

ASSIGNMENT – 2

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REG NO : 19BEC0279

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.

TINKERCARD CODE :

```
#include<Servo.h>
```

```
Servo s;
```

```
void setup()
```

```
{
```

```
  s.attach(9);
```

```
  pinMode(2, OUTPUT);
```

```
  pinMode(5, INPUT);
```

```
  Serial.begin(9600);
```

```
}
```

```
void loop()
```

```
{
```

```
  digitalWrite(2, LOW);
```

```
  digitalWrite(2, HIGH);
```

```
  delayMicroseconds(10);
```

```
  digitalWrite(2, LOW);
```

```
float dur = pulseIn(5, HIGH);  
float dis = (dur * 0.0343)/2;  
Serial.print("Distance in cm: ");  
Serial.println(dis);  
if(dis<100)  
{  
  
    s.write(180);  
    delay(1000);  
}  
else  
{  
    s.write(0);  
    delay(1000);  
}  
}
```

OUTPUT :

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All changes saved

Simulator time: 00:00:10

Code Stop Simulation Export Share

1 (Arduino Uno R3)

Ultrasonic Distance Sensor

Name 1

31.1m / 79.1cm

```
1 #include<Servo.h>
2 Servo s;
3 void setup()
4 {
5   s.attach(9);
6   pinMode(2, OUTPUT);
7   pinMode(5, INPUT);
8   Serial.begin(9600);
9 }
10
11 void loop()
12 {
13   digitalWrite(2, LOW);
14   digitalWrite(2, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(2, LOW);
17   float dur = pulseIn(5, HIGH);
18   float dis = (dur * 0.0343)/2;
19   Serial.print("Distance in cm: ");
20   Serial.println(dis);
21   if(dis<100)
22   {
23     s.write(180);
24     delay(1000);
25 }
```

Serial Monitor

Distance in cm: //9.95
Distance in cm: 78.70
Distance in cm: 78.70
Distance in cm: 77.14
Distance in cm: 78.70
Distance in cm: 78.89
Distance in cm: 78.14
Distance in cm: 78.89

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Simulator time: 00:00:19

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1 (Arduino Uno R3)

Ultrasonic Distance Sensor

Name 1

7.2m / 18.4cm

```
1 #include<Servo.h>
2 Servo s;
3 void setup()
4 {
5   s.attach(9);
6   pinMode(2, OUTPUT);
7   pinMode(5, INPUT);
8   Serial.begin(9600);
9 }
10
11 void loop()
12 {
13   digitalWrite(2, LOW);
14   digitalWrite(2, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(2, LOW);
17   float dur = pulseIn(5, HIGH);
18   float dis = (dur * 0.0343)/2;
19   Serial.print("Distance in cm: ");
20   Serial.println(dis);
21   if(dis<100)
22   {
23     s.write(180);
24     delay(1000);
25 }
```

Serial Monitor

Distance in cm: 78.91
Distance in cm: 78.89
Distance in cm: 52.31
Distance in cm: 17.92
Distance in cm: 18.44
Distance in cm: 18.44
Distance in cm: 18.44
Distance in cm: 18.44

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All changes saved

Simulator time: 00:00:26

Code Stop Simulation Export Share

1 (Arduino Uno R3)

Ultrasonic Distance Sensor

Name 1

```
1 #include<Servo.h>
2 Servo s;
3 void setup()
4 {
5   s.attach(9);
6   pinMode(2, OUTPUT);
7   pinMode(5, INPUT);
8   Serial.begin(9600);
9 }
10
11 void loop()
12 {
13   digitalWrite(2, LOW);
14   digitalWrite(2, HIGH);
15   delayMicroseconds(10);
16   digitalWrite(2, LOW);
17   float dur = pulseIn(5, HIGH);
18   float dis = (dur * 0.0343)/2;
19   Serial.print("Distance in cm: ");
20   Serial.println(dis);
21   if(dis<100)
22   {
23     s.write(180);
24     delay(1000);
25 }
```

Serial Monitor

Distance in cm: 18.44
Distance in cm: 18.44
Distance in cm: 18.44
Distance in cm: 18.44
Distance in cm: 334.20
Distance in cm: 333.43
Distance in cm: 333.43
Distance in cm: 333.41

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30°C Light rain 19:24