ASSIGNMENT-2

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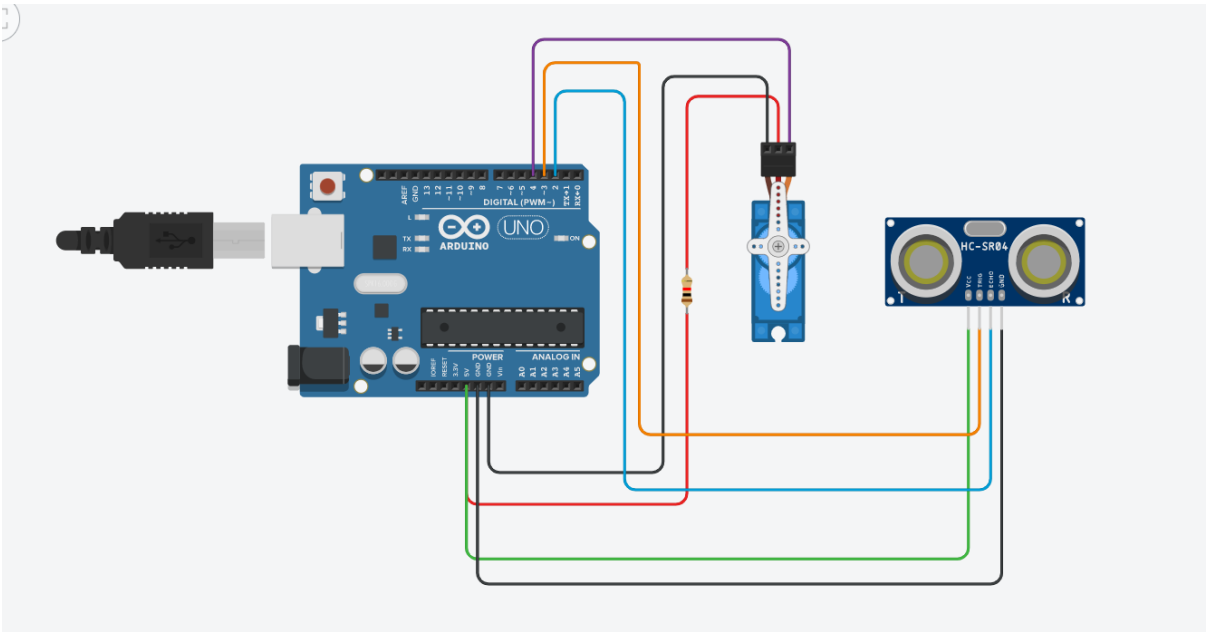
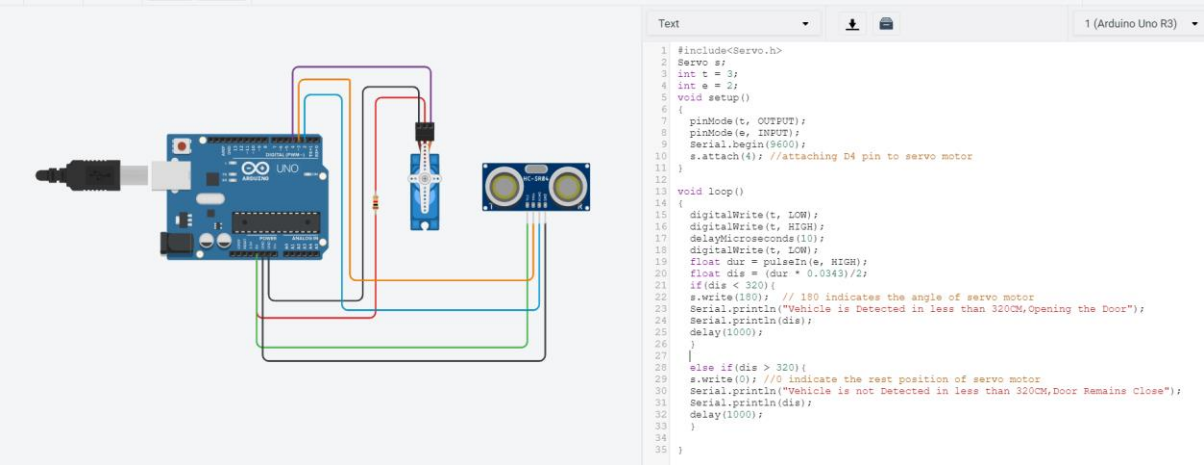
Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

Circuit Diagram:



Code:



```
#include<Servo.h>
Servo s;
int t = 3;
int e = 2;
void setup()
{
  pinMode(t, OUTPUT);
  pinMode(e, INPUT);
  Serial.begin(9600);
  s.attach(4); //attaching D4 pin to servo motor
}

void loop()
{
  digitalWrite(t, LOW);
  digitalWrite(t, HIGH);
  delayMicroseconds(10);
  digitalWrite(t, LOW);
  float dur = pulseIn(e, HIGH);
  float dis = (dur * 0.0343)/2;
  if(dis < 320){
  s.write(180);  // 180 indicates the angle of servo motor
  Serial.println("Vehicle is Detected in less than 320CM,Opening the Door");
  Serial.println(dis);
  delay(1000);
  }
  else if(dis > 320){
  s.write(0); //0 indicate the rest position of servo motor
  Serial.println("Vehicle is not Detected in less than 320CM,Door Remains Close");
  Serial.println(dis);
  delay(1000);
  }
}
```

```
#include<Servo.h>
Servo s;
int t = 3;
int e = 2;
void setup()
{
  pinMode(t, OUTPUT);
  pinMode(e, INPUT);
  Serial.begin(9600);
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}

void loop()
{
  digitalWrite(t, LOW);
  digitalWrite(t, HIGH);
  delayMicroseconds(10);
  digitalWrite(t, LOW);
  float dur = pulseIn(e, HIGH);
  float dis = (dur * 0.0343)/2;
  if(dis < 320){   // 320CM is maximum distance of the sensor
  s.write(180);  // 180 indicates the angle of servo motor
  Serial.println("Vehicle is Detected in less than 320CM,Opening the Door");
  Serial.println(dis);
  delay(1000);
  }

  else if(dis > 320){
  s.write(0); //0 indicate the rest position of servo motor
  Serial.println("Vehicle is not Detected in less than 320CM,Door Remains Close");
  Serial.println(dis);
```
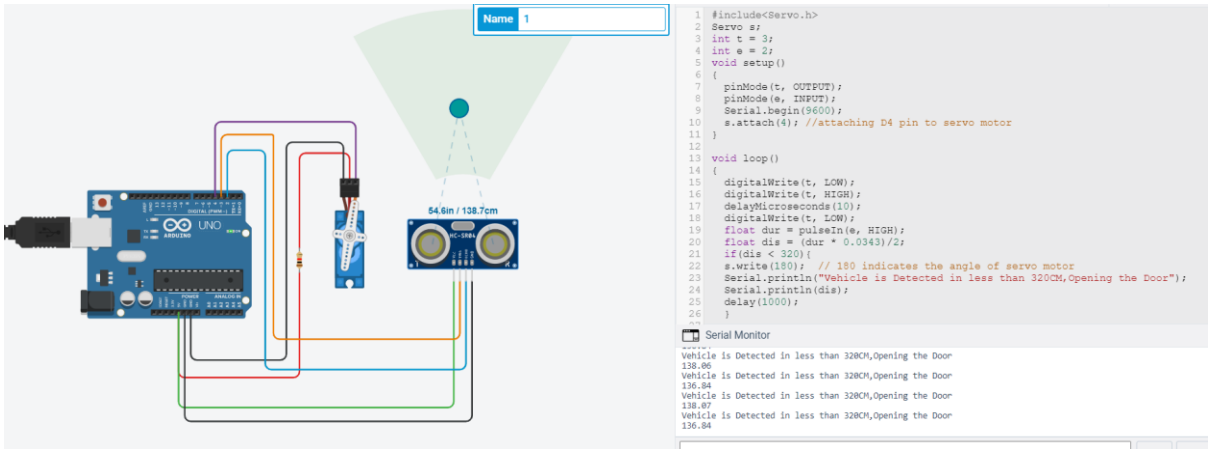
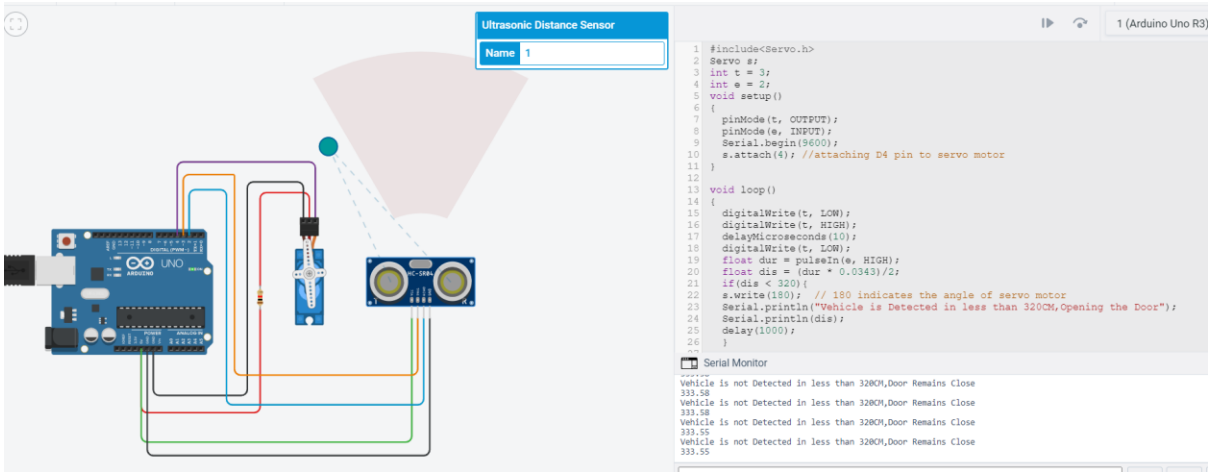

```
  delay(1000);
  }

}
```

OUTPUT:

When vehicle is in sensor range, then door will open.



When the vehicle is not in sensor range, then door remains close.



Link: https://www.tinkercad.com/things/jWsKj4tz9dX-fantastic-juttuli/editel