Assignment 2

Smart Bridge

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Question : 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.

COMPONENT REQUIRED :- 1.Ultra sonic Sensor

2.wires & USB cable .

3. Arduino uno

4.Servo Motor

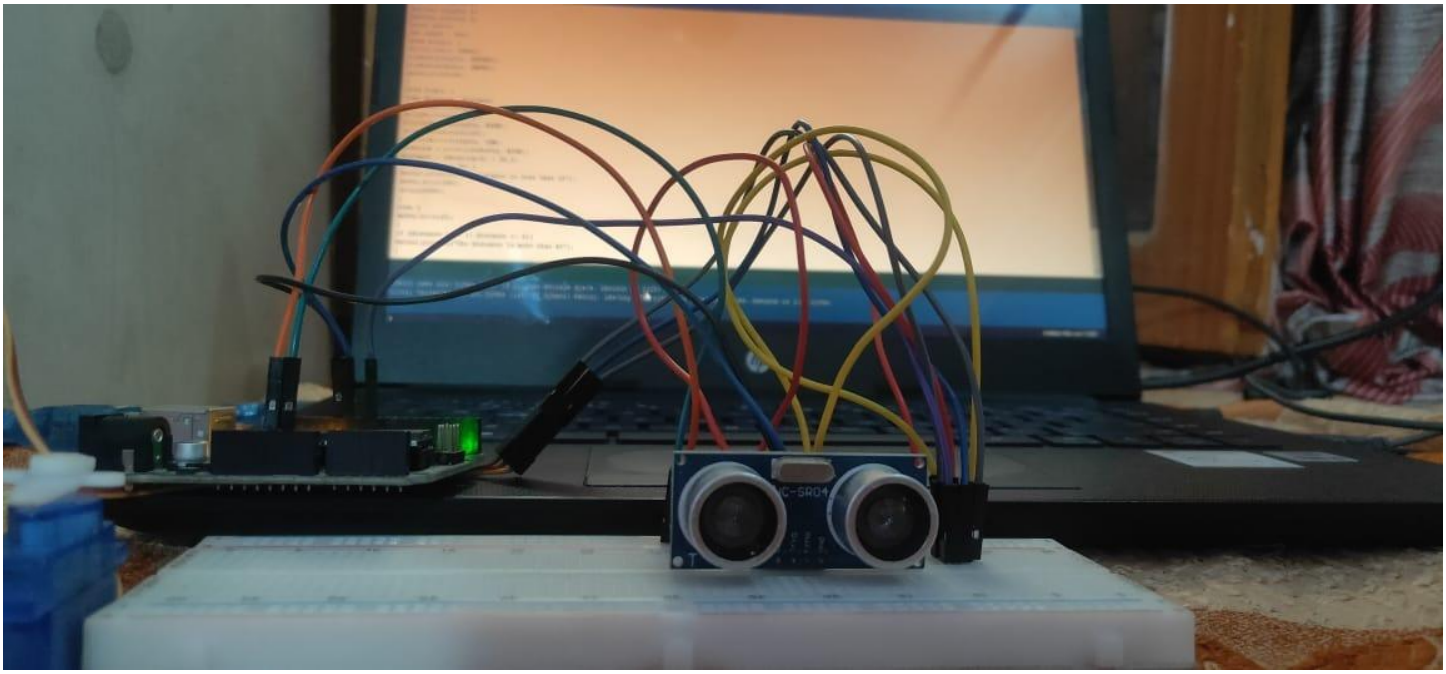
CODE:-

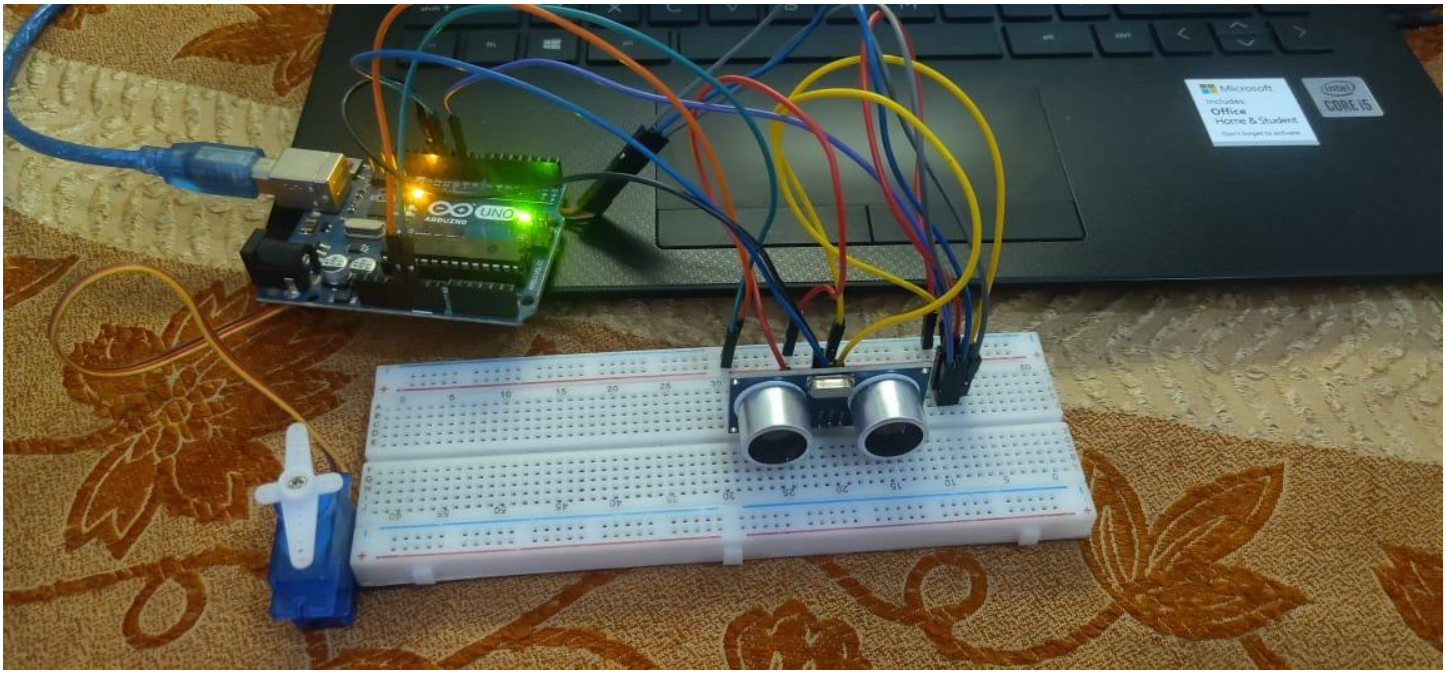
```
#include <Servo.h>
```

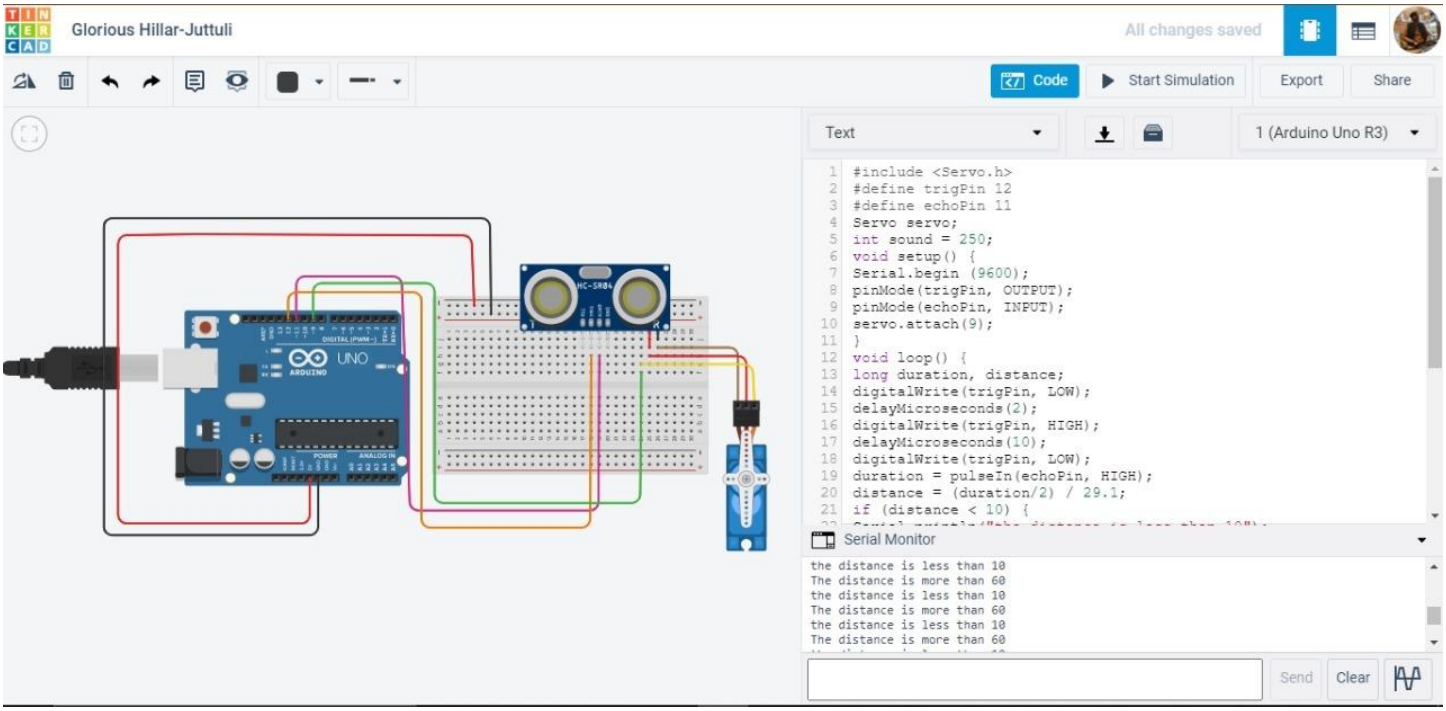
```
#define trigPin 12
#define echoPin 11
Servo servo;
int sound = 250;
void setup() {
Serial.begin (9600);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
servo.attach(9);
}
void loop() {
long duration, distance;
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = (duration/2) / 29.1;
if (distance < 10) {
Serial.println("the distance is less than 10");
servo.write(90);
delay(1500);
}
else {
servo.write(0);
}
if (distance > 60 || distance <= 0){
Serial.println("The distance is more than 60");
```

```
}

else {

Serial.print(distance);

Serial.println(" cm");

}

delay(500);

}
```

RESULT:- PERFORMED EXPERNIMENT, IF THE DISTANCE MEASURE IS LESS THAN 10 THE SERVO MOTOR WILL ROTATE 90 DEGREE, WAIT FOR SOME SECOND AND AGAIN ROTATE TO 0 DEGREE.



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All changes saved
Code
Start Simulation
Export
Share
Text
1 (Arduino Uno R3)
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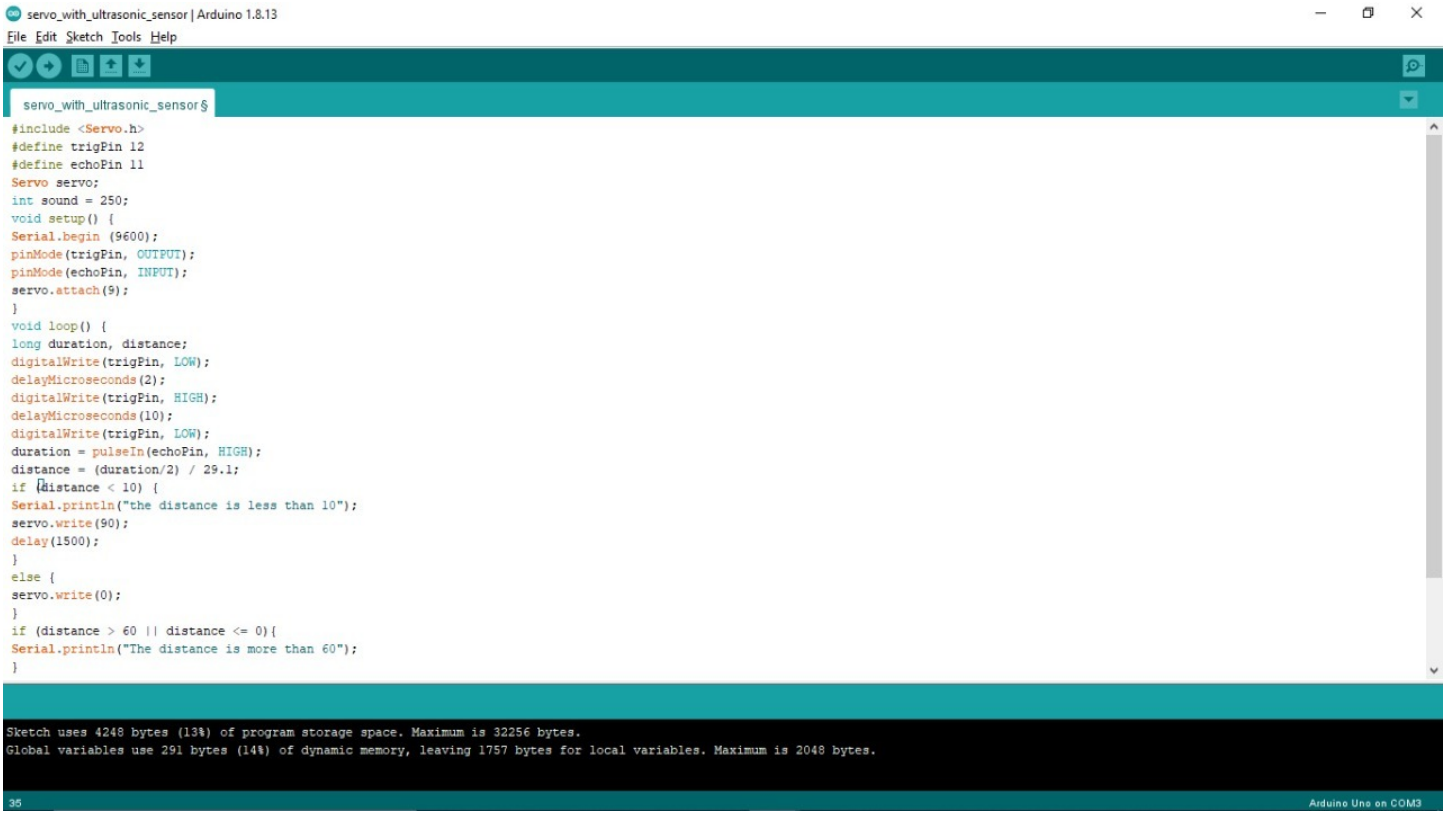
distance = (duration/2) / 29.1;
if (distance < 10) {
Serial Monitor
the distance is less than 10
The distance is more than 60
the distance is less than 10
The distance is more than 60
the distance is less than 10
The distance is more than 60
Send
Clear


servo_with_ultrasonic_sensor | Arduino 1.8.13
File Edit Sketch Tools Help
servo_with_ultrasonic_sensor §
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}
Sketch uses 4248 bytes (13%) of program storage space. Maximum is 32256 bytes.
Global variables use 291 bytes (14%) of dynamic memory, leaving 1757 bytes for local variables. Maximum is 2048 bytes.
35
Arduino Uno on COM3

COM3

```
the distance is less than 10
7 cm
50 cm
25 cm
21 cm
48 cm
11 cm
the distance is less than 10
7 cm
the distance is less than 10
4 cm
the distance is less than 10
2 cm
the distance is less than 10
1 cm
the distance is less than 10
2 cm
the distance is less than 10
2 cm
the distance is less than 10
2 cm
the distance is less than 10
2 cm
the distance is less than 10
1 cm
the distance is less than 10
1 cm
the distance is less than 10
2 cm
the distance is less than 10
1 cm
the distance is less than 10
2 cm
the distance is less than 10
1 cm
36 cm
35 cm
38 cm
41 cm
```