

IoT – Industrial Internship

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:

```
int object_distance = 0;

int door_status = 0;

long readUltrasonicDistance(int pin)
{
    pinMode(pin, OUTPUT);
    digitalWrite(pin, LOW);
    delayMicroseconds(2);
    // Sets the pin on HIGH state for 10 micro seconds
    digitalWrite(pin, HIGH);
    delayMicroseconds(10);
    digitalWrite(pin, LOW);
    pinMode(pin, INPUT);
    return pulseIn(pin, HIGH);
}

void setup()
```

```
{  
  pinMode(3, INPUT);  
  pinMode(5, OUTPUT);  
  pinMode(6, OUTPUT);  
  pinMode(13, OUTPUT);  
}  
void loop()  
{  
  object_distance = 0;  
  object_distance = 0.01723 * readUltrasonicDistance(3);  
  if (object_distance < 150) {  
    if (door_status < 1) {  
      digitalWrite(5, HIGH);  
      digitalWrite(6, LOW);  
      digitalWrite(13, HIGH);  
      delay(5000);  
      digitalWrite(5, LOW);  
      door_status = 1;  
    }  
  }  
  else {  
    if (door_status > 0) {  
      digitalWrite(13, LOW);  
      delay(1000);  
    }  
  }  
}
```

```

    digitalWrite(5, LOW);

    digitalWrite(6, HIGH);

    delay(5000);

    digitalWrite(6, LOW);

    door_status = 0;

}

}

}

```

```

1  int object_distance = 0;
2
3  int door_status = 0;
4
5  long readUltrasonicDistance(int pin)
6  {
7      pinMode(pin, OUTPUT); // Clear the trigger
8      digitalWrite(pin, LOW);
9      delayMicroseconds(2);
10     // Sets the pin on HIGH state for 10 micro second:
11     digitalWrite(pin, HIGH);
12     delayMicroseconds(10);
13     digitalWrite(pin, LOW);
14     pinMode(pin, INPUT);
15     // Reads the pin, and returns the sound wave travel time in microseconds
16     return pulseIn(pin, HIGH);
17 }
18
19 void setup()
20 {
21     pinMode(3, INPUT);
22     pinMode(5, OUTPUT);
23     pinMode(6, OUTPUT);
24     pinMode(13, OUTPUT);
25 }
26
27 void loop()
28 {

```

Fig 1: Code

Circuit:

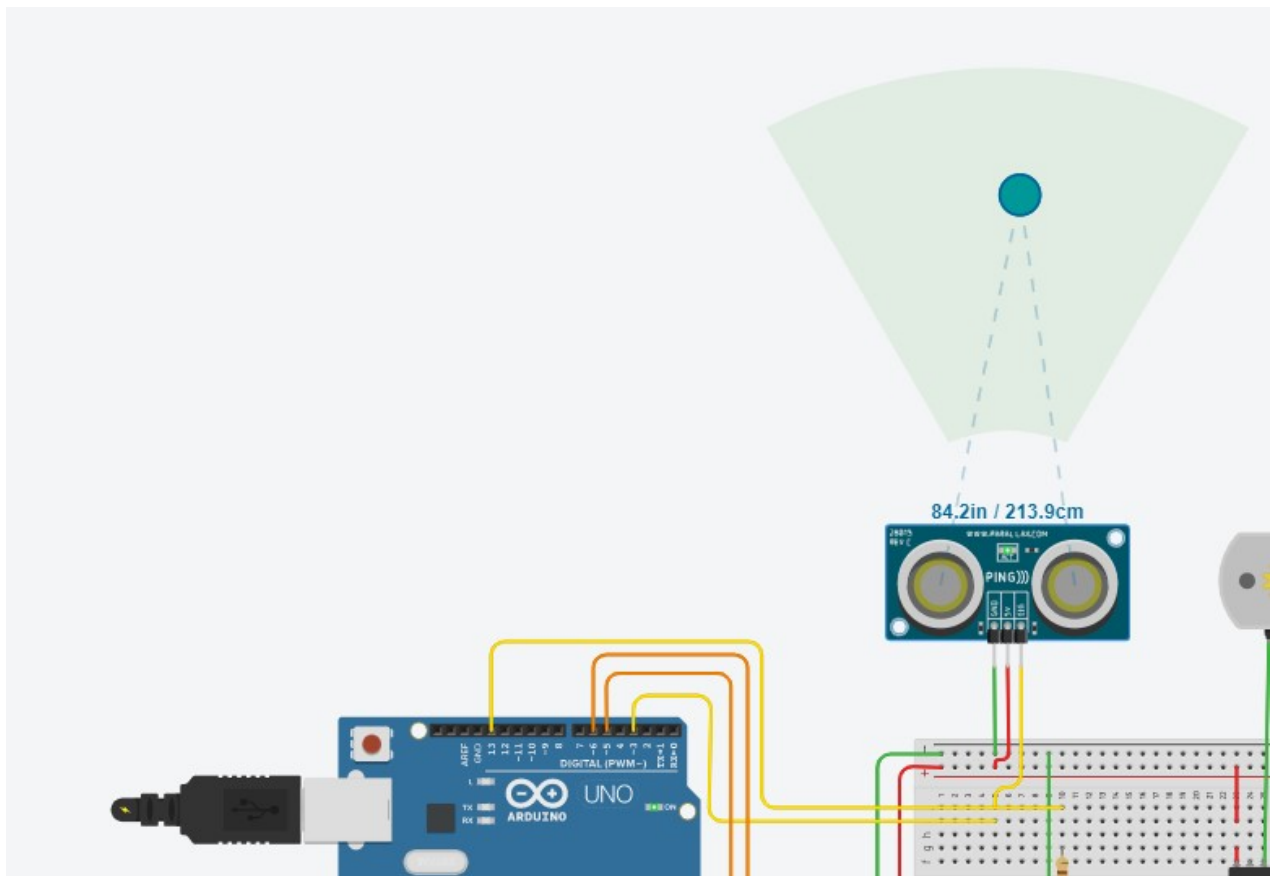


Fig 2: Tinkercad Circuit

Link:

<https://www.tinkercad.com/things/eEEBKaSxdhy-automatic-garage-door-opening-system/editel?sharecode=B73UUZYWkBbe8EVd4At0V4296NPeERpxa1BzbmYmIaC>