

Assignment 2

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Code-

```
#include<Servo.h>

Servo s;

void setup()
{
    Serial.begin(9600);

    pinMode(9, OUTPUT); // set arduino pin 9 to output mode
    pinMode(10, INPUT); // set arduino pin 10 to input mode
    s.attach(7);        // attaches the servo on pin 7 to the servo object
    s.write(0);
}

void loop()
{
    digitalWrite(9, HIGH);
    delayMicroseconds(10);
    digitalWrite(9, LOW); // generate 10-microsecond pulse to TRIG pin

    float dur = pulseIn(10, HIGH);
    float dis = (dur*0.0343)/2; // calculate the distance

    if(dis <100)
        s.write(90); // rotate servo motor to 90 degree to open garage door
```

```
delay(2000);
```

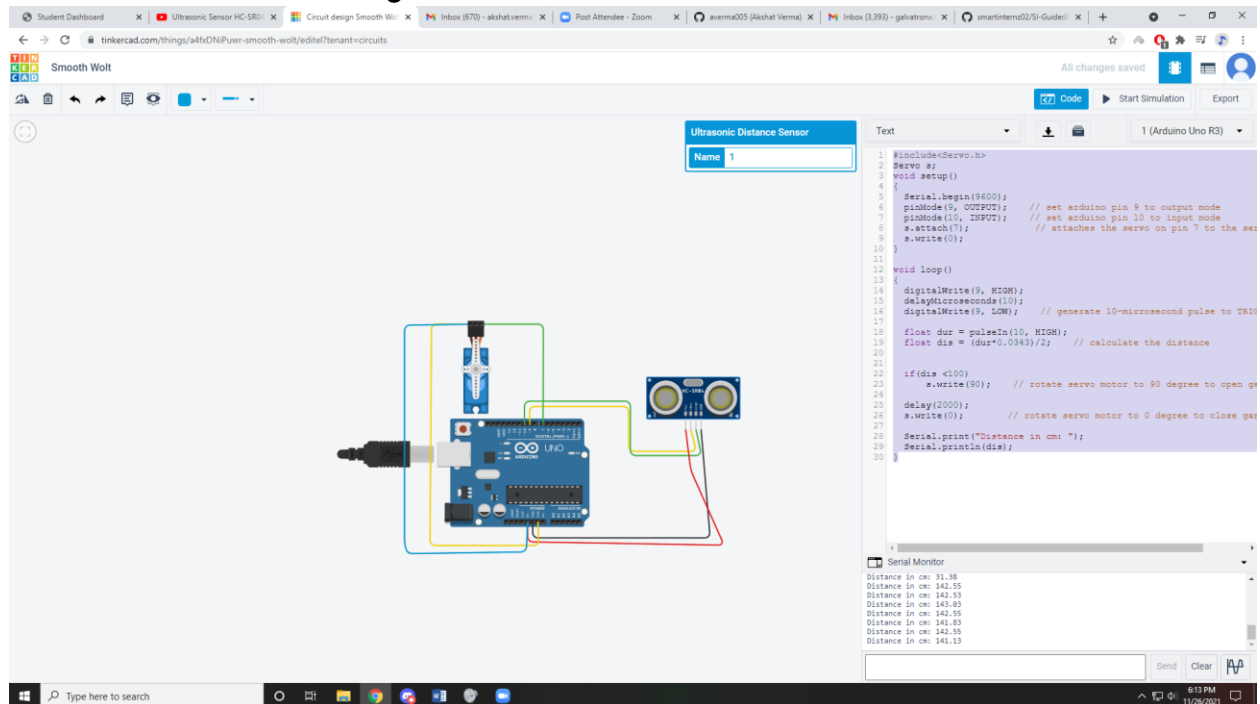
```
s.write(0);    // rotate servo motor to 0 degree to close garage door
```

```
Serial.print("Distance in cm: ");
```

```
Serial.println(dis);
```

```
}
```

Screenshot of the design-



When the distance is more than 100cm-

The screenshot shows a Tinkercad simulation of an Arduino Uno R3 connected to an Ultrasonic Distance Sensor. The sensor's range is set to 100 cm. The code in the right panel controls a servo motor based on the distance. The Serial Monitor shows the distance being measured.

```

1 #include<Servo.h>
2 Servo s;
3 void setup()
4 {
5   Serial.begin(9600);
6   pinMode(9, OUTPUT); // set arduino pin 9 to output mode
7   pinMode(10, INPUT); // set arduino pin 10 to input mode
8   s.attach(7); // attaches the servo on pin 7 to the sei
9   s.write(0);
10 }
11
12 void loop()
13 {
14   digitalWrite(9, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(9, LOW); // generate 10-microsecond pulse to TRIG
17
18   float dur = pulseIn(10, HIGH);
19   float dis = (dur*0.0343)/2; // calculate the distance
20
21   if(dis <100)
22     s.write(90); // rotate servo motor to 90 degree to open ga
23   delay(2000);
24   s.write(0); // rotate servo motor to 0 degree to close ga
25   Serial.print("Distance in cm: ");
26   Serial.println(dis);
27 }
28
29
30

```

Serial Monitor

```

Distance in cm: 142.55
Distance in cm: 142.53
Distance in cm: 143.89
Distance in cm: 142.55
Distance in cm: 143.83
Distance in cm: 143.55
Distance in cm: 141.13
Distance in cm: 145.87

```

When the distance is less than 100 cm-

The screenshot shows a Tinkercad simulation of an Arduino Uno R3 connected to an Ultrasonic Distance Sensor. The sensor's range is set to 100 cm. The code in the right panel controls a servo motor based on the distance. The Serial Monitor shows the distance being measured.

```

1 #include<Servo.h>
2 Servo s;
3 void setup()
4 {
5   Serial.begin(9600);
6   pinMode(9, OUTPUT); // set arduino pin 9 to output mode
7   pinMode(10, INPUT); // set arduino pin 10 to input mode
8   s.attach(7); // attaches the servo on pin 7 to the sei
9   s.write(0);
10 }
11
12 void loop()
13 {
14   digitalWrite(9, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(9, LOW); // generate 10-microsecond pulse to TRIG
17
18   float dur = pulseIn(10, HIGH);
19   float dis = (dur*0.0343)/2; // calculate the distance
20
21   if(dis <100)
22     s.write(90); // rotate servo motor to 90 degree to open ga
23   delay(2000);
24   s.write(0); // rotate servo motor to 0 degree to close ga
25   Serial.print("Distance in cm: ");
26   Serial.println(dis);
27 }
28
29
30

```

Serial Monitor

```

Distance in cm: 142.55
Distance in cm: 142.83
Distance in cm: 143.55
Distance in cm: 141.13
Distance in cm: 145.87
Distance in cm: 133.39
Distance in cm: 155.88
Distance in cm: 133.58

```