

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.

Code:

```
#include<Servo.h>

Servo s;

void setup()
{
    pinMode(3, OUTPUT);
    pinMode(4, INPUT);
    Serial.begin(9600);
    s.attach(5);
}

void loop()
{
    digitalWrite(3, LOW);
    delayMicroseconds(2);

    digitalWrite(3, HIGH);
    delayMicroseconds(10);
    digitalWrite(3, LOW);
```

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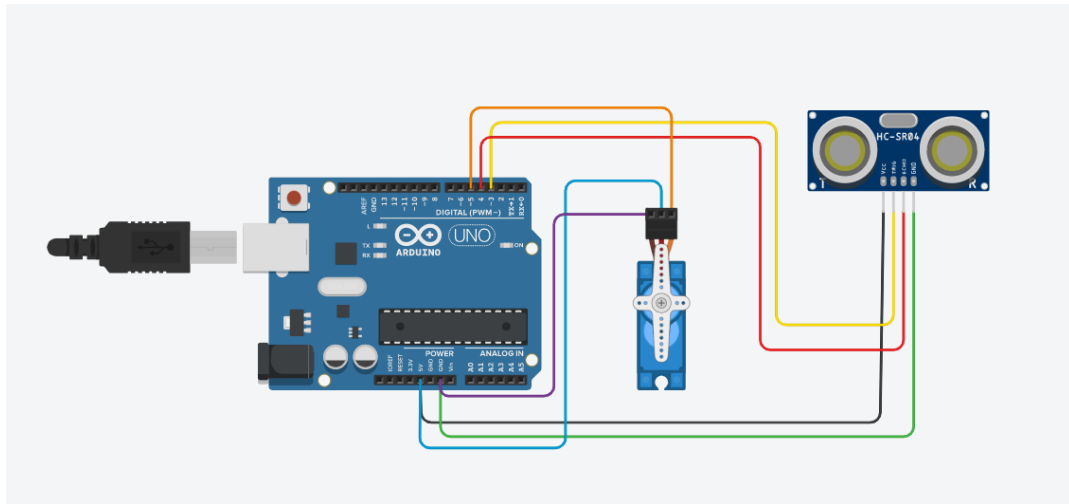
```
float duration = pulseIn(4, HIGH);  
float distance= duration*0.034/2;
```

```
Serial.print("Distance: ");  
Serial.println(distance);
```

```
if (distance<25){  
    for(int i=0;i<=180;i++){  
        s.write(i);  
        delay(50);}  
        delay(200);  
        Serial.print("Vehicle has approached, Opening Gate!!");  
        for(int j=180;j>=0;j--){  
            s.write(j);  
            delay(50);}  
            delay(200);  
        }  
    }
```

Screenshots:

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Ultrasonic Distance Sensor

Name 1

6.5in / 16.5cm

```
7   Serial.begin(9600);
8   s.attach(5);
9   }
10
11  void loop()
12  {
13    digitalWrite(3, LOW);
14    delayMicroseconds(2);
15
16    digitalWrite(3, HIGH);
17    delayMicroseconds(10);
18    digitalWrite(3, LOW);
19
20    float duration = pulseIn(4, HIGH);
21    float distance= duration*0.034/2;
22
23    Serial.print("Distance: ");
24    Serial.println(distance);
25
26    if (distance<25){
27      for(int i=0;i<=180;i++){
28        s.write(i);
29        delay(50);}
30      delay(200);
31    }
```

Serial Monitor

Distance: 326.11
Distance: 326.15
Distance: 326.11
Distance: 326.15
Distance: 326.11
Distance: 326.15
Distance: 16.06
Vehicle has approached, Opening Gate!!Distance: 15.59

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Ultrasonic Distance Sensor

Name 1

74.3in / 188.8cm

```
7 Serial.begin(9600);
8 s.attach(5);
9 }
10
11 void loop()
12 {
13   digitalWrite(3, LOW);
14   delayMicroseconds(2);
15
16   digitalWrite(3, HIGH);
17   delayMicroseconds(10);
18   digitalWrite(3, LOW);
19
20   float duration = pulseIn(4, HIGH);
21   float distance= duration*0.034/2;
22
23   Serial.print("Distance: ");
24   Serial.println(distance);
25
26   if (distance<25){
27     for(int i=0;i<=180;i++){
28       s.write(i);
29       delay(50);}
30   }
```

Serial Monitor

Distance: 182.8/
Distance: 182.07
Distance: 182.07
Distance: 183.60
Distance: 183.60
Distance: 183.60
Distance: 183.57
Distance: 183