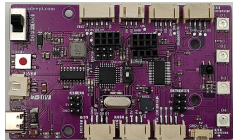

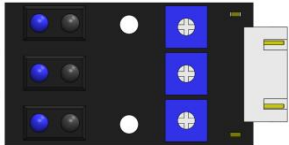


## Lesson 9 How to use the Line Tracking Module

In this lesson, we will learn how to use the Line Tracking Module.

### 9.1 Components used in this course

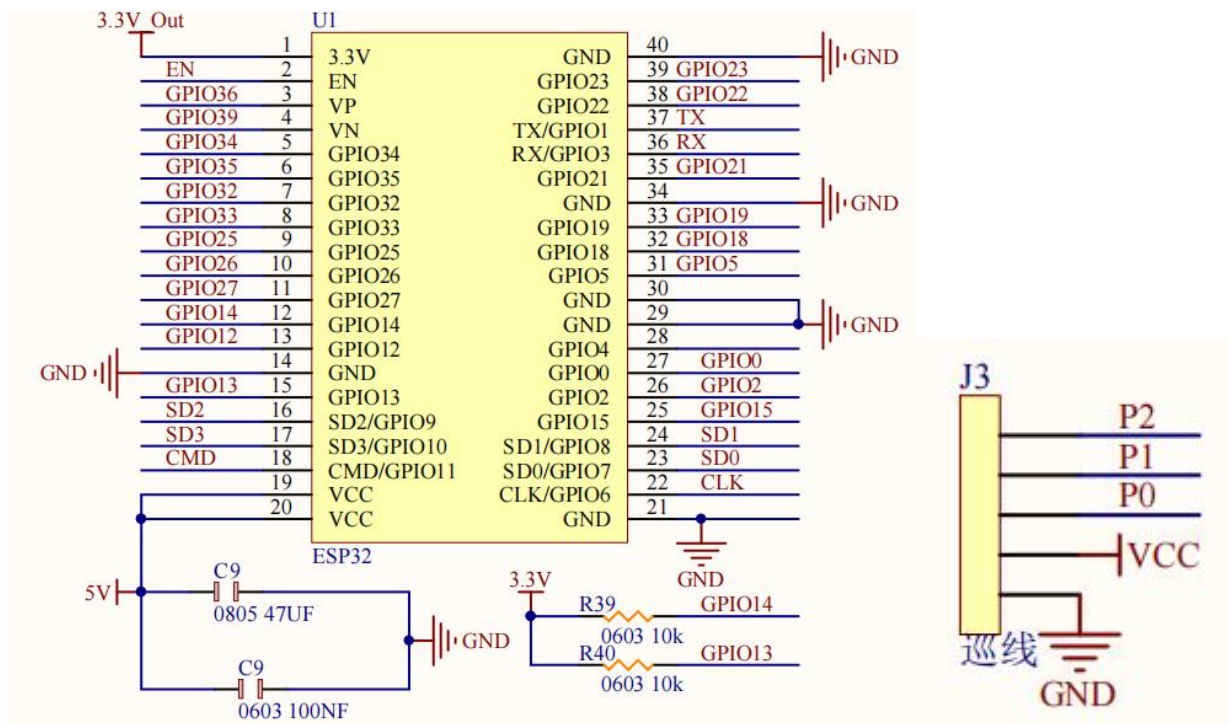
Components	Quantity	Picture
Adeept Robot Control Board	1	
Type-C USB Cable	1	
Line Tracking module	1	

### 9.2 The introduction of the Line Tracking Module

"Line Tracking"--- On the white paper with black lines drawn, the black lines can be judged according to the intensity of the reflected light received due to the different reflection coefficients of the black lines and the white paper to light.

A more common detection method, infrared detection method, is used in the line tracking module. Infrared detection method is to use the characteristics of infrared rays that have

different reflection properties on physical surfaces of different colors. During the running of the program, infrared light is continuously emitted to the ground. When the infrared light encounters the white ground, diffuse emission occurs, and the reflected light is received by the receiving tube; if it encounters a black line, the infrared light is absorbed, and the receiver of the line tracking module Signal cannot be received. The line tracking module we provide is a three-channel infrared tracking module, which contains 3 sets of sensors, each of which consists of an infrared emitting LED and an infrared receiver.

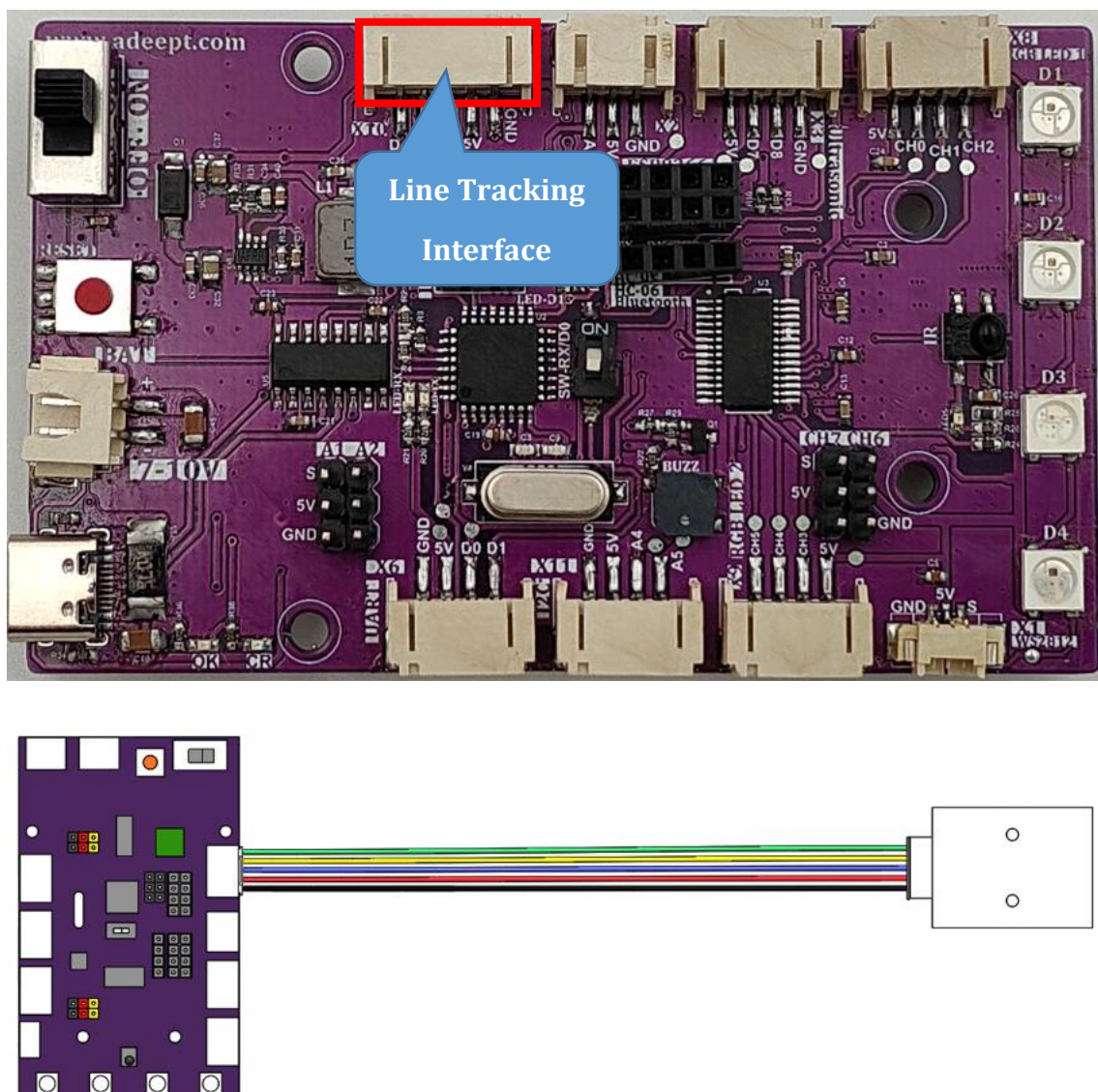


## 9.3 Wiring diagram

Line Tracking module	Arduino(X10)
S3	D4

S2	D5
S1	D6
VCC	5V
GND	GND

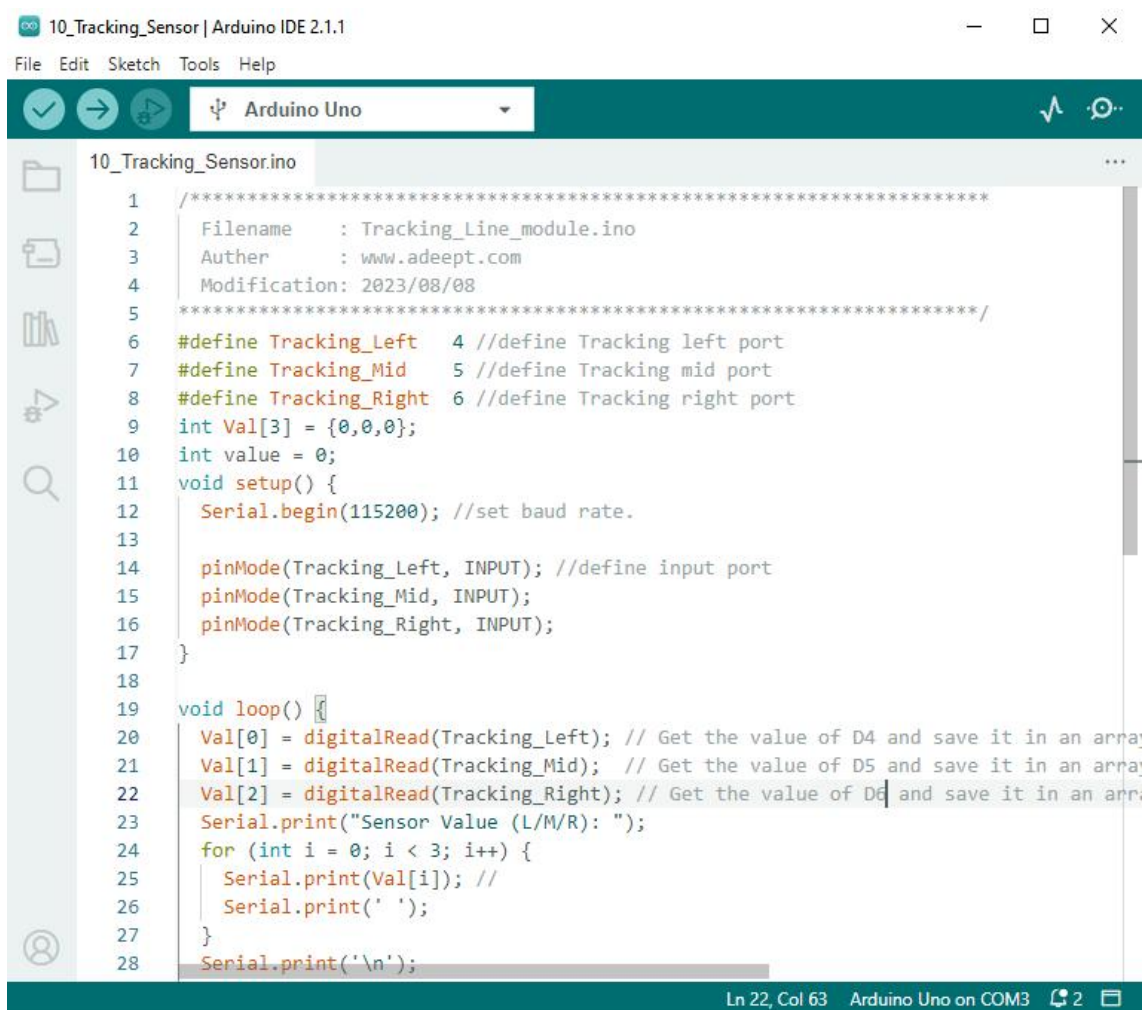
Figure as below:



Line Tracking module uses 5pin cable, the color is as shown in the picture, the length is 18CM.

## 9.4 How to control Line Tracking module

1. Connect your computer and Adeept Robot Control with a USB cable.
2. Open “9\_Tracking\_Sensor” folder in “/Code”, double-click “9\_Tracking\_Sensor.ino”.



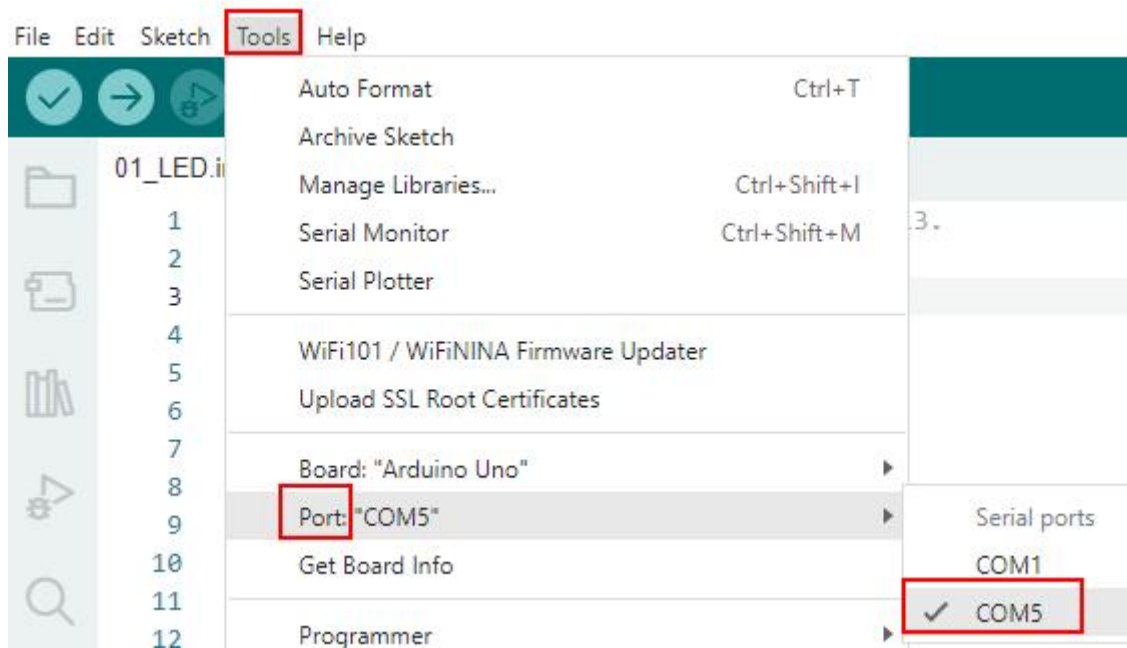
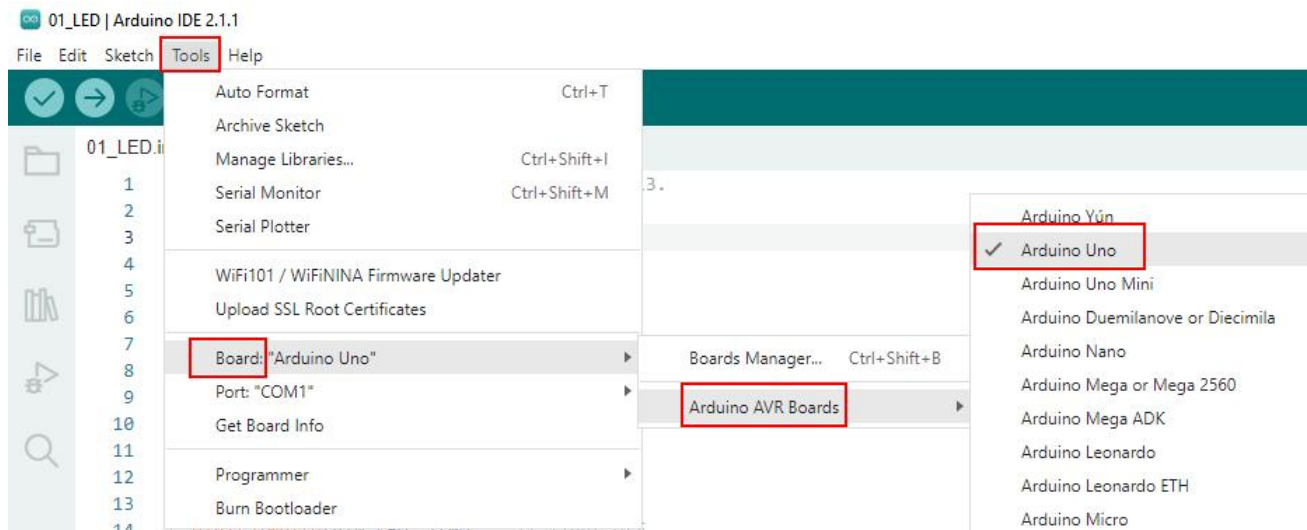
```
1  /*****
2  Filename   : Tracking_Line_module.ino
3  Author    : www.adeept.com
4  Modification: 2023/08/08
5  *****/
6  #define Tracking_Left  4 //define Tracking left port
7  #define Tracking_Mid    5 //define Tracking mid port
8  #define Tracking_Right  6 //define Tracking right port
9  int Val[3] = {0,0,0};
10 int value = 0;
11 void setup() {
12     Serial.begin(115200); //set baud rate.
13
14     pinMode(Tracking_Left, INPUT); //define input port
15     pinMode(Tracking_Mid, INPUT);
16     pinMode(Tracking_Right, INPUT);
17 }
18
19 void loop() {
20     Val[0] = digitalRead(Tracking_Left); // Get the value of D4 and save it in an array
21     Val[1] = digitalRead(Tracking_Mid); // Get the value of D5 and save it in an array
22     Val[2] = digitalRead(Tracking_Right); // Get the value of D6 and save it in an array
23     Serial.print("Sensor Value (L/M/R): ");
24     for (int i = 0; i < 3; i++) {
25         Serial.print(Val[i]); //
26         Serial.print(' ');
27     }
28     Serial.print('\n');
```


3. Select development board and serial port.

Board: Tools--->Board--->Arduino AVR Boards--->Arduino Uno

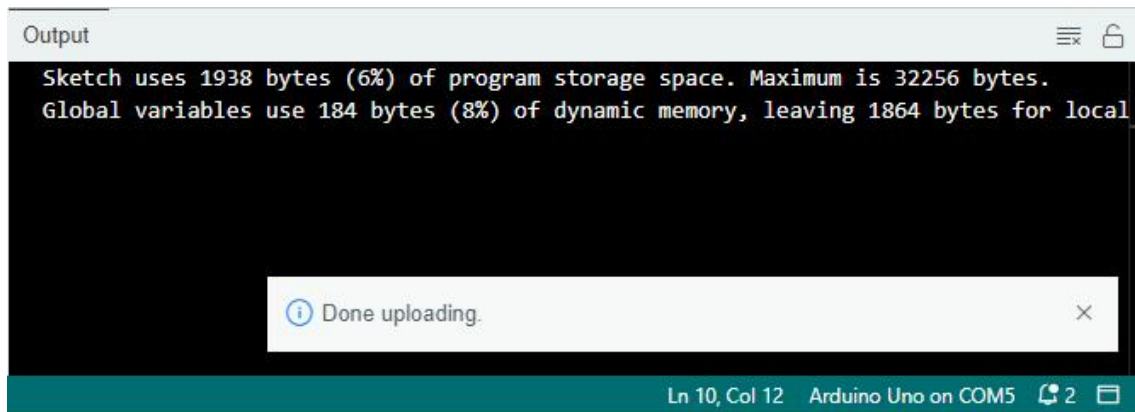
Port: Tools --->Port--->COMx

Note: The port number will be different in different computers.

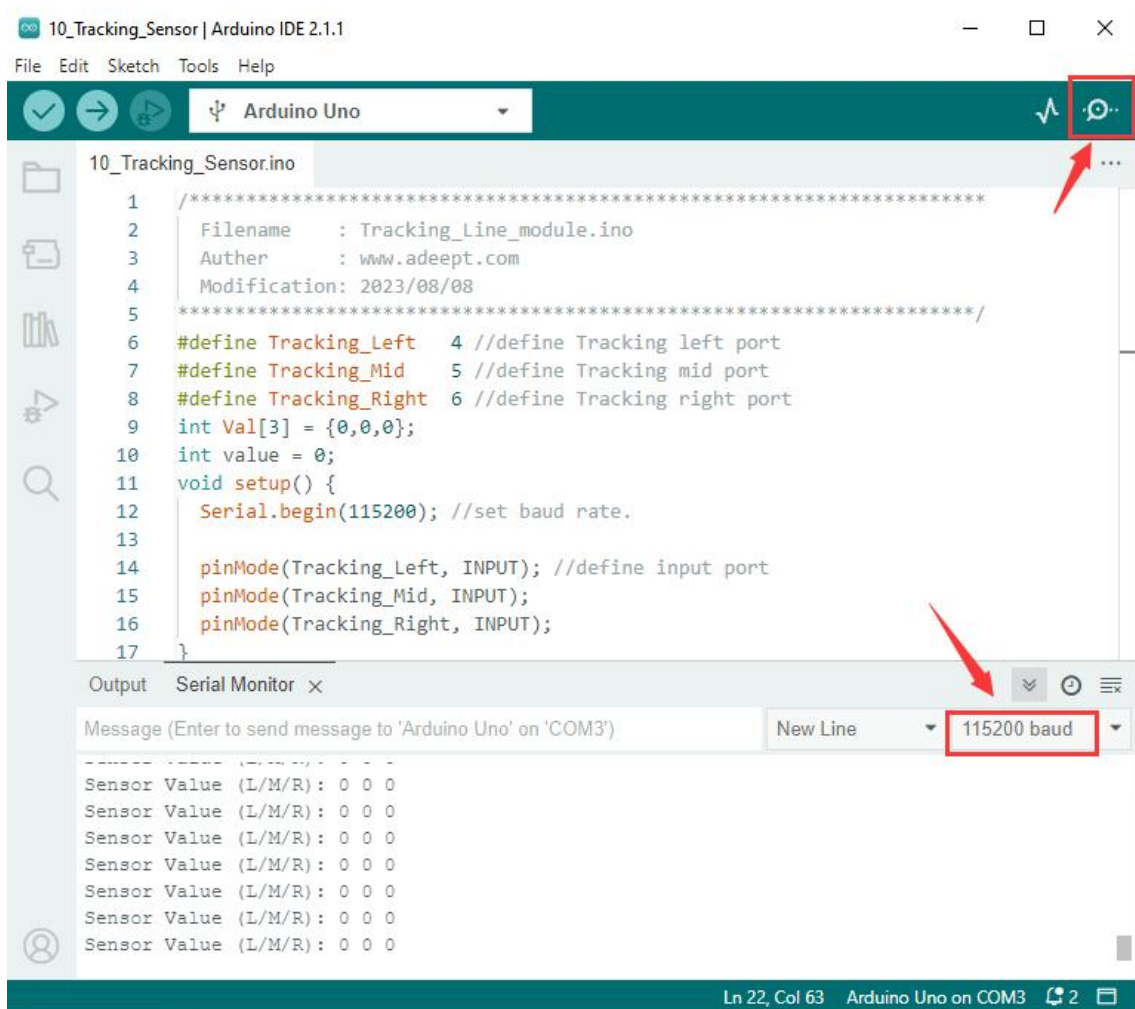


4. After opening, click  to upload the code program to the Arduino. If there is no error warning in the console below, it means that the Upload is successful.





5. Click Serial Monitor, Set the baud rate as 115200.



6. You will see the data obtained by the three detection terminals. (L/M/R) means (Left / Mid / Right).

## 9.5 Code

```
1. #define Tracking_Left  4 //define Tracking left port
2. #define Tracking_Mid   5 //define Tracking mid port
3. #define Tracking_Right 6 //define Tracking right port
4. int Val[3] = {0,0,0};
5. int value = 0;
6. void setup() {
7.     Serial.begin(115200); //set baud rate.
8.
9.     pinMode(Tracking_Left, INPUT); //define input port
10.    pinMode(Tracking_Mid, INPUT);
11.    pinMode(Tracking_Right, INPUT);
12. }
13.
14. void loop() {
15.     Val[0] = digitalRead(Tracking_Left); // Get the value of D4 and save it in an array.
16.     Val[1] = digitalRead(Tracking_Mid);  // Get the value of D5 and save it in an array.
17.     Val[2] = digitalRead(Tracking_Right); // Get the value of D6 and save it in an array.
18.     Serial.print("Sensor Value (L/M/R): ");
19.     for (int i = 0; i < 3; i++) {
20.         Serial.print(Val[i]); //
21.         Serial.print(' ');
22.     }
23.     Serial.print('\n');
24.     delay(500);
25. }
```