Assignment – 2

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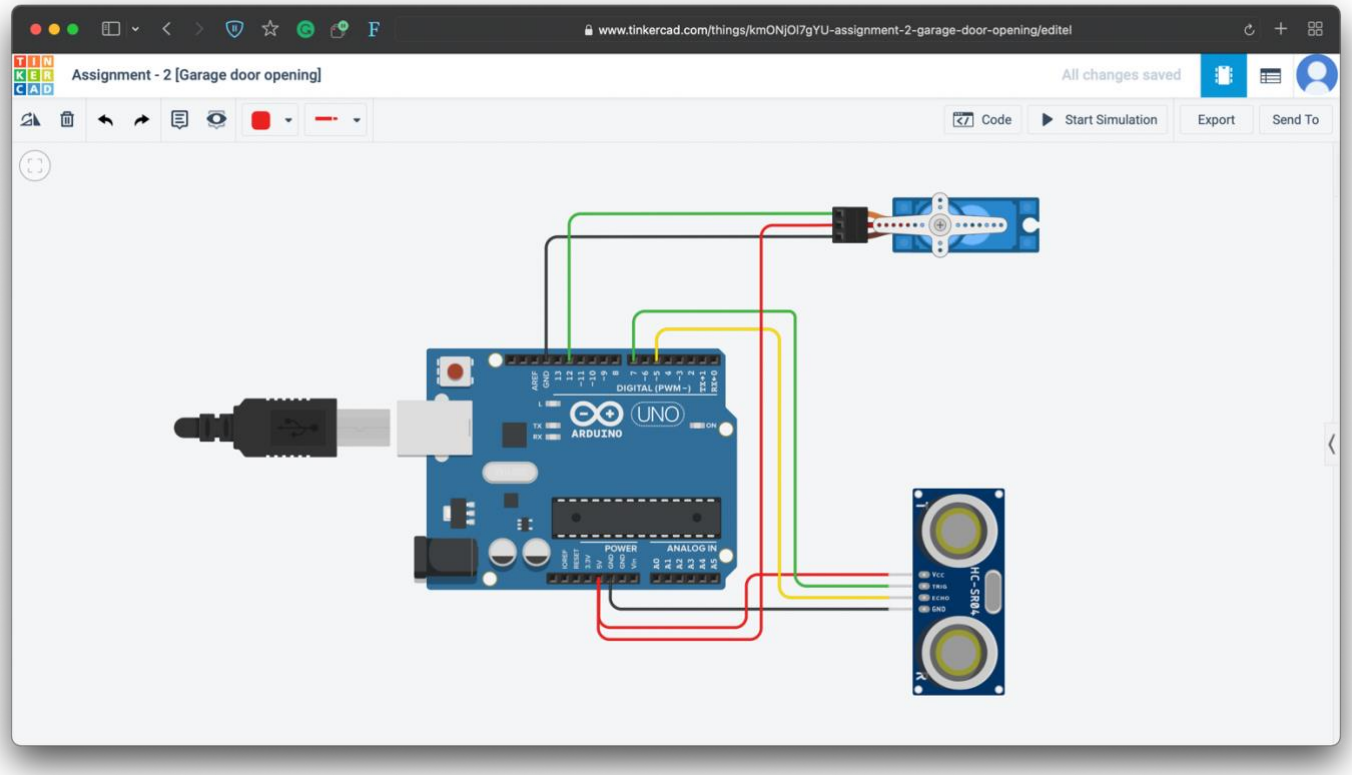
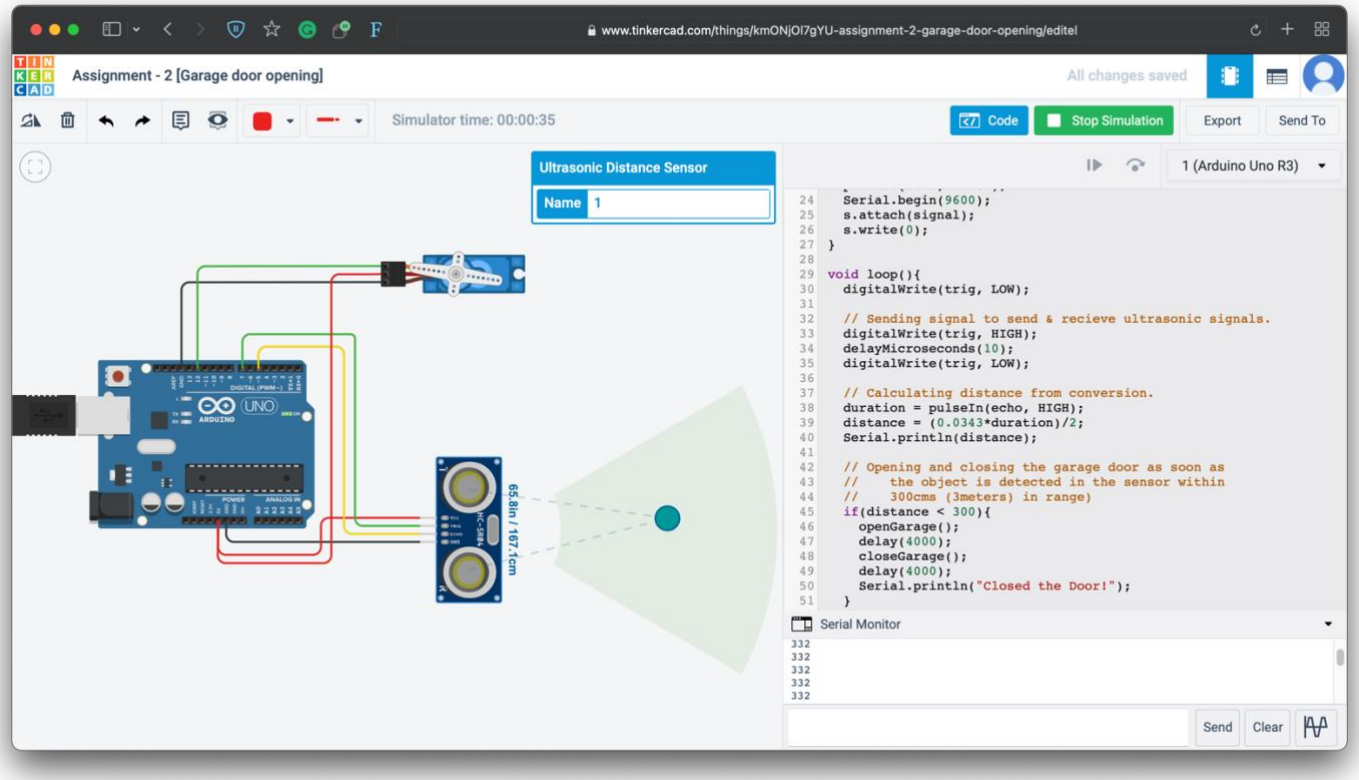
Q. Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

Circuit Diagram:





Code:

```
// Code to open Garage-door using servo motor,
// when the object is detected by ultrasonic sensor.
#include<Servo.h>

Servo s;
int trig = 7;
int echo = 5;
int signal = 12;
int duration, distance; // Distance in cms.

void openGarage(){
  // To Open the Garage Door.
  s.write(180);
}

void closeGarage(){
  // To close the Garage Door.
  s.write(0);
}
```

```
void setup(){
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
  Serial.begin(9600);
  s.attach(signal);
  s.write(0);
}

void loop(){
  digitalWrite(trig, LOW);

  // Sending signal to send & recieve ultrasonic signals.
  digitalWrite(trig, HIGH);
  delayMicroseconds(10);
  digitalWrite(trig, LOW);

  // Calculating distance from conversion.
  duration = pulseIn(echo, HIGH);
  distance = (0.0343*duration)/2;
  Serial.println(distance);

  // Opening and closing the garage door as soon as
  //    the object is detected in the sensor within
  //    300cms (3meters) in range)
  if(distance < 300){
    openGarage();
    delay(4000);
    closeGarage();
    delay(4000);
    Serial.println("Closed the Door!");
  }
}
```