

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 servo1;
int trigPin = 4;
int echoPin = 5;
float distance;
float duration;

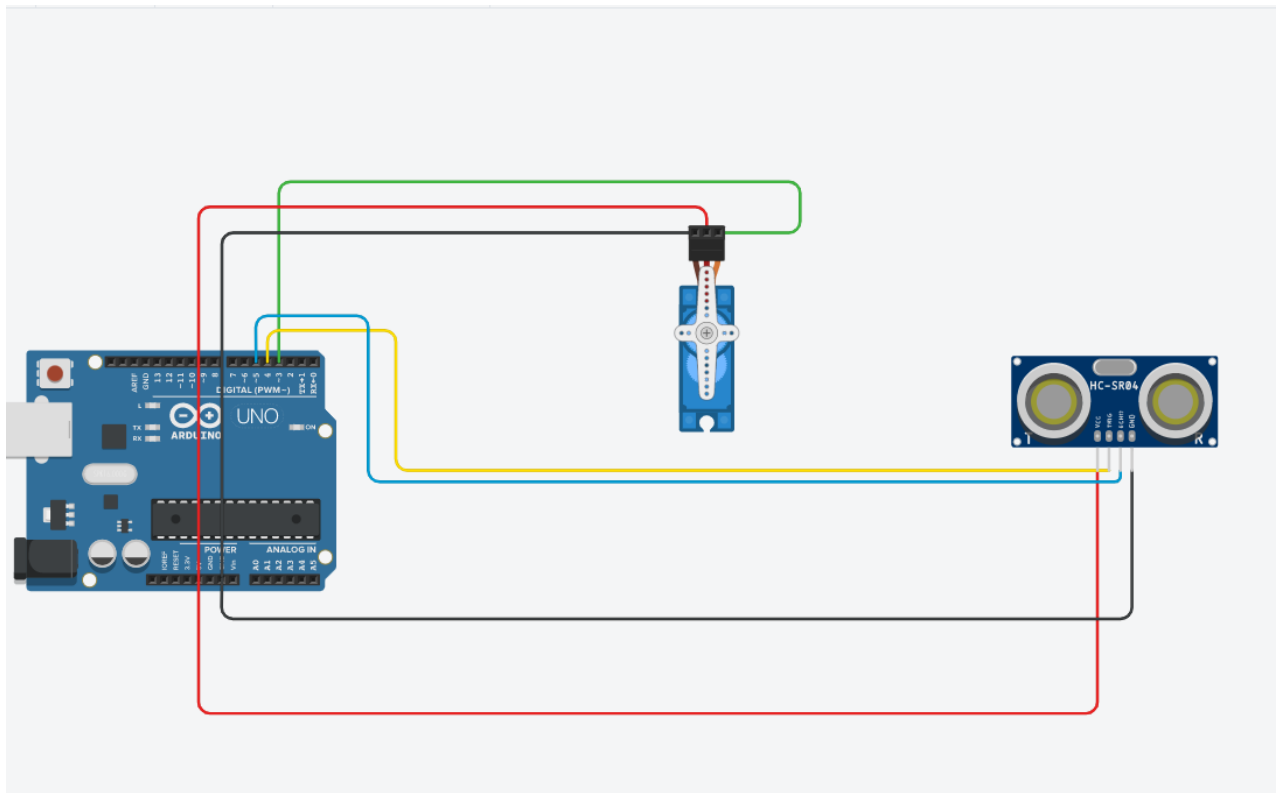
void setup()
{
  servo1.attach(3);
  pinMode(trigPin, OUTPUT);
  pinMode(echoPin, INPUT);
  Serial.begin(9600);
}

void loop() {
  ultra();
  servo1.write(0);
  if(distance <= 100){
    Serial.println("Door is Opening");
    servo1.write(90);
    delay(5000);
    servo1.write(0);
    delay(2000);
    Serial.println("Door is Closing");
  }
  else{
    servo1.write(0);
    Serial.println("Door is Closed");
  }
}

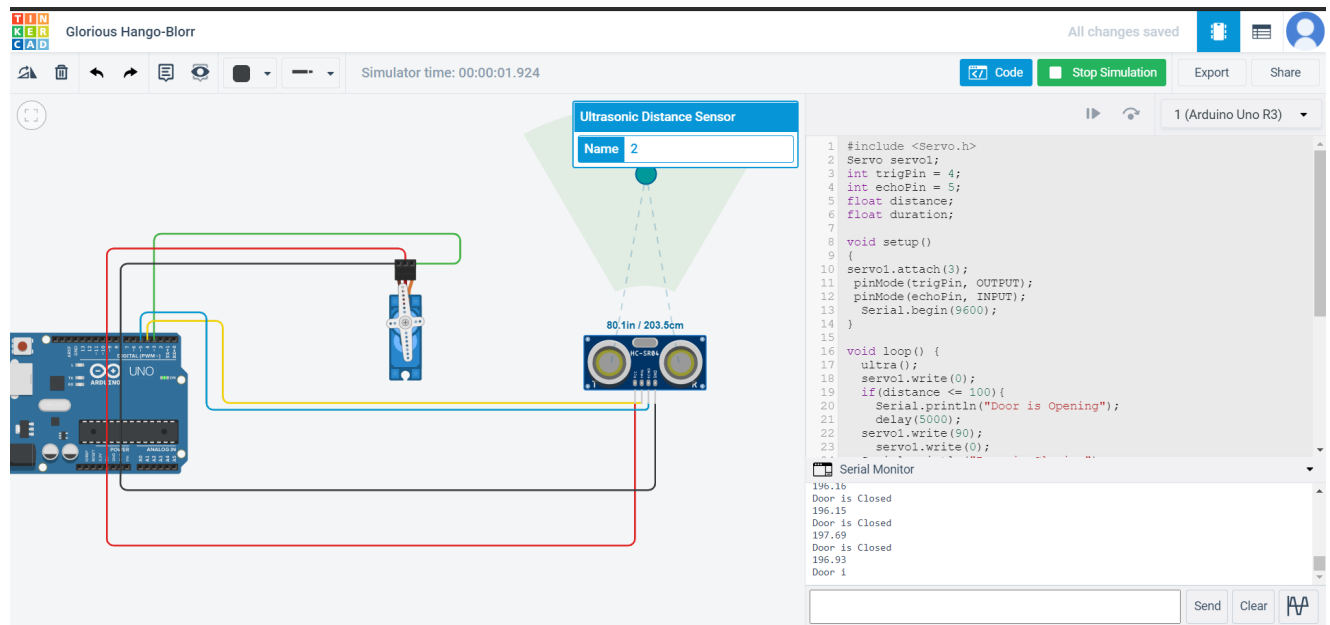
void ultra(){
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
```

```
digitalWrite(trigPin, HIGH);  
delayMicroseconds(10);  
digitalWrite(trigPin, LOW);  
duration = pulseIn(echoPin, HIGH);  
distance = (duration*0.034)/2;  
Serial.println(distance);  
}
```

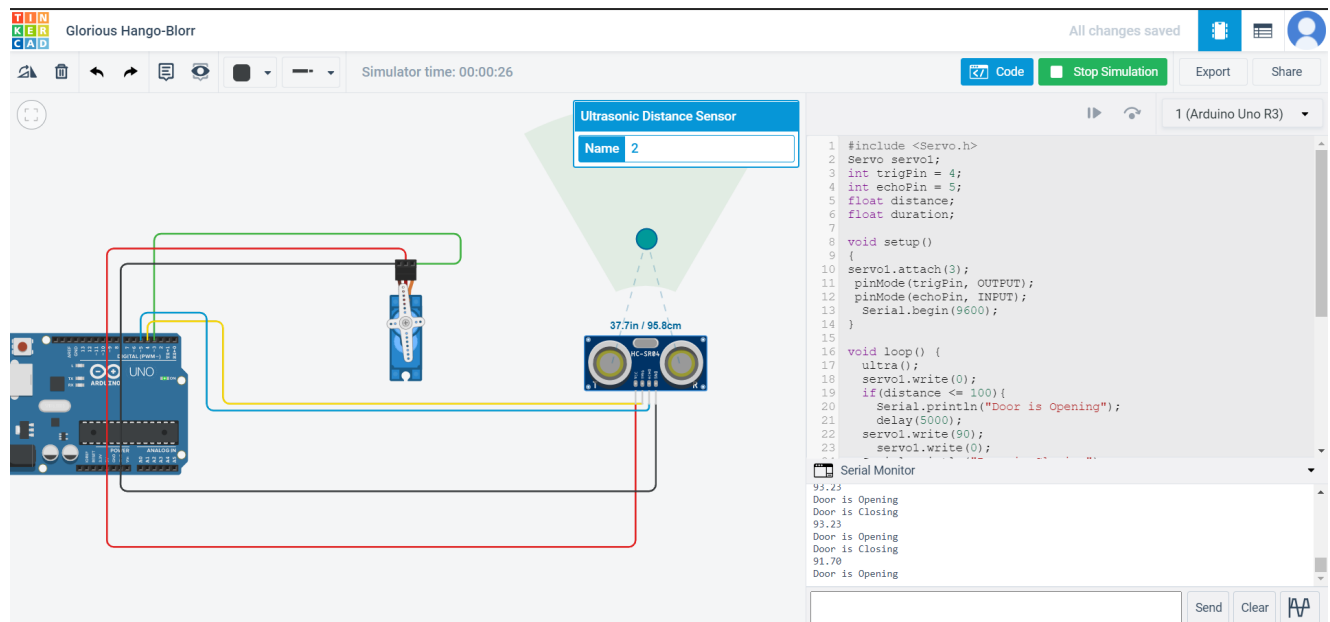
CIRCUIT DESIGN:

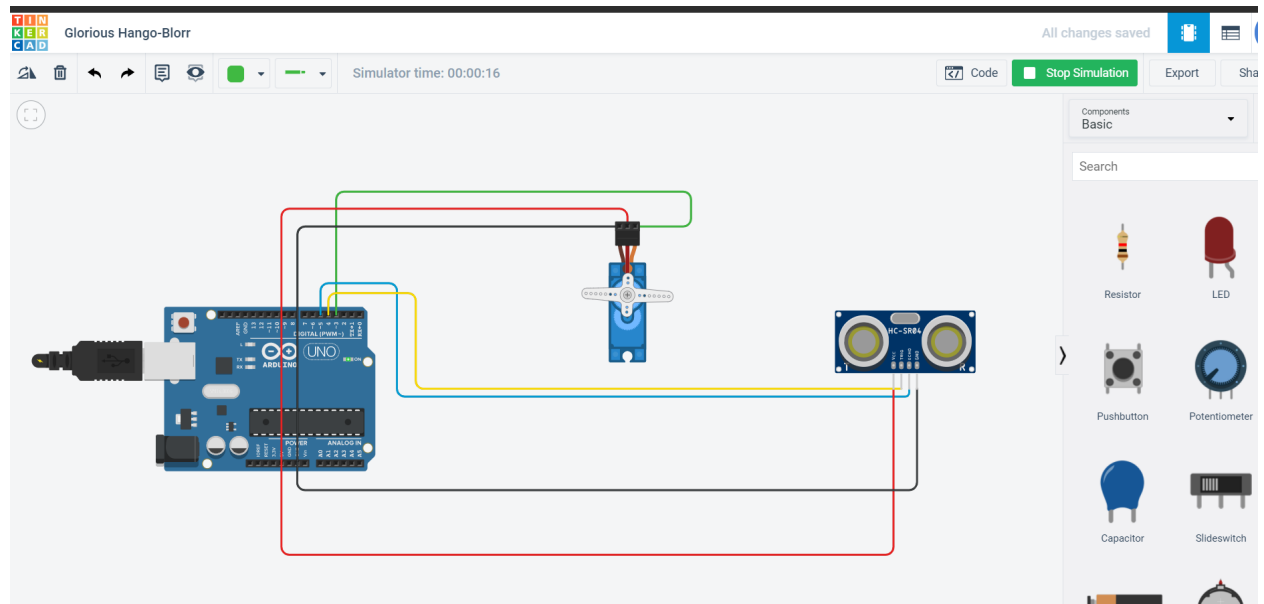


OUTPUT AND RESULT:



The door will be closed when the object is one meter(100cm) away or more.





The door opens if the object is within 100cm and closes after a delay of 5 seconds.