

Lesson 21 Light Tracking Car Function

21.1 Components used in this course


The assembled UnoCar-B car.

21.2 Introduction the Light Tracking Function

When the light hits the left photoresistor, the resistance of the left side becomes smaller, and the value of the photosensitive module becomes smaller; when the light hits the right photoresistor, the resistance of the right side becomes smaller, and the value of the photosensitive module becomes smaller. get bigger. First check the initial value of the photosensitive module in the absence of light source interference (the value is 2048 in standard cases, but the actual value is usually high or low). Then make the car track the light source according to the change of the light source on the left and right sides of the photosensitive module.

21.3 How to control Line Tracking module

1. Connect your computer and Arduino with a USB cable.
2. Open "21_Photosensitive_Car" folder in "[Adeept_UnoCar-B/Code](#)", double-click "[21_Photosensitive_Car.ino](#)".



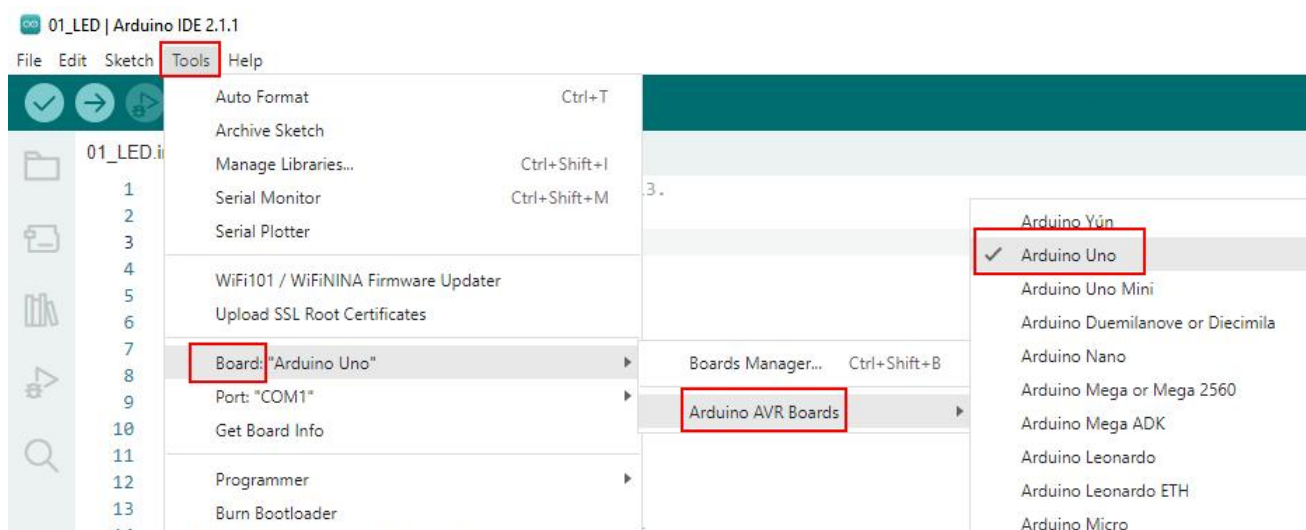
```
1  /*****  
2  Author      : www.aadept.com  
3  Modification: 2023/06/15  
4  *****/  
5  
6  #include "Aadept_Car_For_Arduino.h"  
7  
8  int wheel_Steering = 45;  
9  int deviation = 0;  
10 int servo_Init = 90;  
11 int motor_speed = 60;  
12  
13  
14 int value;  
15 // The minimum value of the change of the sensitive module when the trolley moves.  
16 int threshold = 150;  
17 int value_Init;  
18  
19 void setup()  
20 {  
21   Serial.begin(115200);  
22   Photosensitive_Setup();  
23   PCA9685_Servo_Setup(); //PCA9685 Servo initialization  
24   Motor_Setup();         //Motor initialization  
25   OLED_Setup();
```

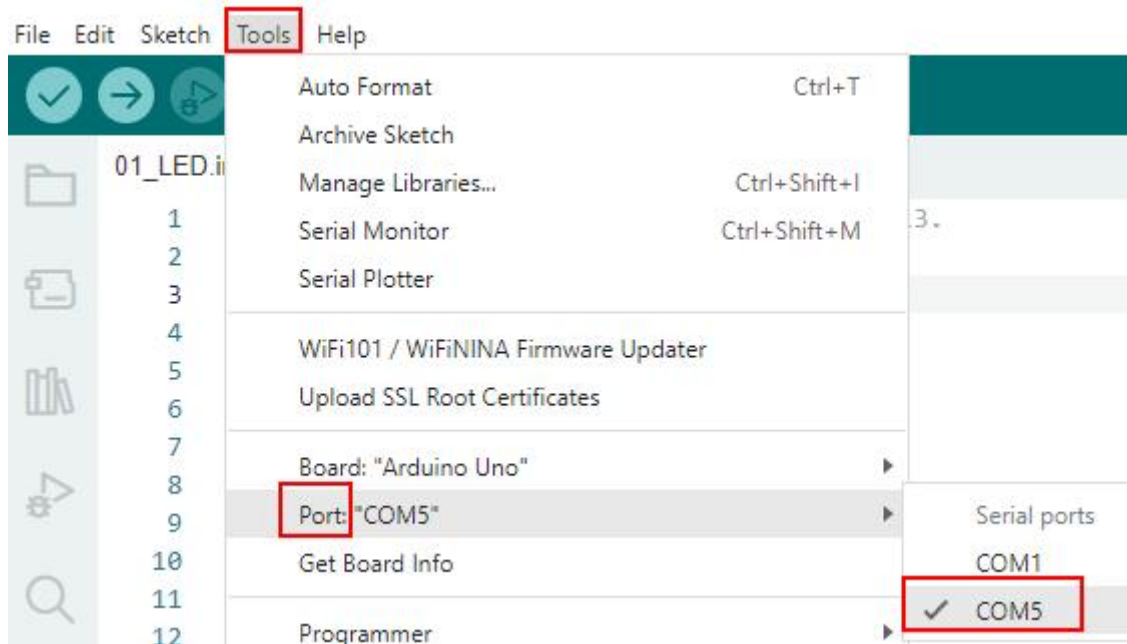
3. Select development board and serial port.


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

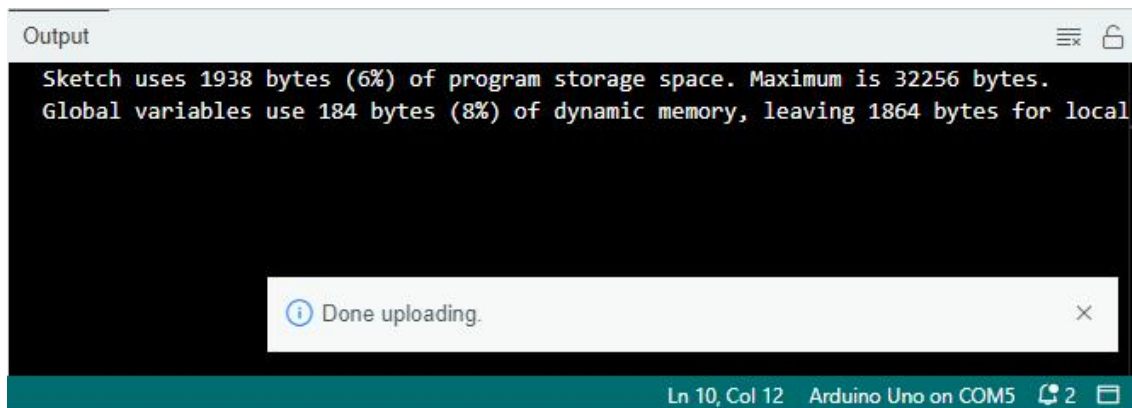
Port: Tools ---->Port---->COMx

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. In the absence of interference from light sources, the car stands still. Use the light source to illuminate the left area of the photosensitive module of the trolley, and the trolley will start to move to the left. When the light source is used to illuminate the right area, the car starts to move to the right.

The change value of the photosensitive module when the car starts to move can be adjusted by the **threshold** value in the program.

21.4 Code

```
1. #include "Adeept_Car_For_Arduino.h"
2.
3. int wheel_Steering = 45;
4. int deviation = 0;
5. int servo_Init = 90;
6. int motor_speed = 60;
7.
8. int value;
9. // The minimum value of the change of the sensitive module when the trolley moves.
10. int threshold = 150;
11. int value_Init;
12.
13. void setup()
14. {
15.   Serial.begin(115200);
16.   Photosensitive_Setup();
17.   PCA9685_Servo_Setup(); //PCA9685 Servo initialization
18.   Motor_Setup();         //Motor initialization
19.   OLED_Setup();
20.
21.
22.   value_Init = GetPhotosensitive();
23. }
24.
25. void loop()
26. {
27.   Light_Tracking();
28. }
29.
30. void Light_Tracking(){
31.   value = GetPhotosensitive();
32.   if (value < (value_Init - threshold)){
```

```
33. // Servo_1_Angle(servo_Init + wheel_Steering + deviation);
34. Servo_Angle(1, servo_Init + deviation + wheel_Steering);
35. Motor(1, 1, motor_speed);
36. Motor(2, 1, motor_speed);
37. Serial.print(value_Init);
38. Serial.print(":");
39. Serial.println(value);
40.
41. }
42. else if (value > (value_Init + threshold)){
43. // Servo_1_Angle(servo_Init - wheel_Steering + deviation);
44. Servo_Angle(1, servo_Init + deviation - wheel_Steering);
45. Motor(1, 1, motor_speed);
46. Motor(2, 1, motor_speed);
47. Serial.print(value_Init);
48. Serial.print(":");
49. Serial.println(value);
50. }
51. else{
52. // Servo_1_Angle(servo_Init);
53. Servo_Angle(1, servo_Init + deviation);
54. Motor(1, 1, 0);
55. Motor(2, 1, 0);
56. Serial.print(value_Init);
57. Serial.print(":");
58. Serial.println(value);
59. }
60. }
```