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.

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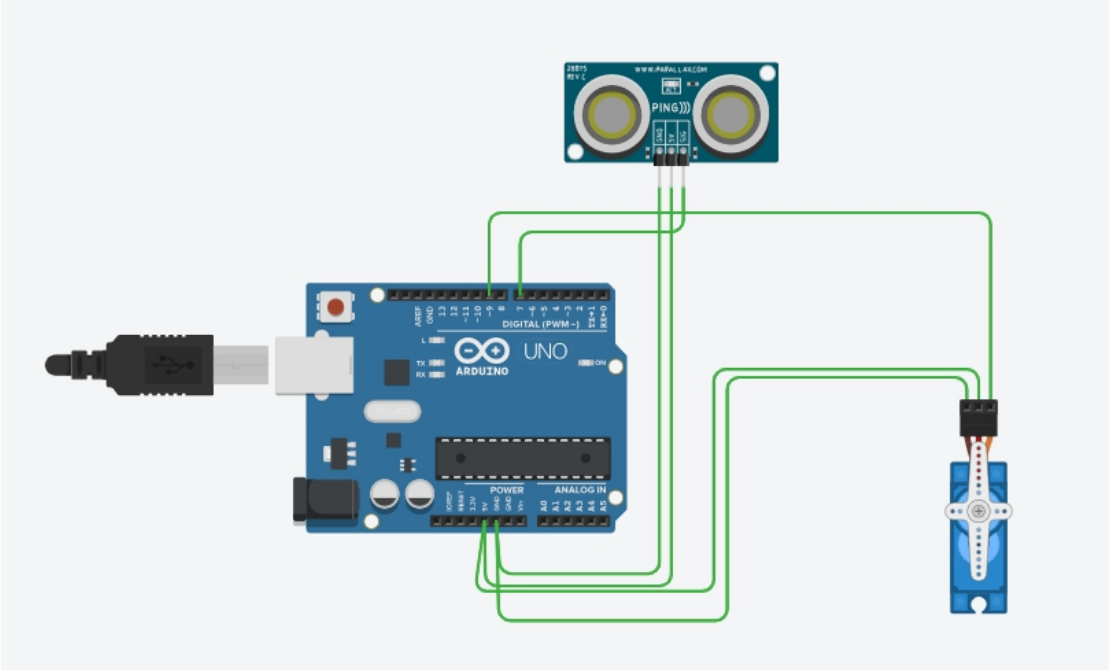
CODE

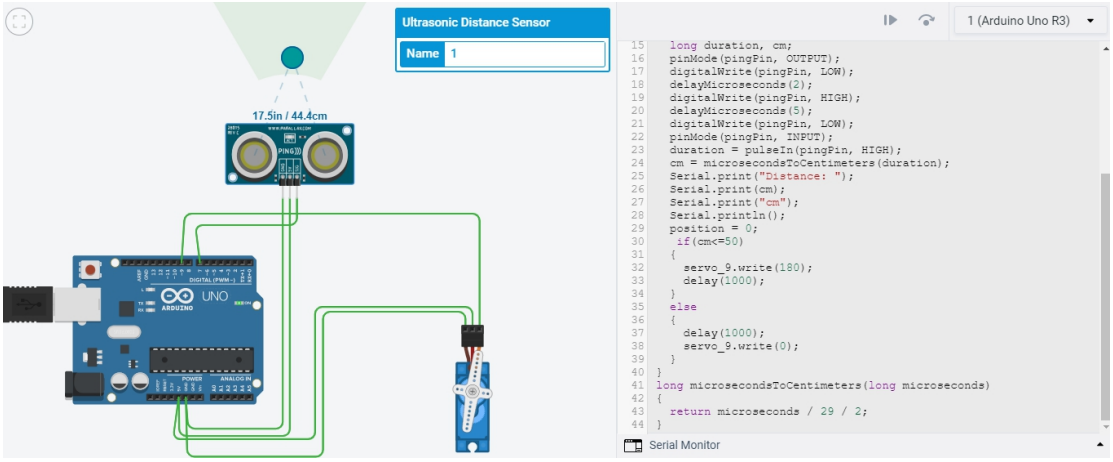
```
const int pingPin = 7;
#include <Servo.h>
int position = 0;
int i = 0;
int j = 0;
Servo servo_9;

void setup()
{
  Serial.begin(9600);
  servo_9.attach(9);
  servo_9.write(0);
}

void loop()
{
  long duration, cm;
  pinMode(pingPin, OUTPUT);
  digitalWrite(pingPin, LOW);
  delayMicroseconds(2);
  digitalWrite(pingPin, HIGH);
  delayMicroseconds(5);
  digitalWrite(pingPin, LOW);
  pinMode(pingPin, INPUT);
  duration = pulseIn(pingPin, HIGH);
  cm = microsecondsToCentimeters(duration);
  Serial.print("Distance: ");
  Serial.print(cm);
```

```
  Serial.print("cm");
  Serial.println();
  position = 0;

   if(cm<=50)
  {
    servo_9.write(180);
    delay(1000);
  }
  else
  {
    delay(1000);
    servo_9.write(0);
  }
}
long microsecondsToCentimeters(long microseconds)
{
  return microseconds / 29 / 2;
}
```

CIRCUIT



When distance is less than 50Cm gate open

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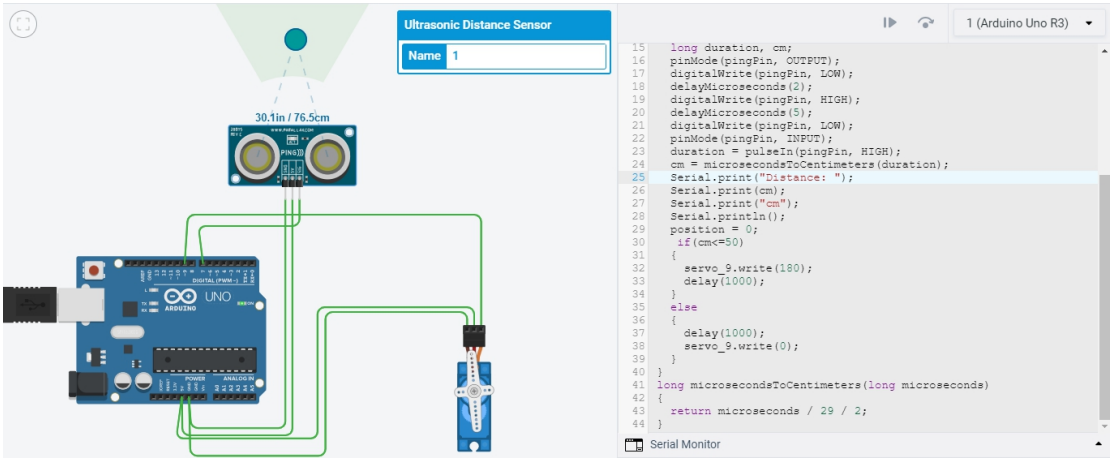
duration = pulseIn(pingPin, HIGH);
cm = microsecondsToCentimeters(duration);
Serial.print("Distance: ");
Serial.print(cm);
Serial.print("cm");
Serial.println();
position = 0;
 if(cm<=50)
 {
   servo_9.write(180);
   delay(1000);
 }
 else
 {
   delay(1000);
   servo_9.write(0);
 }
}
long microsecondsToCentimeters(long microseconds)
{
 return microseconds / 29 / 2;
}
```

When distance is greater than 50Cm gate remain closed

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pinMode(pingPin, OUTPUT);
digitalWrite(pingPin, LOW);
delayMicroseconds(2);
digitalWrite(pingPin, HIGH);
delayMicroseconds(5);
digitalWrite(pingPin, LOW);
pinMode(pingPin, INPUT);
duration = pulseIn(pingPin, HIGH);
cm = microsecondsToCentimeters(duration);
Serial.print("Distance: ");
Serial.print(cm);
Serial.print("cm");
Serial.println();
position = 0;
 if(cm<=50)
 {
   servo_9.write(180);
   delay(1000);
 }
 else
 {
   delay(1000);
   servo_9.write(0);
 }
}
long microsecondsToCentimeters(long microseconds)
{
 return microseconds / 29 / 2;
}
```