VIT SMART BRIDGE IOT EXTERNSHIP

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Assignment-2:

Topic: 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:

```
// C++ code
//importing servo library
#include<Servo.h>
Servo s;
int t=2;//triger pin for ultra sonic sensor
int e=3;//echo pin for ultra sonic sensor
int m=5;//signal pin for servo motr
void setup()
{
  pinMode(t, OUTPUT);
  pinMode(e,INPUT);
  Serial.begin(9600);
  s.attach(m);
}
```

```
void loop()
{
  digitalWrite(t,LOW); //intially triggering signal will  set low
  digitalWrite(t, HIGH);
  delayMicroseconds(10);//wait for 10 micro seconds
  digitalWrite(t,LOW);
  //measuring duration to recieve reflected wave
  float dur=pulseIn(e,HIGH);
  //calculating the distance in cm
  float dis=(dur*0.0343)/2;
  //making shutter open
  if(dis<=300)
  {
   for(int i=0;i<=180;i++)
   {
     s.write(i);
     delay(100);
   }
   delay(1000000);//delay for some time to park the car and the shutter close
   for(int j=180;j>=0;j--)
   {
     s.write(j);
     delay(100);
   }
   delay(1000);
  }
  else
```

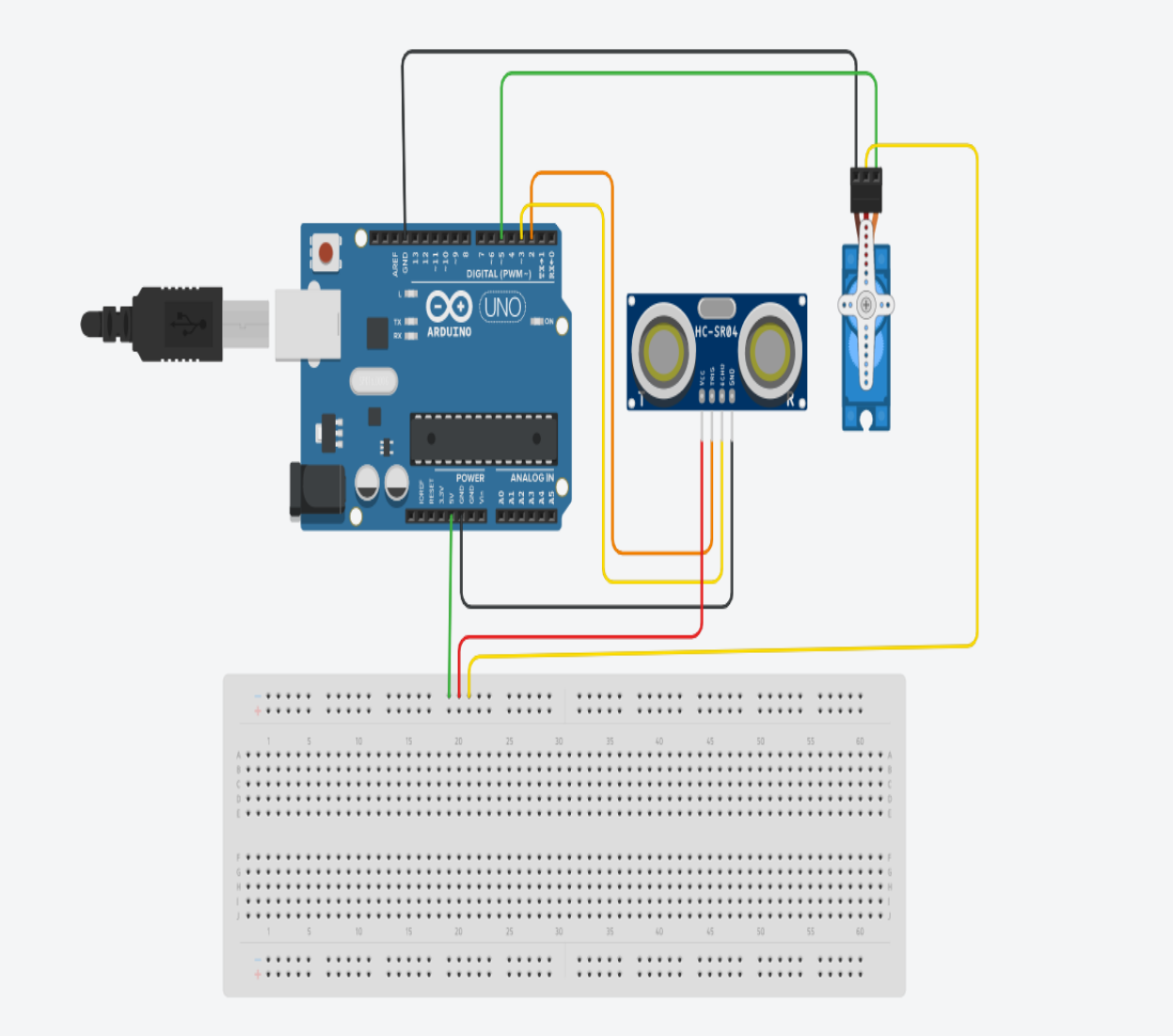
```
 {
   s.write(0);
 }

}
```

Results:

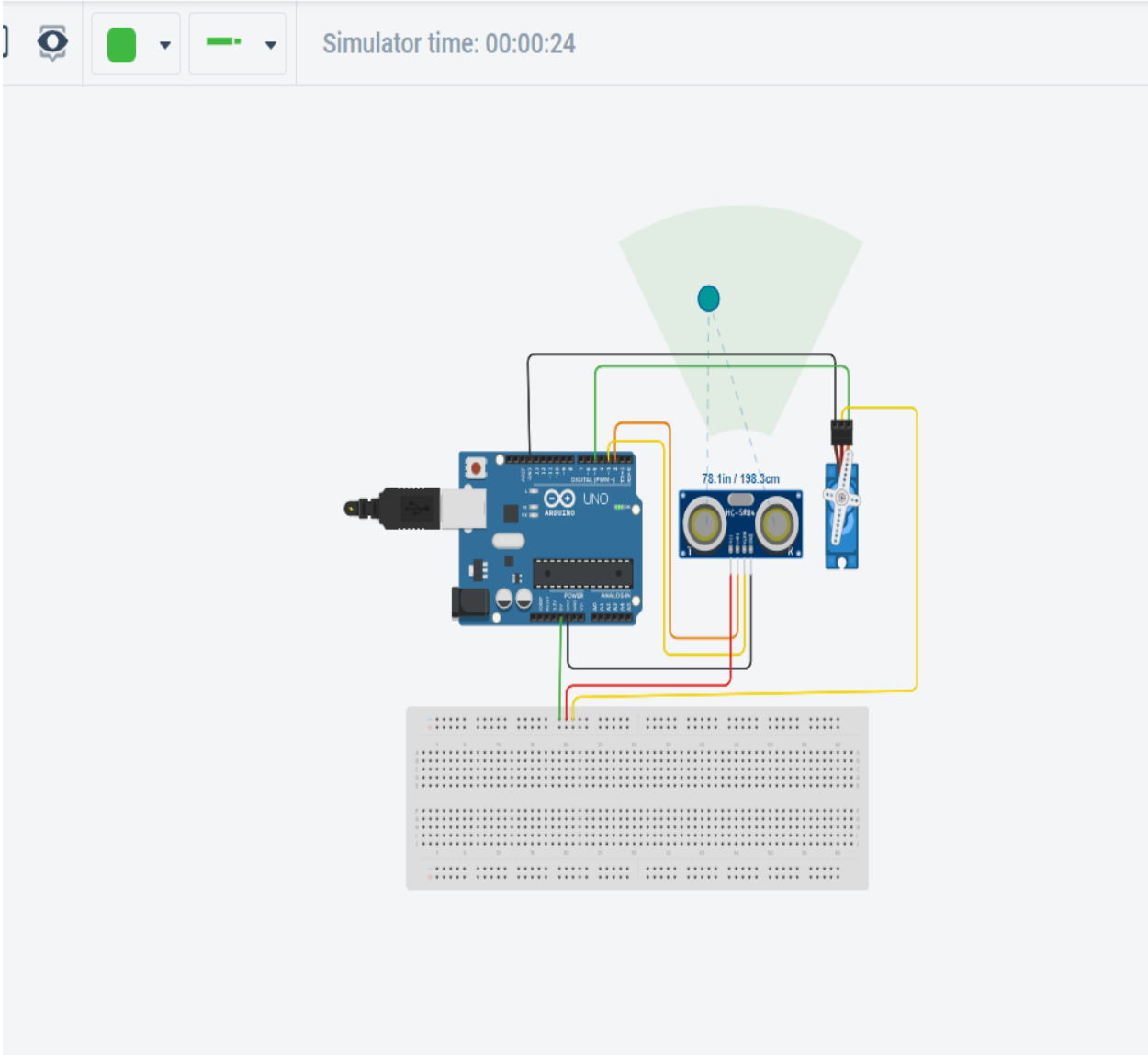
Before Simulating:

Arduino Board connections

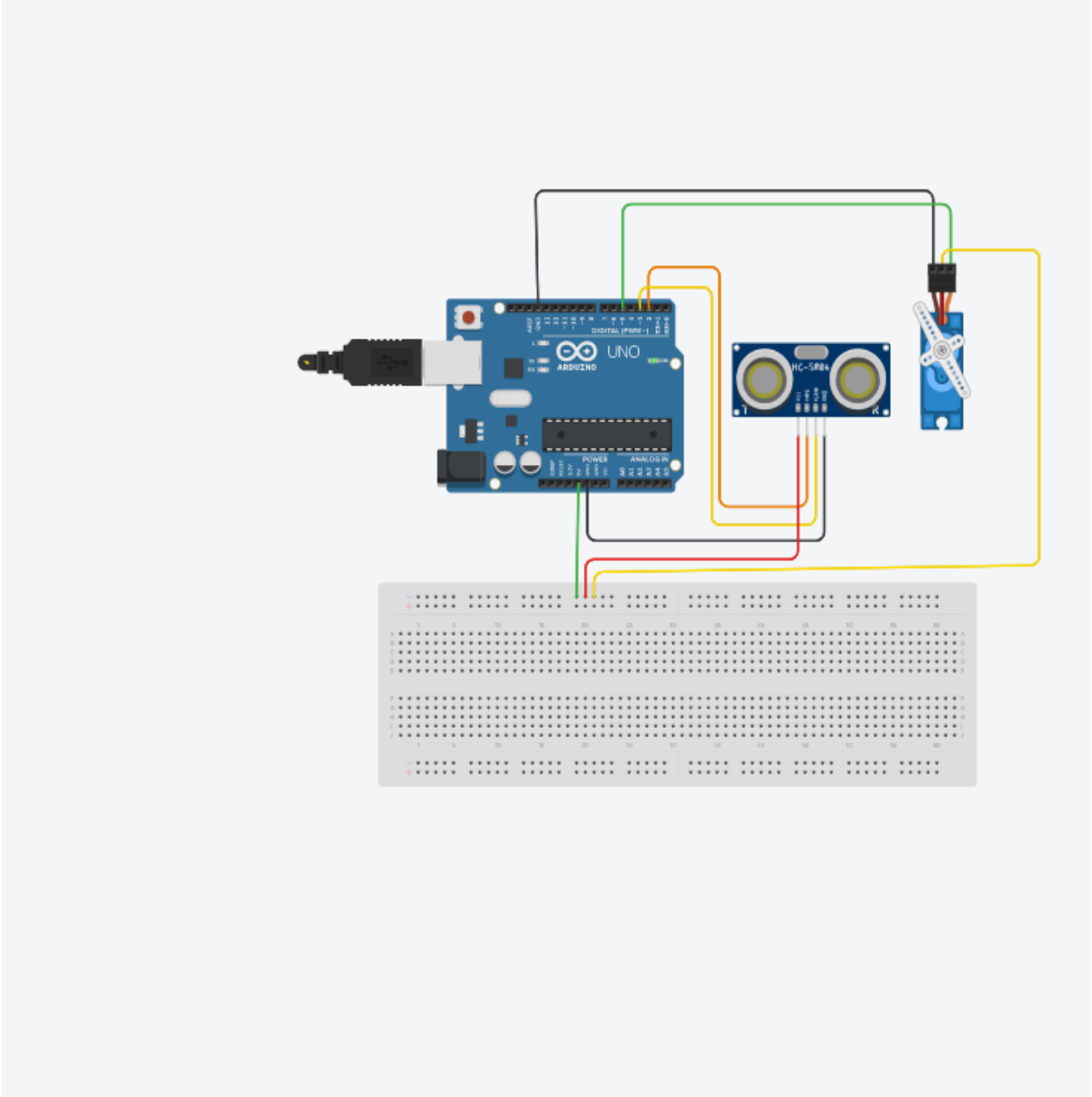


After Simulation:

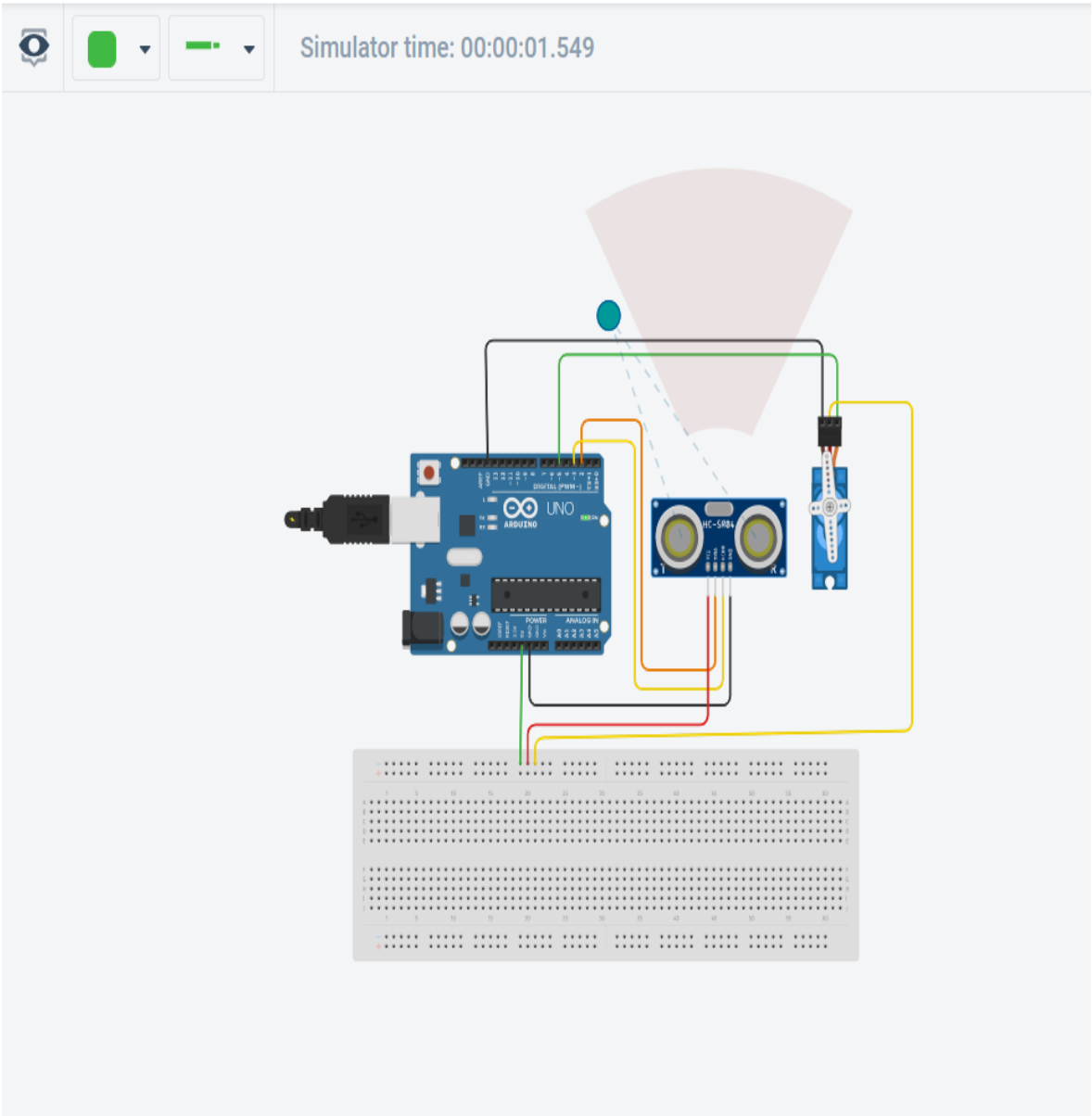
Gate is opened for some time when object is detected



After some time gate is returning back to original state:



When object is not in the range:


Simulator time: 00:00:01.549
UNO
ARDUINO
HC-SR04