

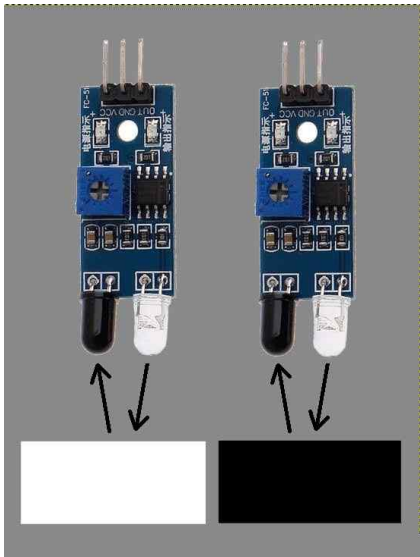


Arduino Projects

Line Follower Arduino

📅 24/02/2020 👤 Jarek 💬 0 Comments 🏷️ Arduino, ir, l298d, line flower, robot, sensor

Line Follower is a very simple robot ideal for beginner electronics. The robot travels along the line using the iR sensor. The sensor has two diodes, one diode sends infrared light, the other diode receives the reflected light from the surface. When the infrared rays fall on the white surface, they are reflected back. When infrared light fall a black surface, the light is absorbed by the black surface and no rays are reflected back, so the photodiode does not receive any light. The sensor measures the amount of reflected light and sends the value to the arduino. There is a potentiometer on the sensor, with which we can adjust the sensitivity of the sensor.



Arduino now has to make decisions based on the data received from the sensor, until the sensor detects no black line it will go forward. If the left sensor detects a black line, the robot turns right, and if the right sensor detects a black line, it turns left. The robot will stop when both sensors detect a black line at the same time.

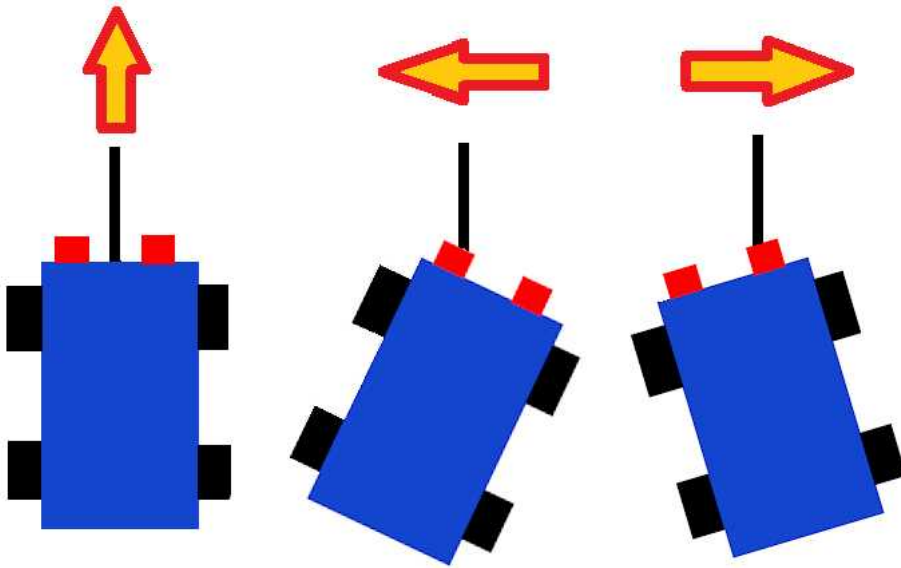
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Version with L298N Shield:

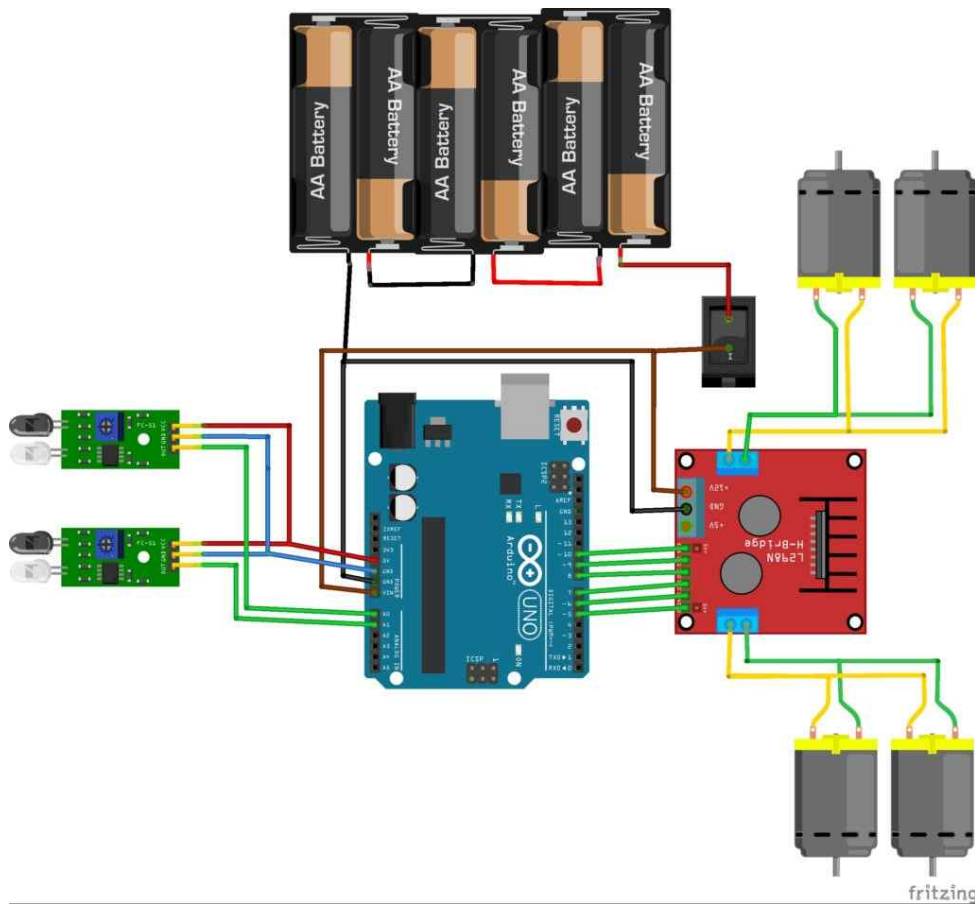
To assemble your robot you need:

List elements:

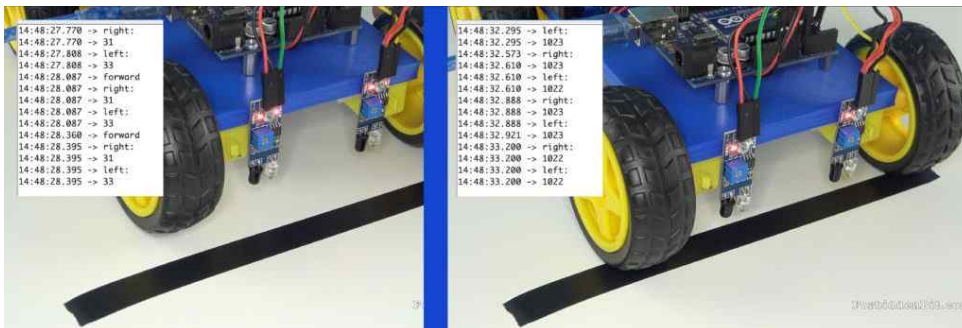
- | | | | |
|------|---|-------------|------------------------------|
| 1 x |  | Arduino Uno | 1 x plexi 10cmx17cm |
| 2 x |  | ir sensor | 8 x metal distance 10mm |
| 1 x |  | L298D | 1 x battery holder(6 pieces) |
| 14 x |  | wires | 6 x battery AA |
| 4 x |  | TT motors | 1 x switch |

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Schema



Now before turning on the power, check that you have connected everything correctly. Copy the program code and upload it to your arduino, then turn on the serial monitor (in Arduino IDE -> Tools -> Serial Monitor). Place your robot on the black line and set the potentiometer so that the sensor value shows ≈ 1023 , and on the white surface ≈ 33 .



Line_Flower.ino_ [Download](#)

```

1  /*
2   * Forbiddenbit.com
3   */
4
5  void setup() {
6    Serial.begin(9600);
7
8    pinMode(A0, INPUT); // initialize Right sensor as an input
9    pinMode(A1, INPUT); // initialize Left sensor as an input
10 }
11
12
13 void loop() {
14
15   int LEFT_SENSOR = analogRead(A0);
16   int RIGHT_SENSOR = analogRead(A1);
17
18   Serial.println("right:");
19   Serial.println(RIGHT_SENSOR);
20   Serial.println("left:");
21   Serial.println(LEFT_SENSOR);
22
23   delay(300);
24 }

```

Copy the code below and upload it to arduino. Have fun 😊

```

1  /*
2   * Forbiddenbit.com
3   */

```

```

4
5 #define Motor11 7
6 #define Motor12 6
7 #define Motor21 9
8 #define Motor22 8
9 #define PWMmotor1 5
10 #define PWMmotor2 10
11
12 int valuePWM1=120; // speed motor 1
13 int valuePWM2=150; // speed motor 2
14
15 void setup() {
16
17   pinMode(Motor11,OUTPUT);
18   pinMode(Motor12,OUTPUT);
19   pinMode(Motor21,OUTPUT);
20   pinMode(Motor22,OUTPUT);
21   pinMode(PWMmotor1,OUTPUT);
22   pinMode(PWMmotor2,OUTPUT);
23
24   pinMode(A0, INPUT); // initialize Right sensor as an input
25   pinMode(A1, INPUT); // initialize Left sensor as an input
26
27 }
28
29 void loop() {
30
31   int LEFT_SENSOR = analogRead(A0);
32   int RIGHT_SENSOR = analogRead(A1);
33
34   if(RIGHT_SENSOR<36 && LEFT_SENSOR<36) //FORWARD
35   {
36       digitalWrite(Motor11, HIGH);
37       digitalWrite(Motor12, LOW);
38       digitalWrite(Motor21, HIGH);
39       digitalWrite(Motor22, LOW);
40       analogWrite(PWMmotor1, valuePWM1);
41       analogWrite(PWMmotor2, valuePWM1);
42   }
43
44   else if(RIGHT_SENSOR>36 && LEFT_SENSOR<36) //LEFT
45   {
46       digitalWrite(Motor11, LOW);
47       digitalWrite(Motor12, HIGH);
48       digitalWrite(Motor21, HIGH);
49       digitalWrite(Motor22, LOW);
50       analogWrite(PWMmotor1, valuePWM2);
51       analogWrite(PWMmotor2, valuePWM2);
52   }
53
54   else if(RIGHT_SENSOR<36 && LEFT_SENSOR>35) //RIGHT
55   {
56       digitalWrite(Motor11, HIGH);
57       digitalWrite(Motor12, LOW);
58       digitalWrite(Motor21, LOW);
59       digitalWrite(Motor22, HIGH);
60       analogWrite(PWMmotor1, valuePWM2);
61       analogWrite(PWMmotor2, valuePWM2);
62   }
63
64   else if(RIGHT_SENSOR>35 && LEFT_SENSOR>35) //BACK
65   {
66       digitalWrite(Motor11, LOW);
67       digitalWrite(Motor12, LOW);
68       digitalWrite(Motor21, LOW);
69       digitalWrite(Motor22, LOW);
70       delay(10000);
71   }
72 }

```

Line Follower Robot Arduino And L293D Shie...



Version with L293D Shield:

Download the latest version of the library for L293D Shield from <https://github.com/adafruit/Adafruit-Motor-Shield-library>.

To add a library Go to Tools -> Include Library -> Add .ZIP Library. And select Adafruit-Motor-Shield-library-master.zip.

[Adafruit-Motor-Shield-library-master](#) Download

[ARDUINO_LINE_FOLLOWING_CAR.ino_](#) Download

```

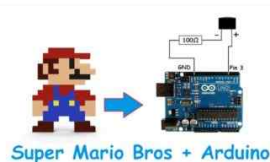
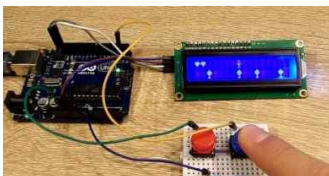
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51       analogWrite(PWMmotor2, valuePWM2);
52   }
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57       digitalWrite(Motor12, LOW);
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68       digitalWrite(Motor21, LOW);
69       digitalWrite(Motor22, LOW);
70       delay(10000);
71   }
72 }

```

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