

Assignment -2

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18BEC1278

- ★ 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:

```
#include<Servo.h>
Servo s;
int trig = 8;
int echo = 9;

int getDist()
{
    digitalWrite(trig,LOW);
    digitalWrite(trig,HIGH);
    delayMicroseconds(10);
    digitalWrite(trig,LOW);
    float dur = pulseIn(echo,HIGH);
    float dis = (dur*0.034)/2;
    return dis;
}

//Open the Door
void open()
{
    for(int i=0;i<=180;i++){
        s.write(i);
        delay(100);}
}

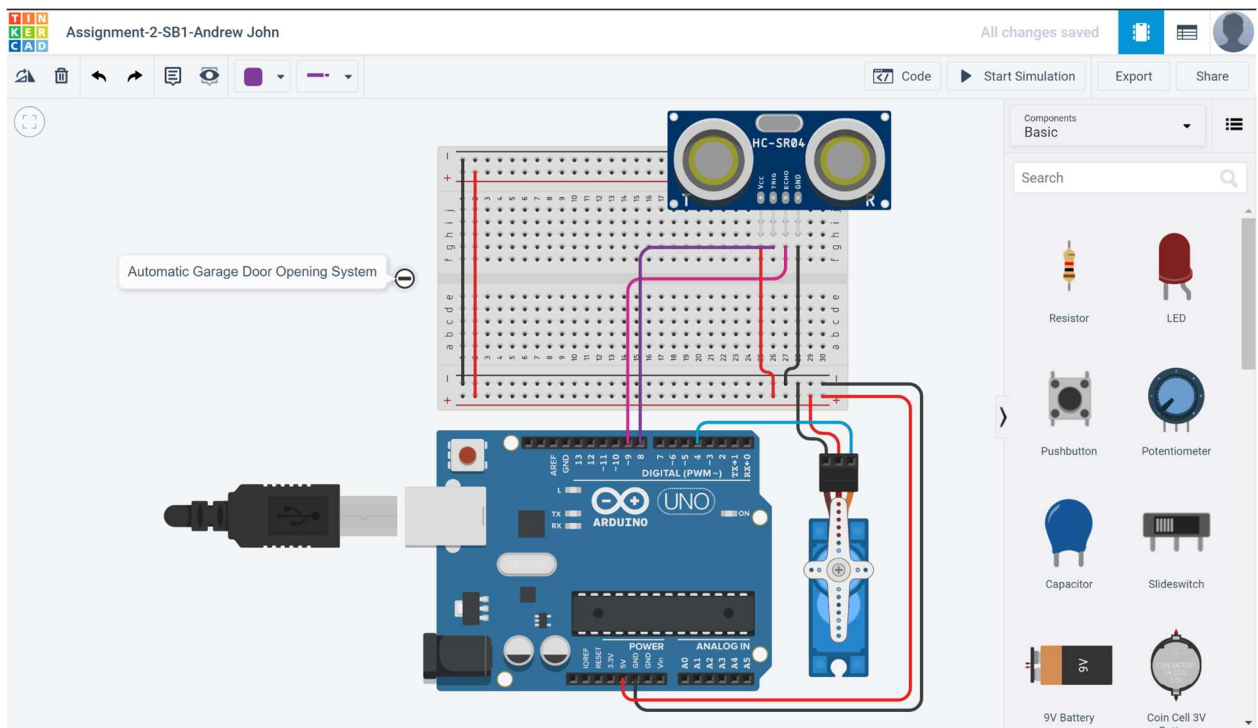
//Close the Door
void close()
{
    for(int j=180;j>=0;j--){
        s.write(j);
        delay(10);
    }
}

//Initializing the Pins
```

```
void setup()
{
  s.attach(4);
  pinMode(trig, OUTPUT);
  pinMode(echo, INPUT);
  Serial.begin(9600);
}

void loop()
{
  int dis = getDist();
  Serial.print("Distance in cm: ");
  Serial.println(dis);
  if(dis < 50)
  {
    Serial.println("Distance is lesser than 50cm");
    Serial.println("---Opening the Garage Door---");
    open();
    Serial.println("---Waiting for 5 secs---");
    delay(5000);
    Serial.println("---Closing the Garage Door---");
    close();
  }
  else
  {
    Serial.println("Distance is greater than 50cm");
    s.write(0);
  }
  Serial.println("---Delay of 5 secs---");
  delay(5000);
}
```

CIRCUIT DESIGN:



OUTPUTS:

A. Opening garage door for distance greater than 50cm.

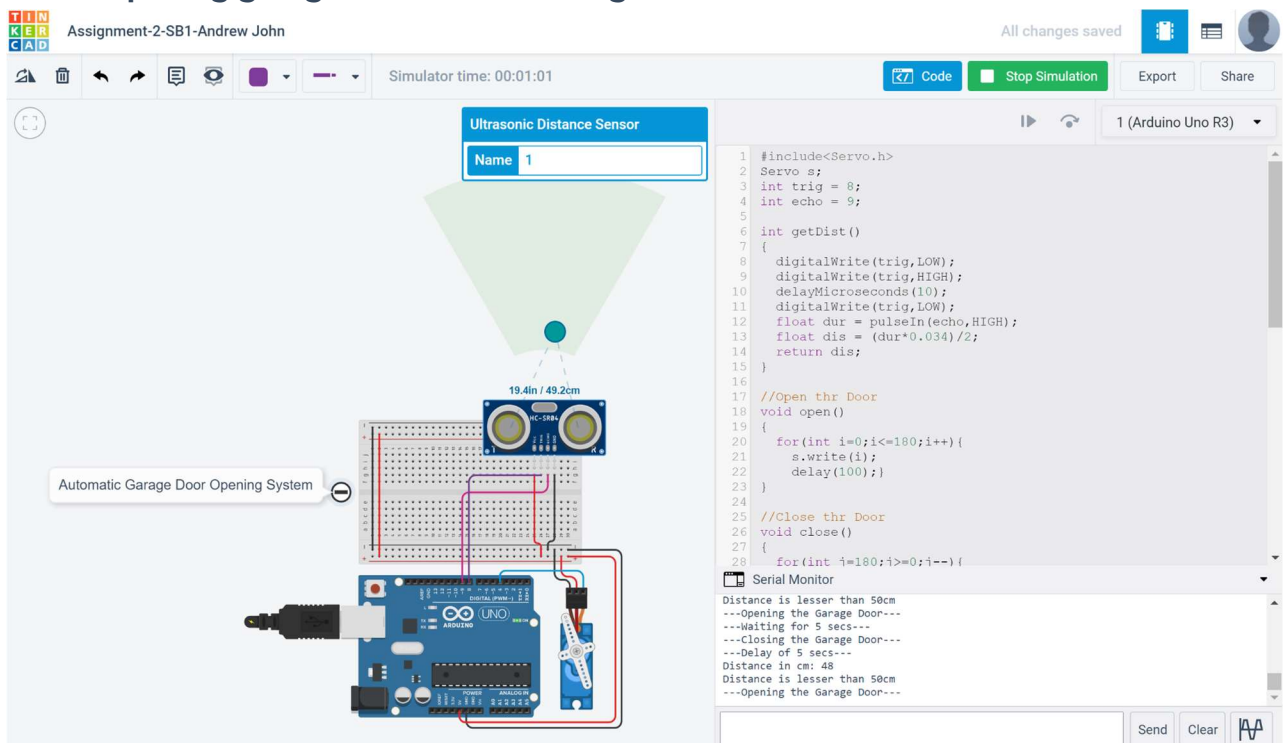


Fig-1: Opening the Garage Door

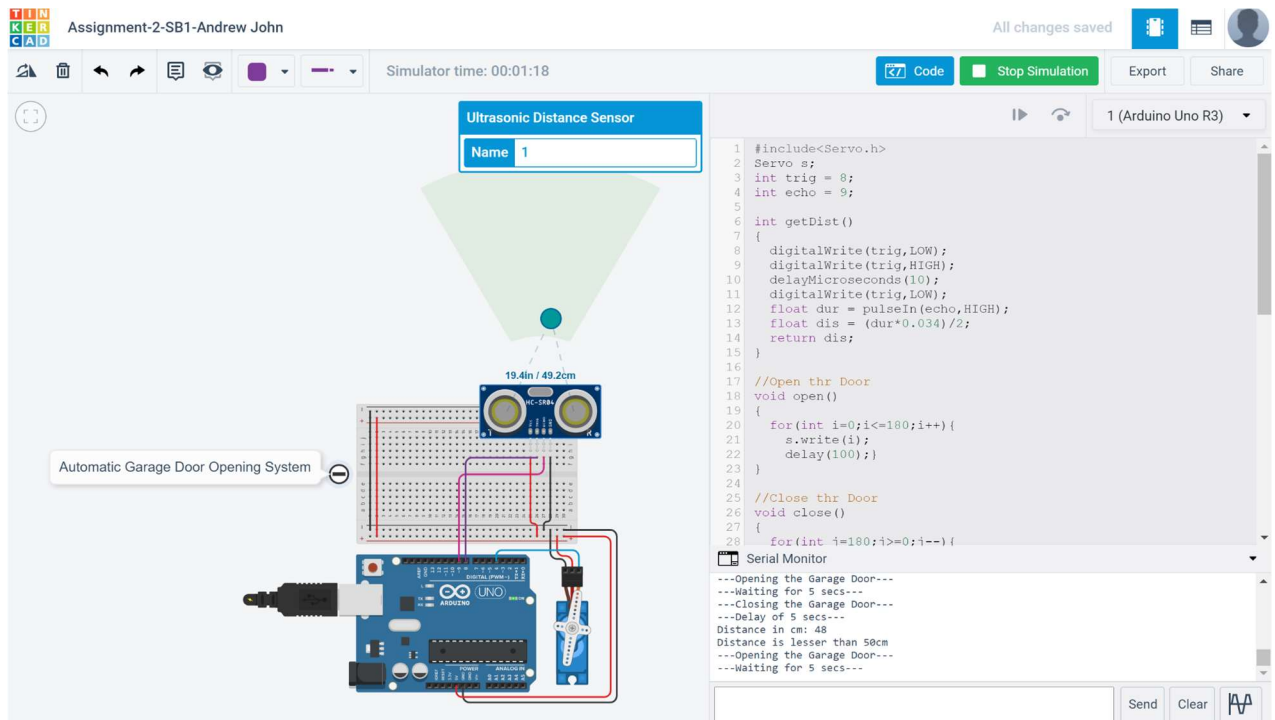


Fig-2: Waiting for 5 seconds

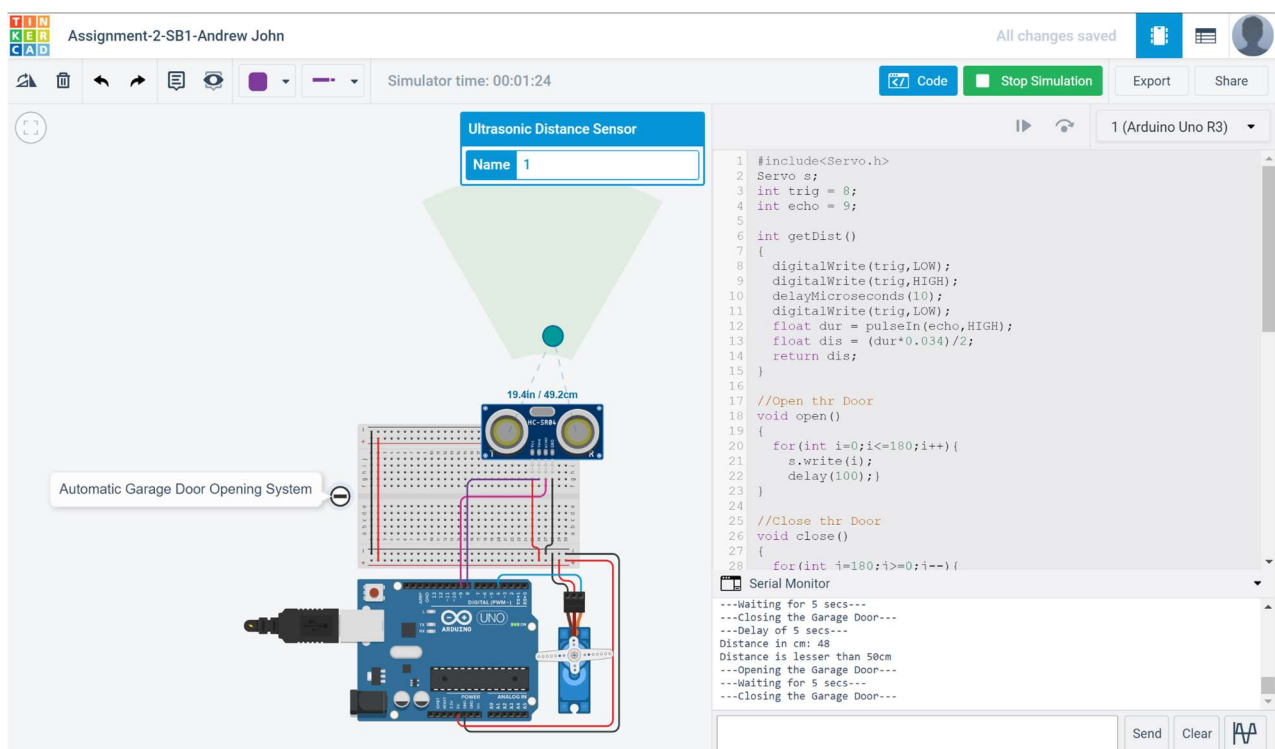


Fig-3: Closing the Garage Door

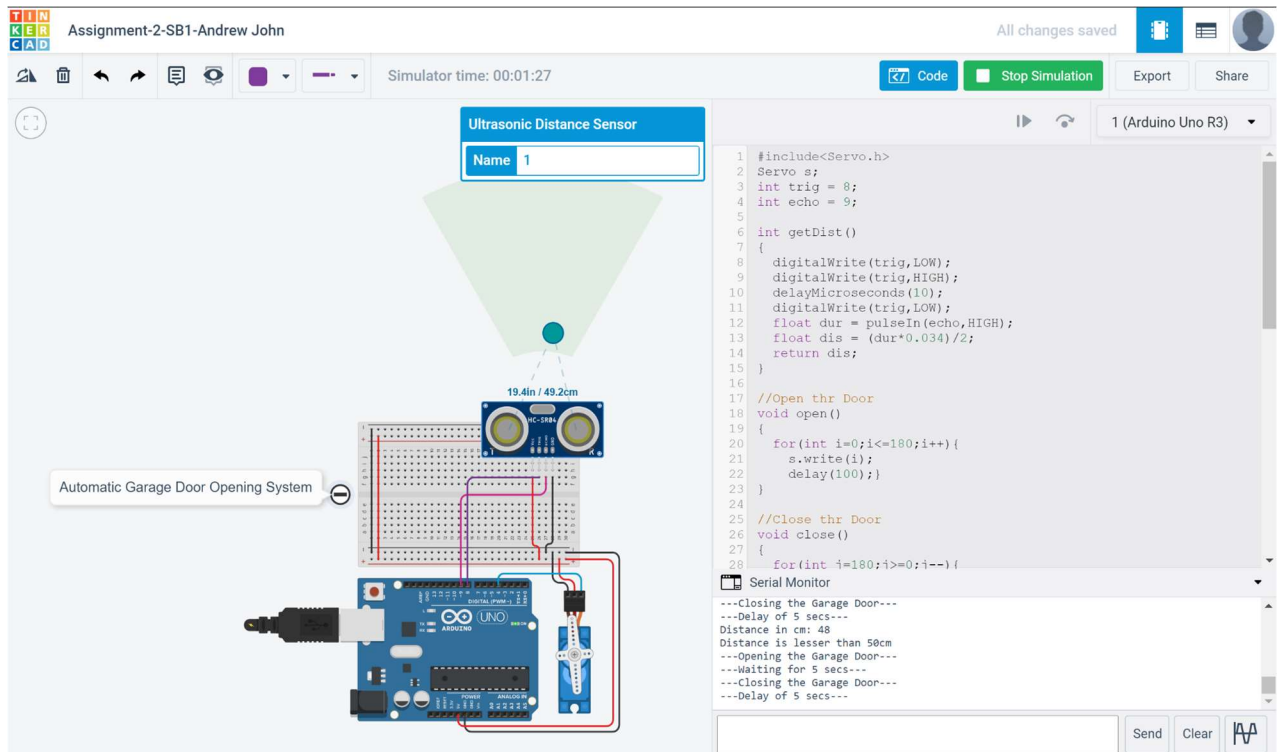


Fig-4: Delay of 5 seconds

B. Closing garage door for distance lesser than 50cm

