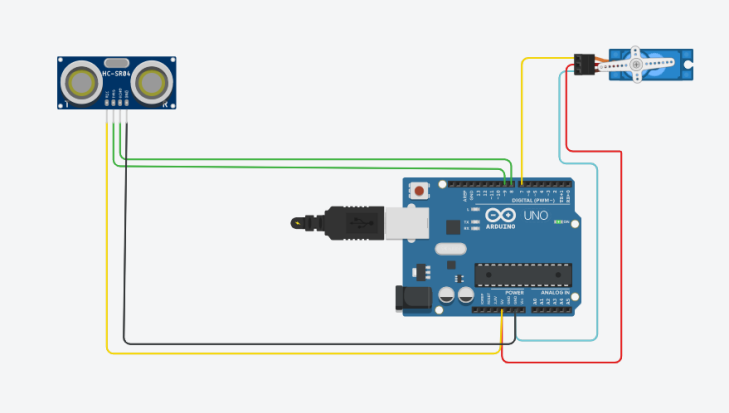
Assignment 2

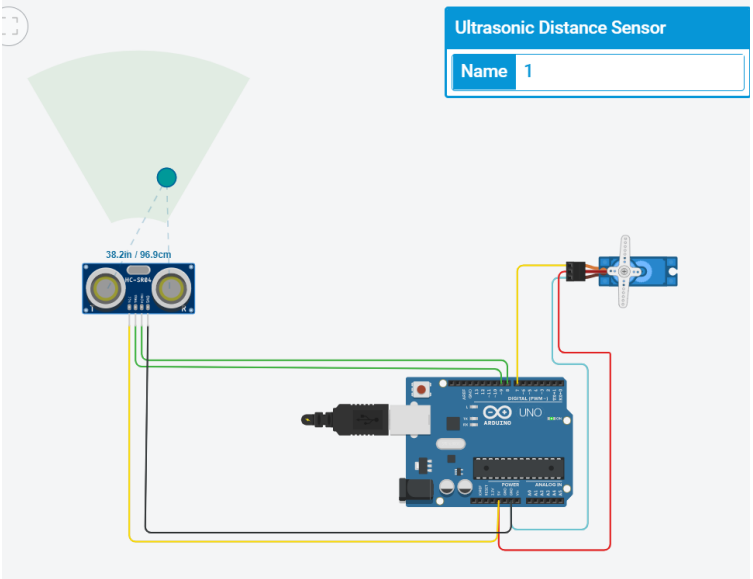
Develop an "Automatic garage door opening system". Use an Ultrasonic sensor to detect if there is a vehicle in front of the garage. if any vehicle is detected open the garage door (rotate the servo motor) for some time and close it.

Here we are giving delay of 7 sec i.e. the garage door will close after 7 sec when no car is outside garage.

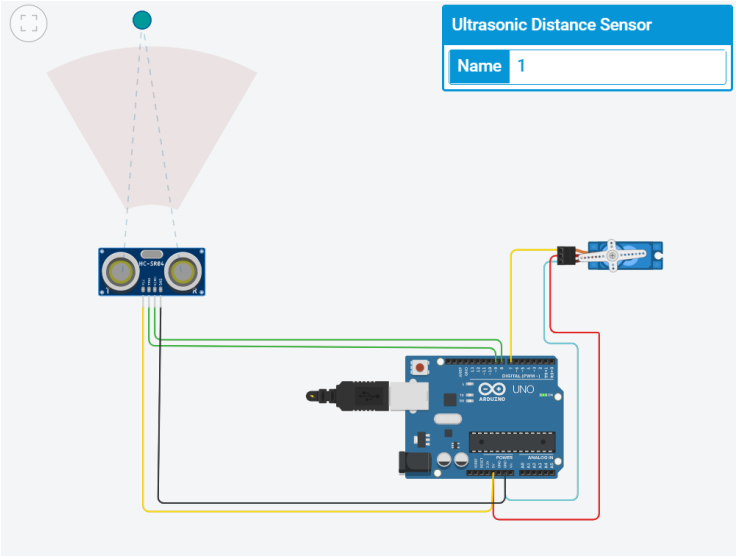
```
#include <Servo.h>
Servo s;
int trigPin = 9;
int echoPin = 8;
long distance;
long duration;
void setup()
{
s.attach(7);
 pinMode(trigPin, OUTPUT);
 pinMode(echoPin, INPUT);
}
void loop()
{
  ultra_sonic();
  s.write(0);
  if(distance <=200)
  {
  s.write(90);
    delay(7000);
  }
}
void ultra_sonic()
{
  digitalWrite(trigPin, LOW);
  delayMicroseconds(2);
  digitalWrite(trigPin, HIGH);
  delayMicroseconds(10);
  digitalWrite(trigPin, LOW);
  duration = pulseIn(echoPin, HIGH);
  distance = duration*0.034/2;
}
```



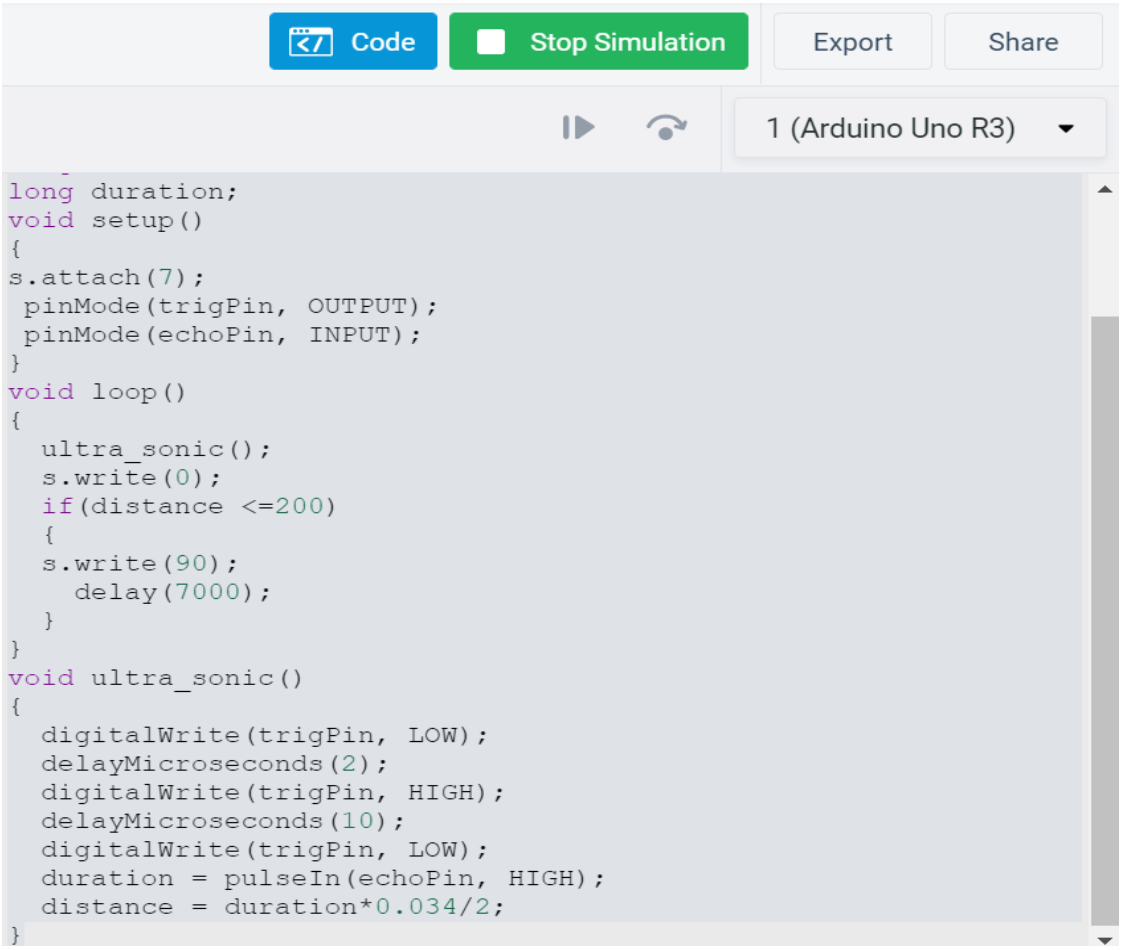
When there is no car in near proximity then the garage door will not open



When there is car in the given radius that is in 200cm, then the garage door will get open and will remain in same position till there is a car.



When car leaves the front area of garage then after 7 seconds the door will automatically get closed


Code
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1 (Arduino Uno R3)
long duration;
void setup()
{
s.attach(7);
pinMode(trigPin, OUTPUT);
pinMode(echoPin, INPUT);
}
void loop()
{
ultra_sonic();
s.write(0);
if(distance <=200)
{
s.write(90);
delay(7000);
}
}
void ultra_sonic()
{
digitalWrite(trigPin, LOW);
delayMicroseconds(2);
digitalWrite(trigPin, HIGH);
delayMicroseconds(10);
digitalWrite(trigPin, LOW);
duration = pulseIn(echoPin, HIGH);
distance = duration*0.034/2;
}