

## 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

### Python code

```
#include<Servo.h>

Servo s;

int t = 2;
int e = 3;

void setup()
{
    pinMode(t, OUTPUT);
    pinMode(e, INPUT);
    s.attach(4);
    Serial.begin(9600);
}

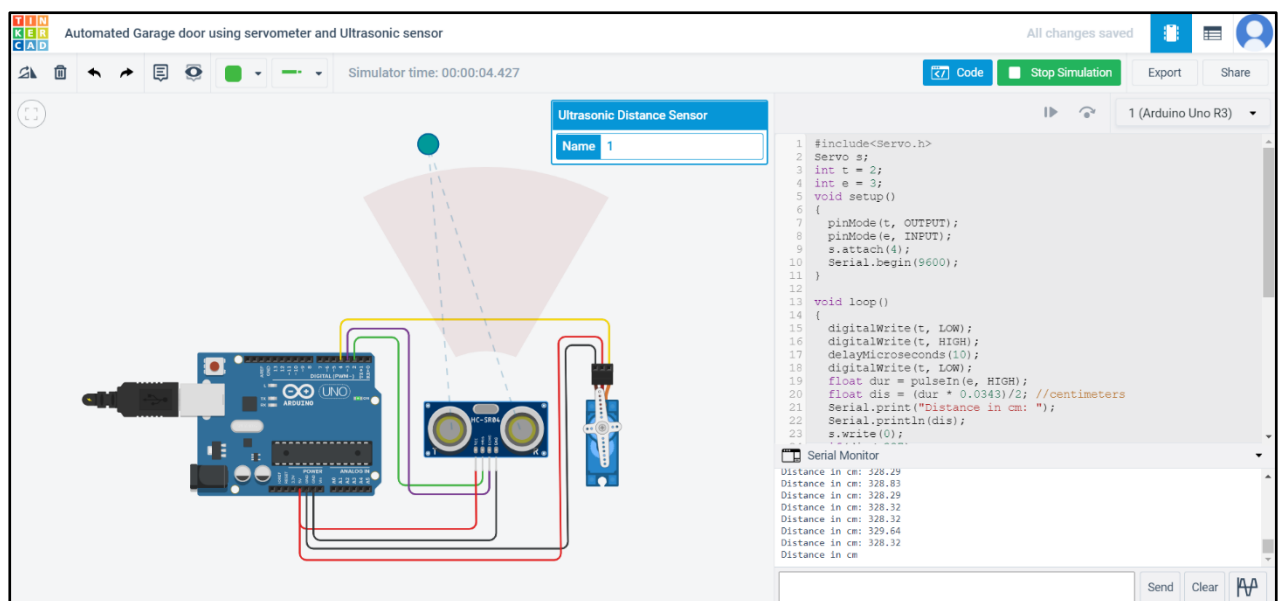
void loop()
{
    digitalWrite(t, LOW);
    digitalWrite(t, HIGH);
    delayMicroseconds(10);
    digitalWrite(t, LOW);
    float dur = pulseIn(e, HIGH);
    float dis = (dur * 0.0343)/2; //centimeters
    Serial.print("Distance in cm: ");
    Serial.println(dis);
    s.write(0);
    if(dis<=327)
```

```

{
  Serial.print("Garage door is Opening: ");
  for(int i=0;i<=100;i++)
  {
    s.write(i);
    delay(100);
  }
  delay(5000);
  Serial.println();
  Serial.print("Garage door is Closing: ");
  for(int j=180;j>=0;j--)
  {
    s.write(j);
    delay(100);
  }
}
}

```

## When the vehicle is outside the range



## Garage door opening

Automated Garage door using servometer and Ultrasonic sensor

Simulator time: 00:00:12

Ultrasonic Distance Sensor  
Name 1

106.1in / 269.5cm

```
1 #include<Servo.h>
2 Servo s;
3 int t = 2;
4 int e = 3;
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6 {
7   pinMode(t, OUTPUT);
8   pinMode(e, INPUT);
9   s.attach(4);
10  Serial.begin(9600);
11 }
12
13 void loop()
14 {
15   digitalWrite(t, LOW);
16   digitalWrite(t, HIGH);
17   delayMicroseconds(10);
18   digitalWrite(t, LOW);
19   float dur = pulseIn(e, HIGH);
20   float dis = (dur * 0.0343)/2; //centimeters
21   Serial.print("Distance in cm: ");
22   Serial.println(dis);
23   s.write(0);
24 }
```

Serial Monitor

Distance in cm: 328.32  
Distance in cm: 328.99  
Distance in cm: 328.32  
Distance in cm: 328.29  
Distance in cm: 328.32  
Distance in cm: 328.83  
Distance in cm: 328.89  
Garage door is Opening:

## Garage door closing

Automated Garage door using servometer and Ultrasonic sensor

Simulator time: 00:00:23

Ultrasonic Distance Sensor  
Name 1

106.1in / 269.5cm

```
1 #include<Servo.h>
2 Servo s;
3 int t = 2;
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21   Serial.print("Distance in cm: ");
22   Serial.println(dis);
23   s.write(0);
24 }
```

Serial Monitor

Distance in cm: 328.99  
Distance in cm: 328.32  
Distance in cm: 328.29  
Distance in cm: 328.32  
Distance in cm: 328.83  
Distance in cm: 328.89  
Garage door is Closing: