Siddhant Shenoy

IoT Externship Training

Assignment 2

Q) 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);
```
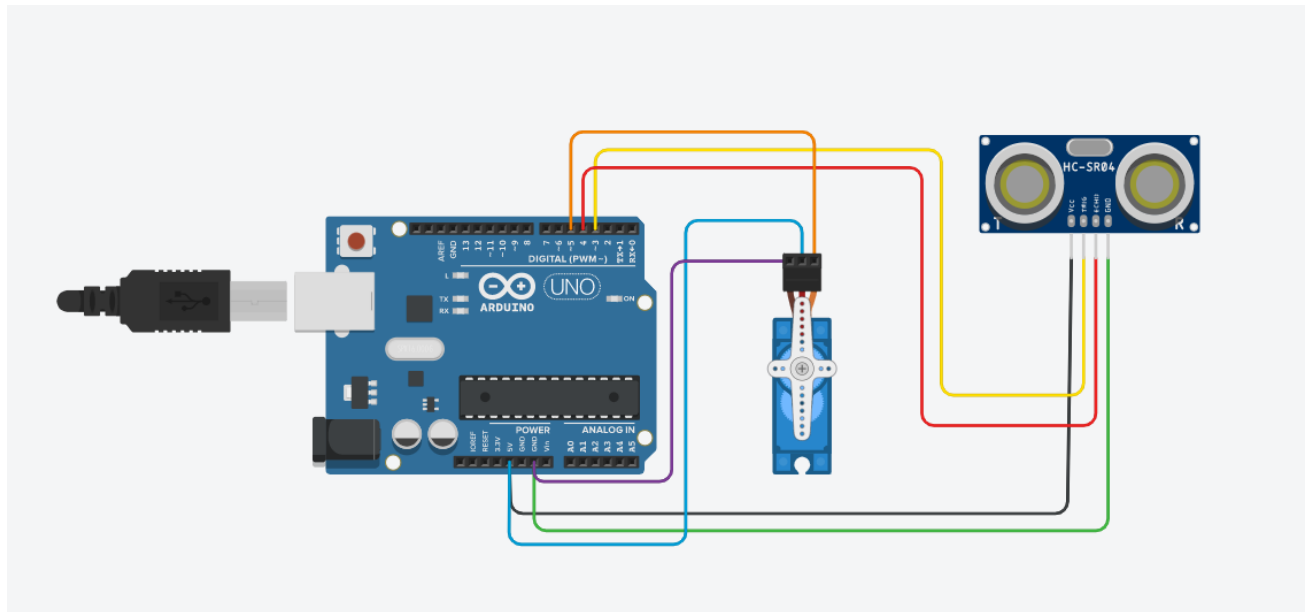
```
digitalWrite(3, LOW);

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);

 }

}
```

OUTPUTS –


```
 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);}
```

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
```

Ultrasonic Distance Sensor

Name 1

74.3in / 188.8cm

HC-SR04

ARDUINO UNO

DIGITAL (PWM~)

POWER   ANALOG IN

```
 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);
```

Serial Monitor

```
Distance: 182.07
Distance: 182.07
Distance: 182.07
Distance: 183.60
Distance: 183.60
Distance: 183.60
Distance: 183.57
Distance: 183
```