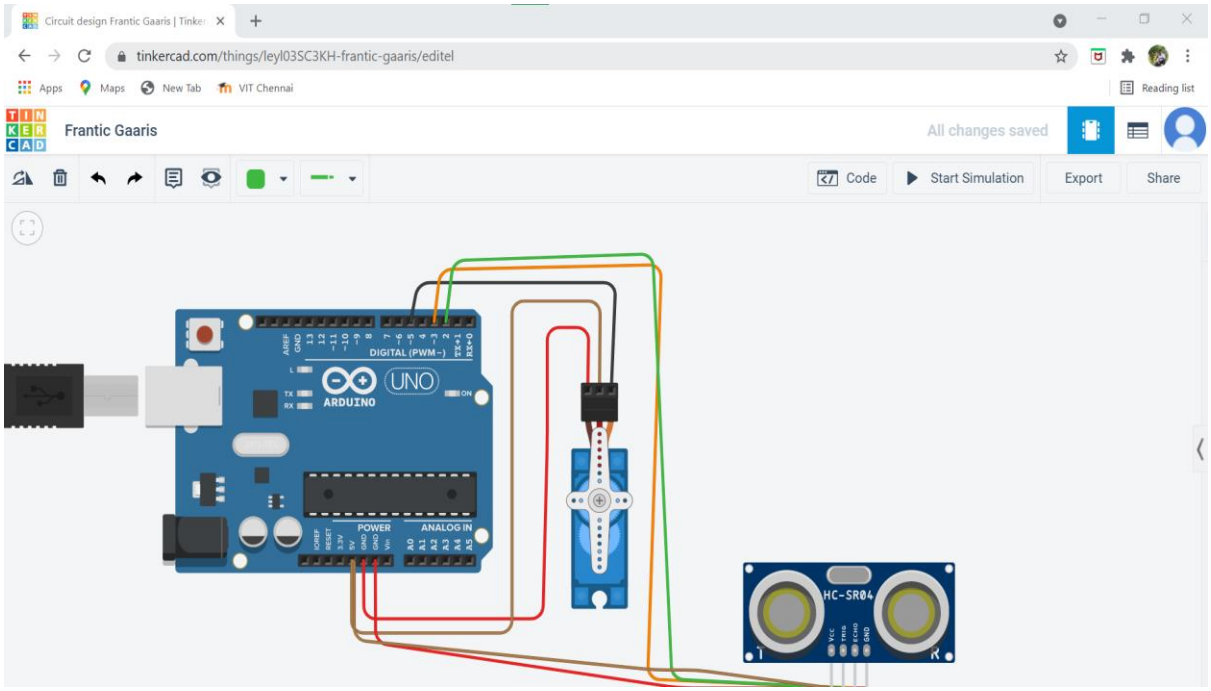
ASSIGNMENT_2:

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 diagram:



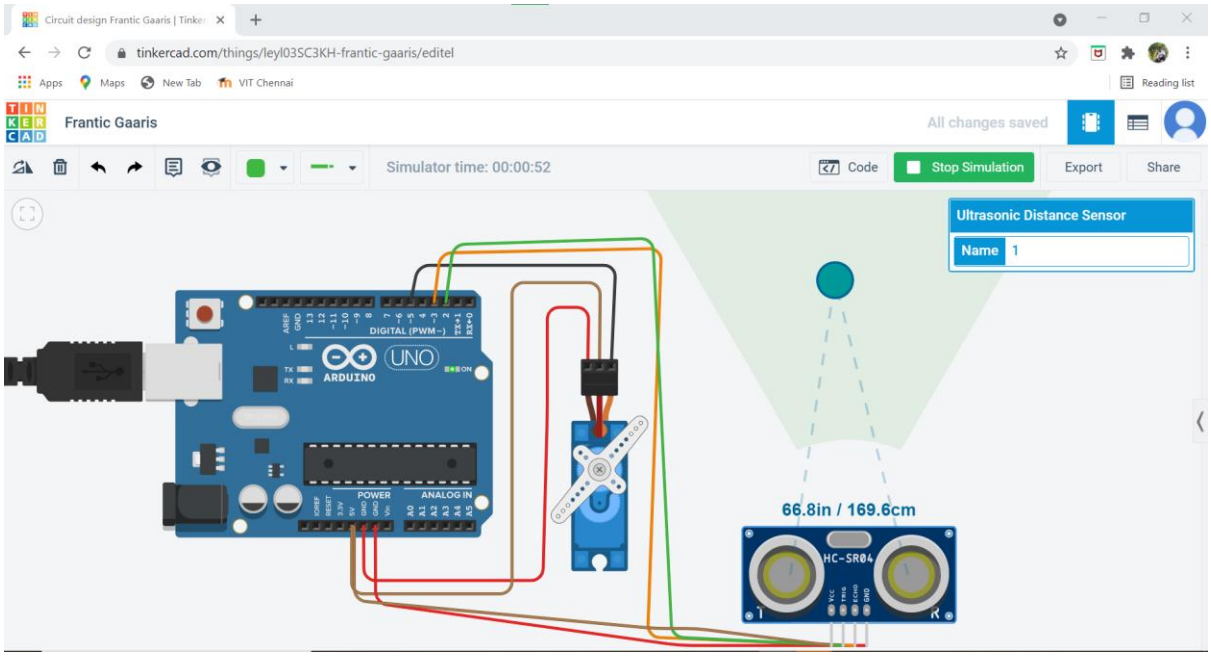
Code:

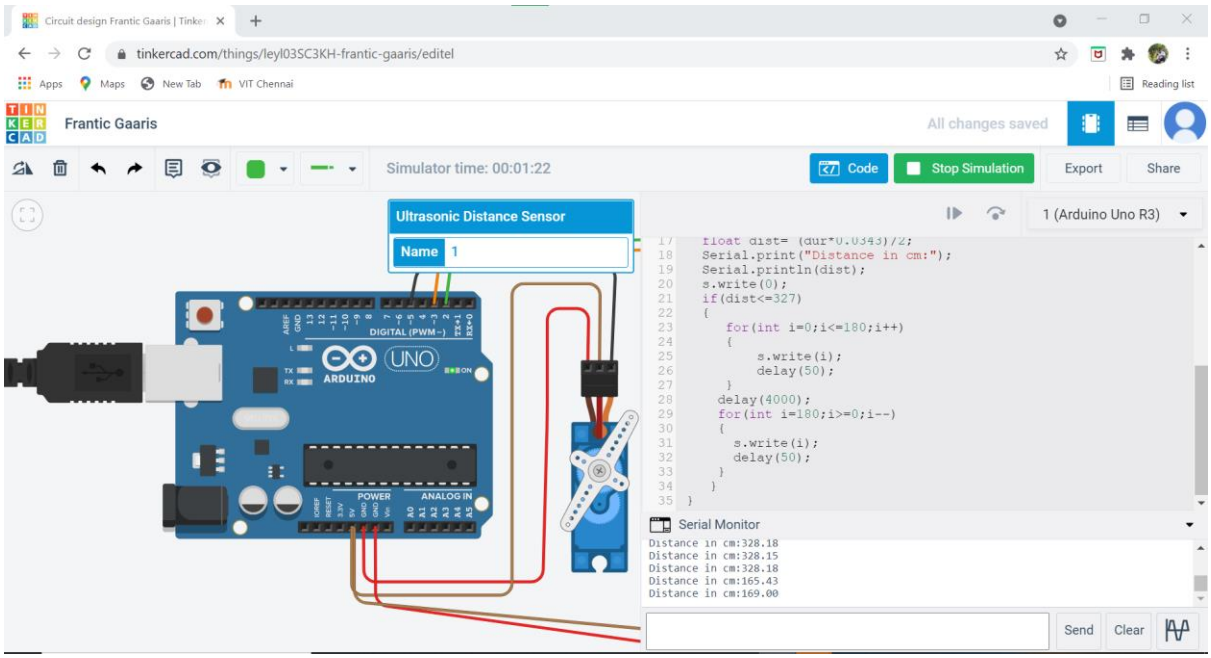
```
#include<Servo.h>

Servo s;

void setup()

{

  pinMode(2, OUTPUT);

  pinMode(3, INPUT);

  Serial.begin(9600);

  s.attach(5);

}
```

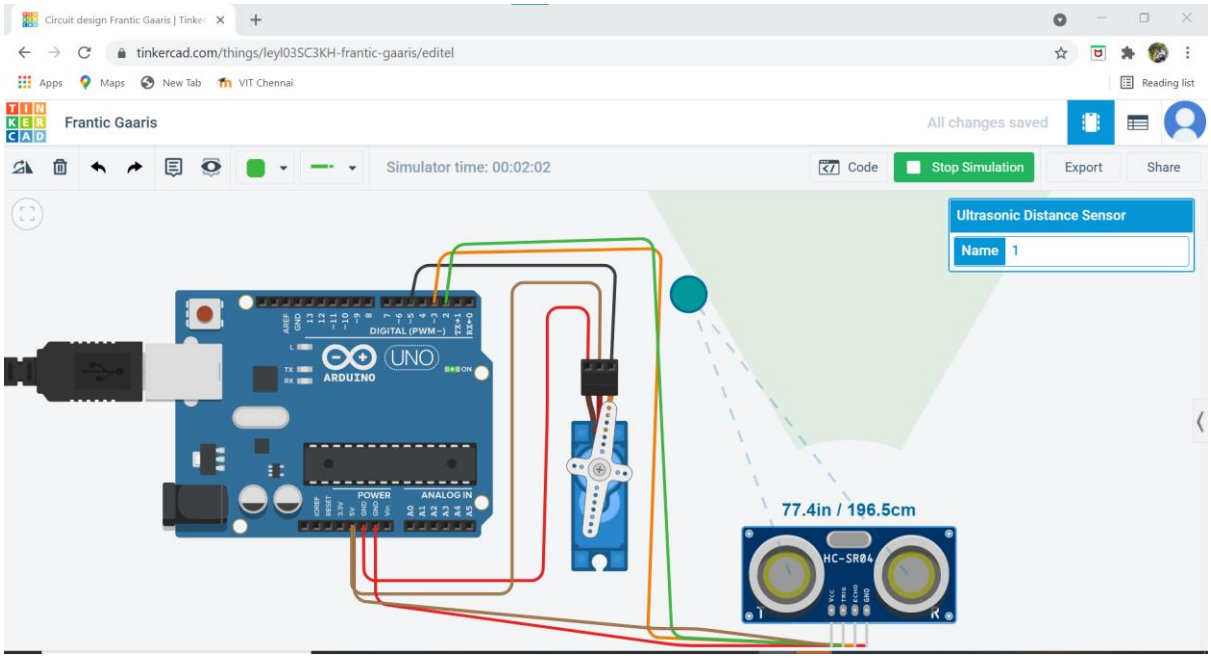
```
void loop()
{
  digitalWrite(2,LOW);
  digitalWrite(2,HIGH);
  delayMicroseconds(10);
  digitalWrite(2,LOW);
  float dur=pulseIn(3,HIGH);
  float dist= (dur*0.0343)/2;
  Serial.print("Distance in cm:");
  Serial.println(dist);
  s.write(0);
  if(dist<=327)
  {
    for(int i=0;i<=180;i++)
    {
       s.write(i);
       delay(50);
    }
   delay(4000);
   for(int i=180;i>=0;i--)
   {
     s.write(i);
     delay(50);
   }
```

```
  }
}
```

AFTER STIMULATION:



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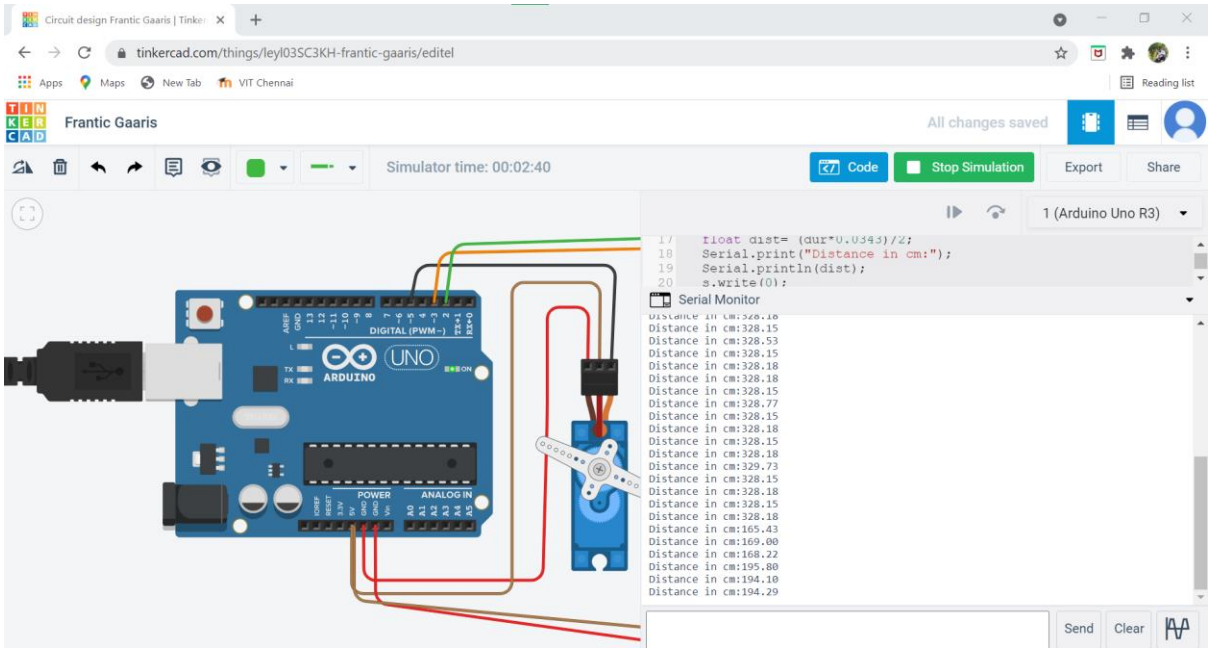
tinkercad.com/things/leyl03SC3KH-frantic-gaaris/editel
Apps
Maps
New Tab
VIT Chennai
Reading list
Frantic Gaaris
All changes saved
Simulator time: 00:02:02
Code
Stop Simulation
Export
Share
Ultrasonic Distance Sensor
Name
1
77.4in / 196.5cm
HC-SR04
UNO
ARDUINO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tinkercad.com/things/leyl03SC3KH-frantic-gaaris/editel
Apps
Maps
New Tab
VIT Chennai
Reading list
Frantic Gaaris
All changes saved
Simulator time: 00:02:40
Code
Stop Simulation
Export
Share
1 (Arduino Uno R3)
float dist= (dur*0.0343)/2;
Serial.print("Distance in cm:");
Serial.println(dist);
s.write(0);
Serial Monitor
Distance in cm:328.15
Distance in cm:328.53
Distance in cm:328.15
Distance in cm:328.18
Distance in cm:328.18
Distance in cm:328.15
Distance in cm:328.77
Distance in cm:328.15
Distance in cm:328.18
Distance in cm:328.15
Distance in cm:328.18
Distance in cm:329.73
Distance in cm:328.15
Distance in cm:328.18
Distance in cm:328.15
Distance in cm:328.18
Distance in cm:165.43
Distance in cm:169.00
Distance in cm:168.22
Distance in cm:195.80
Distance in cm:194.10
Distance in cm:194.29
Send
Clear
UNO
ARDUINO