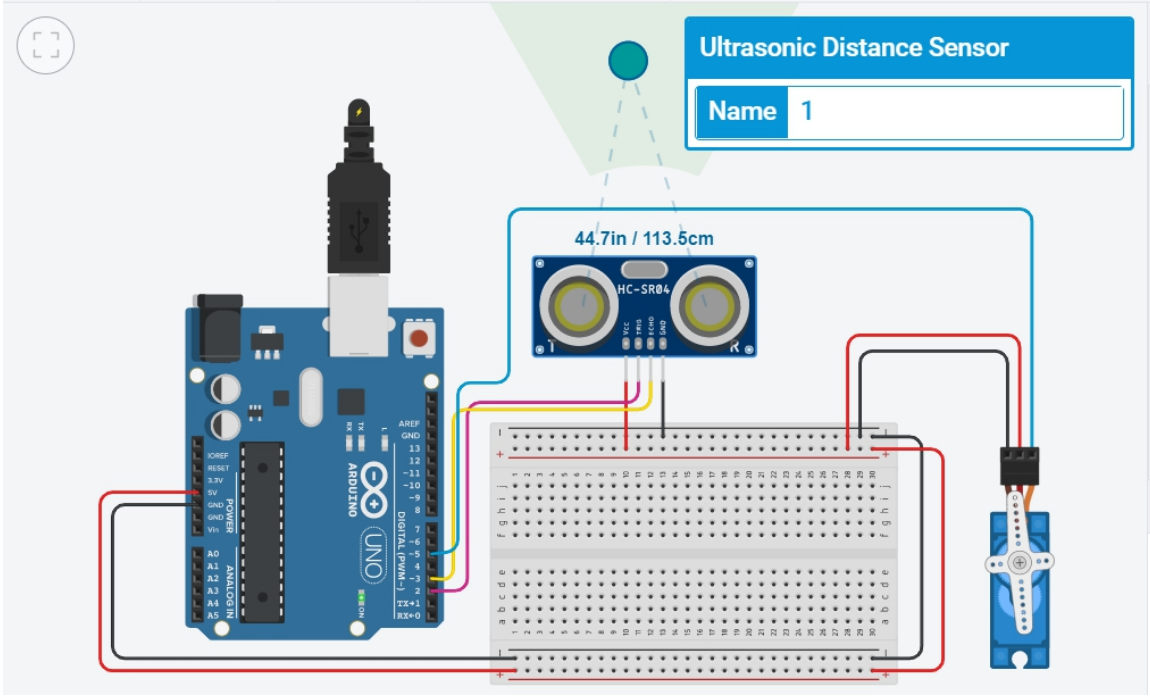
```
 digitalWrite(t,LOW);                    //to stop the measuring
 float dur = pulseIn(e,HIGH);            //reading the duration of the pulse
 float dis = (dur * 0.0343)/2;           //formulae for calculating distance with duration
 if(dis <= 50){                          //If distance less than 50 then open the garage
  Serial.print("Opening Garage at : " );
  Serial.println(dis);                   //Printing distance
  for(int i=0;i<=180;i++){               //rotate servo motor clockwise
  s.write(i);
  s.write(180);                         //To stay at 180 degrees
  delay(50);
 }
  delay(50);
 }
 else{                                   //if distance is greater than 50 close the garage
 Serial.print("Closing Garage at : " );
 Serial.println(dis);                    //printing the distance
 for(int j=180;j>=0;j--){                //rotate the servo motor anticlockwise
  s.write(j);
  s.write(0);                           //to remain at 0 degrees
  delay(50);
 }
 delay(50);
  }
}
```

SCREENSHOTS



Assignment 2_Akshara

Simulator time: 00:00:03



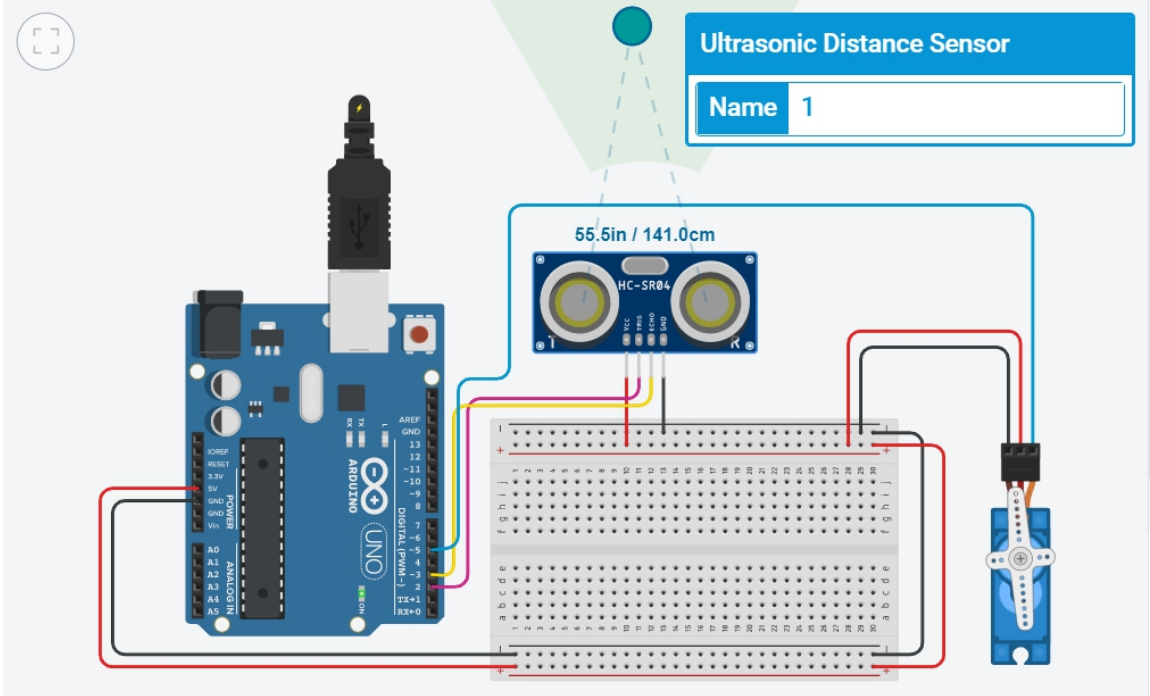

```
22      Serial.p
23      Serial.p
24      for(int
25      s.write(
26      s.write(
27      delay(50
28    }
29      delay(50
30    }
31    else{
32    Serial.pri
33    Serial.pri
34    for(int j=
35
```

Serial Monitor

```
Closing Garage at : 113.09
```

Assignment 2_Akshara

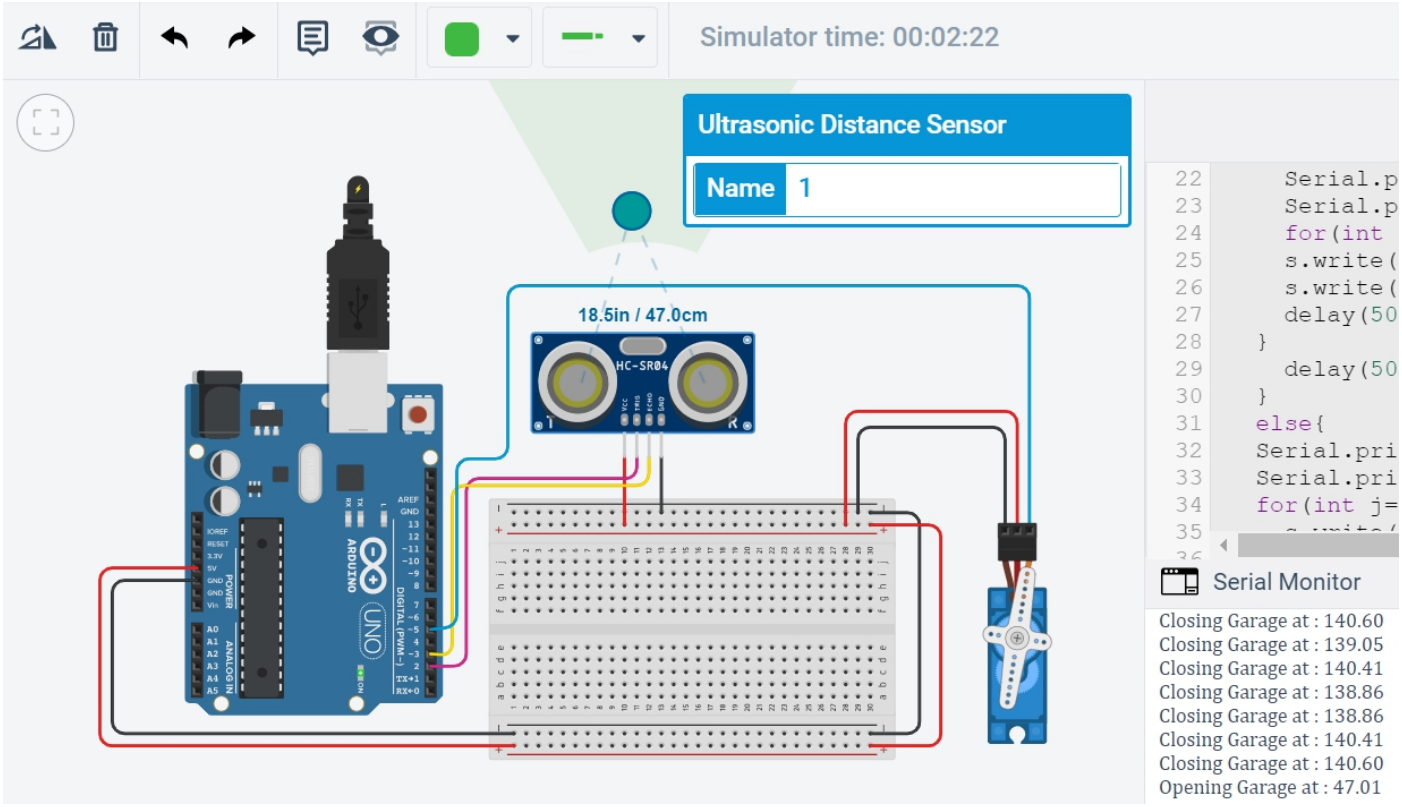
Simulator time: 00:01:14




```
22      Serial.p
23      Serial.p
24      for(int
25      s.write(
26      s.write(
27      delay(50
28    }
29      delay(50
30    }
31    else{
32    Serial.pri
33    Serial.pri
34    for(int j=
35
```

Serial Monitor


```
Opening Garage at : 22.17
Closing Garage at : 128.21
Opening Garage at : 21.01
Closing Garage at : 118.21
Closing Garage at : 156.91
Opening Garage at : 46.60
Closing Garage at : 150.46
Closing Garage at : 140.60
```



LINK

https://www.tinkercad.com/things/jdQiGdpMOGv-assignment-2akshara/editel?sharecode=AA85VYpVrROv0QNxvkIQqSOUn8FZ3aaCeRivYJZu4qI