

Instruction manual



Roboduino V2 Smart Car

说明书/Manual



①使用前请仔细阅读本说明书
①Please read this manual carefully before use

②本公司保留说明书解释权
②Our company reserves the right of interpretation for this manual

③产品外观请以实物为准
③Product appearance, please prevail in kind

④阅后请妥善保留
④Please keep the manual properly after reading



安卓手机请用浏览器扫描二维码下载安装；苹果端请用手机相机扫描二维码进入 App Store 下载安装或者在应用市场搜索“YahBoomCam”下载安装。

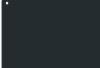


For Android users, please search for "YahBoomCam" in Play store to download and install APP;
For iOS users , please search for "YahBoomCam"in APP store to download and install APP.

中文官网网址: <https://www.yahboom.com/study/Roboduino-V2> 提取码: roh8 英文官网网址 <https://www.yahboom.net/study/Roboduino-V2>

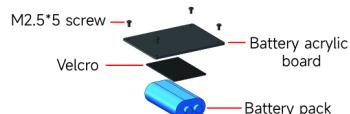
在产品使用过程中，如对以下说明有疑问的，请根据说明书首页的网址查阅最新的网页资料或者联系我们技术支持。
! Any questions about the instructions on manual, please enter the tutorial link on the homepage, check the latest information on our website or contact our technical support.

Packing List

	Car body		WiFi camera module
	Arduino		7.4V battery
	UNO adapter board (sheet metal)		UNO robot expansion board
	Velcro		3-channel tracking module
	5pin cable		Battery acrylic board
	Type-B data cable		Accessory package
	Power charger		Screwdriver
	Instruction manual		

Installation Steps

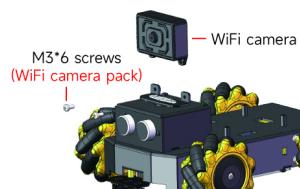
1. Install battery



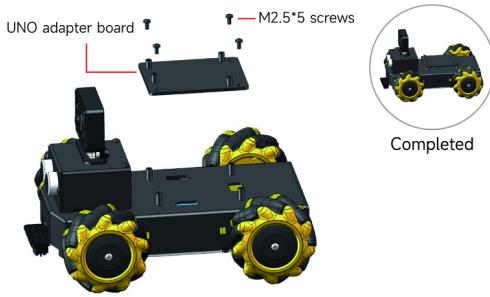
2. Install 3-channel tracking module



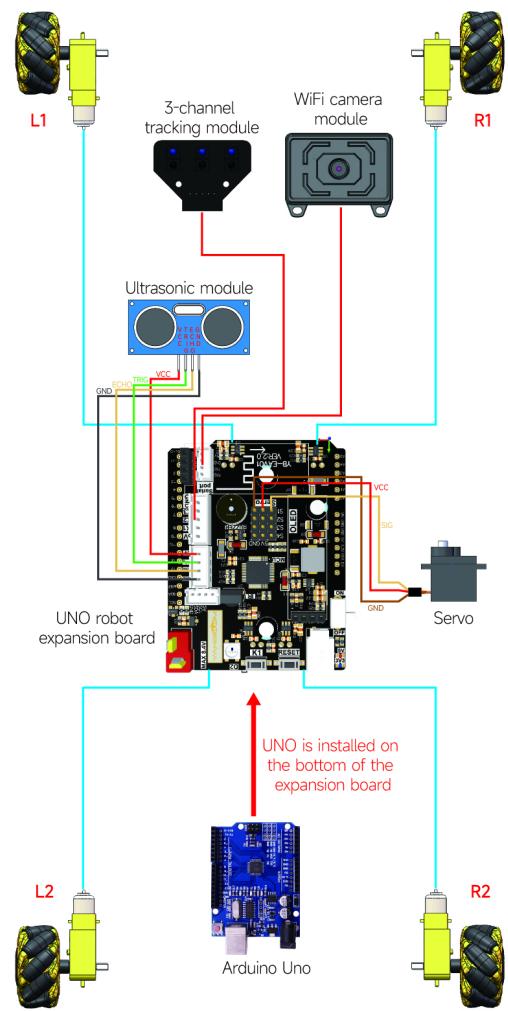
3. Install WiFi camera module



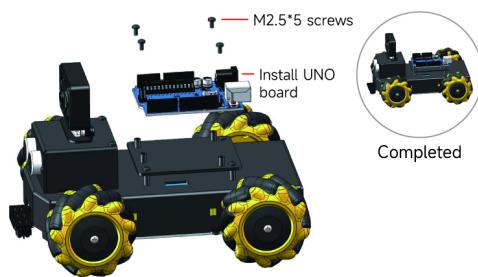
4. Install UNO adapter board



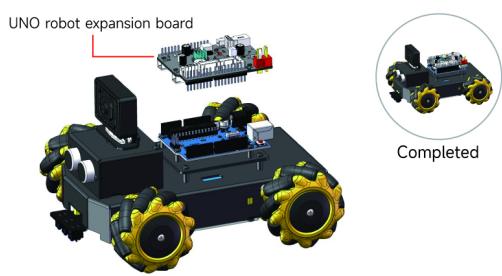
WIRING DIAGRAM



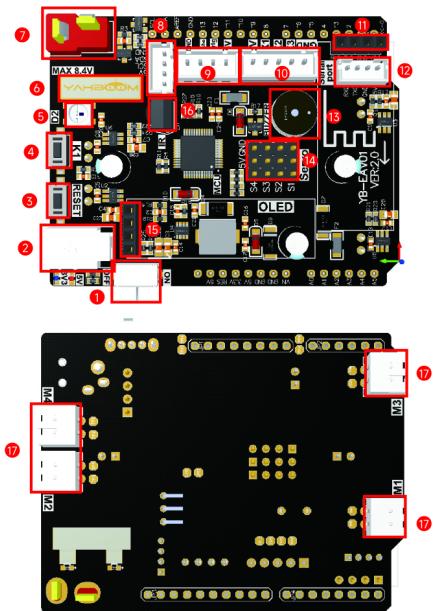
5. Install UNO board



6. Install UNO robot expansion board



Expansion Board Interface Description



- ①: Expansion board power switch: control the car power switch
- ②: Battery charging interface: charge the battery pack
- ③: RESET button: reset Arduino IDE
- ④: K1 button: customizable button function
- ⑤: RGB light: can be controlled to display different colors
- ⑥: LOGO light: display Yahboom logo
- ⑦: T-type power supply interface: powering the car
- ⑧⑯: I2C interface: connect I2C device
- ⑨: Ultrasonic module interface: connect ultrasonic module
- ⑩: Tracking module interface: connect 3-channel tracking module
- ⑪: Serial port interface: connect serial communication device
- ⑫: Serial port interface: connect WiFi camera module
- ⑬: Passive buzzer: control buzzer sound
- ⑭: PWM servo interface: connect PWM servo
- ⑮: Infrared receiver: receive infrared remote control signal
- ⑯: Motor interface: connect 4PCS motors

First Trial

1.Download YahboomCam APP

- For Android users, please search for "YahBoomCam" in Play store to download and install APP;
- For iOS users , please search for "YahBoomCam" in APP store to download and install APP.



2.Assemble car

Go to following tutorial link to view the installation video.
Link: <http://www.yahboom.net/study/Roboduino-V2>

3.Build development environment

The software used for the development environment is located in the [About software: Tools] folder of the product tutorials.

Download Arduino IDE

Unzip and open the Arduino IDE installation package provided by Yahboom as an administrator.

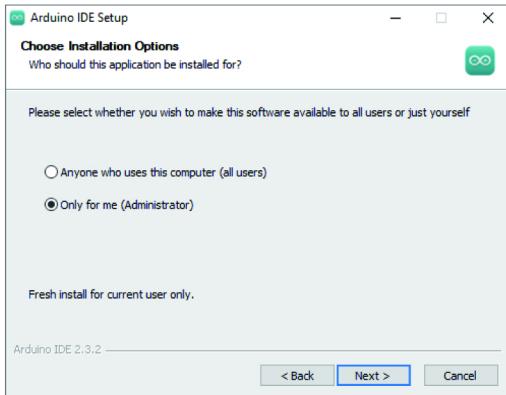
Install Arduino ID

Check and install according to the following options.

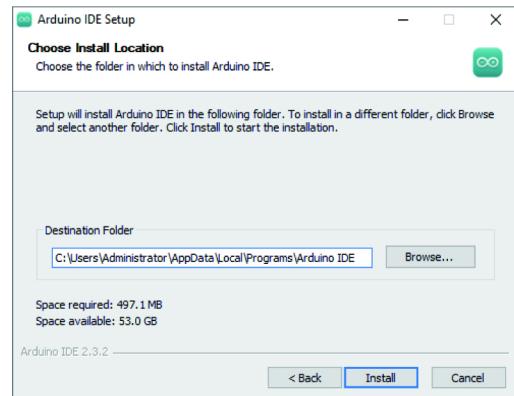
- Click "I Agree"



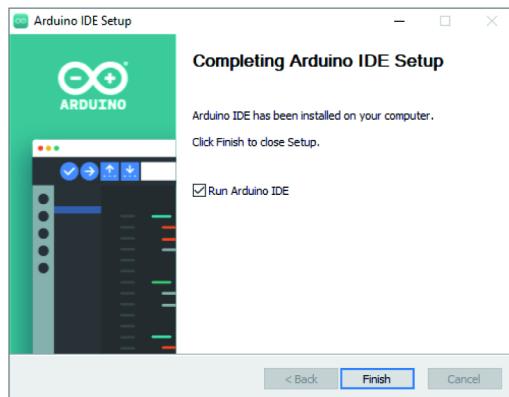
- Click "Next"



- Choose installation path and click "Install"



- Click "Finish"



The Arduino IDE will be automatically initialized when you use it for the first time. If the system pops up a message asking you to install drivers and some software libraries, you need to choose agree.

4.Upload code

Before using Roboduino V2, users need to upload the corresponding program to the UNO board.

Note: The connection of the WiFi camera needs to be removed before uploading the code.

Connect car to computer

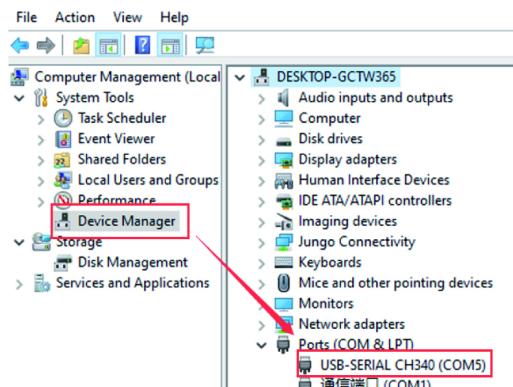
Remove the WiFi camera wiring, and then connect the UNO board to the computer USB port via a Type-B data cable..



·View serial port number

Open the device manager that comes with the computer and check the serial port device with the CH340 character in the port option. (For example, the port number of the UNO board recognized by my computer is COM5;)

If the system does not detect the corresponding serial port device, you can install the serial port driver according to tutorials.



·Software connection

Download and open the Multi_Functional_Control_Car.ino file, and select the model and serial port number corresponding to the development board.

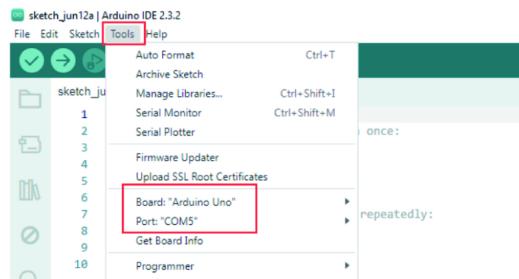
The Multi_Functional_Control_Car.ino file is located in the [About software: car code] folder.

Development board selection:

Click [Tools]-->[Board]-->[Arduino AVR Boards]-->[Arduino Uno]

Serial port number selection: Click [Tools]-->[Port]-->[COM5]

Note: The port number recognized by each computer is different. Choose according to the actual situation.



·Upload code

After successfully importing the library files, compile and then upload the code.

Note: Before uploading the code, you need to install some library files. You can import some library files according to the [Environment construction: Using Libraries] tutorial in our product tutorials.

Compile (Verify) option: Click ①→Compile successfully,

and [Done compiling] will appear in the lower right corner of Arduino IDE.

Upload (Upload) option: Click ②→Upload successfully,

and [Done uploading] will appear in the lower right corner of Arduino IDE.



5.Start up car

After the code is uploaded successfully. Turn off power switch of car, connect WiFi camera module to expansion board. Then, turn on power switch of car.

6.Mode selection

After the program is started, the RGB light on the car expansion board will display white, indicating that the remote control function mode selection stage has been entered. If no mode selection is made, the default is the WiFi remote control car mode.

Mode switch: Press the K1 button on the car expansion board to switch between two remote control modes. The mode switching time takes about 5 seconds. Once the RGB does not display color, it means that the function switching mode has ended and the last selected remote control mode is retained.

RGB light displays white: WiFi remote control car mode

RGB light displays red: Infrared remote control car mode

If you want to switch the remote control mode again, please press the Reset button on the UNO board to restart the program.

7.APP remote control car

After the program is started, it is initially set to WiFi remote control mode. Please wait for 5 seconds before remote control operation.

APP connection

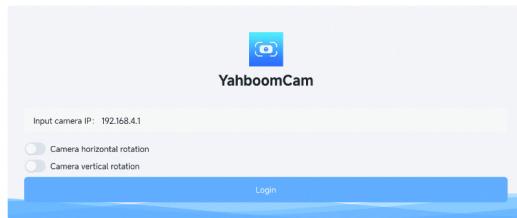
Connect the mobile phone to the hotspot of the WiFi camera (hotspot name: Yahboom_ESP32_WIFI), and then open YahboomCam APP.

Some mobile phones will prompt for connecting to a hotspot, we need to click to keep connected.



Input IP: 192.168.4.1 in the YahboomCam APP, then click to log in to enter the APP control interface.

The IP address of the WiFi camera built-in hotspot is 192.168.4.1



APP control

After entering the APP interface, the APP will display the camera screen. .

If no screen is displayed, check whether the phone is connected to the WiFi camera hotspot normally.



·Buttons on the left

Control the car movement: U(forward), D(backward), L(pan left), R(pan right), stop (stop), LT(left rotation), (RT)right rotation

·Buttons on the right

Control the servo rotation angle: CL(rotate left), CR(rotate right), CU(rotate upward), CD(rotate downward)

Note:

(1) Since the WiFi camera on our car is installed upside down, we need to check the camera horizontal flip and vertical rotation, so that the displayed image will be normal.

(2) We control the rotation of the camera module by controlling the servo. In order to prevent damage to the servo and WiFi camera module, its rotation range is limited to 35°~145°.

8.Infrared remote control car

Please press the K1 button within 5 seconds after the program start up. When the RGB light on the expansion board changes from white to red, it means that the mode has switched to infrared remote control.

Infrared control

Use the infrared remote control to aim at the infrared receiver on the car expansion board to control the buttons. We only sets the functions for some buttons.



00	80	40
20	A0	60
10	90	50
30	B0	70
08	88	48
28	A8	68
18	98	58

Button	Analyze data	Function
Power	0x00	Stop all peripheral functions
RGB	0x40	Switch RGB color
Buzzer	0xA0	Control buzzer sound
Car Forward	0x80	Car moves forward
Car Backward	0x90	Car moves backward
Car Left	0x20	Car moves pan left
Car Right	0x60	Car moves pan right
Car Left Spin	0x10	Car left rotation
Car Right Spin	0x50	Car right rotation
Add	0x30	Speed increases
Sub	0x70	Speed decreases

The infrared remote control controls the movement of the car. You need to press and hold the button to perform the corresponding control: for example, long press the button to move the car forward, and release the button to stop the car.

Note: In order to avoid light interfering with the infrared sensor, we need to use the infrared remote control function indoors.

FAQ

Q1. Why do I need to download the program?

A: Since the car does not contain any program before leaving the factory, users need to upload the corresponding program to control the car.

Q2. How to find the serial port number corresponding to the Arduino UNO board?

A: Open the device manager that comes with the computer system and check the serial port device in the port option.

Q3. Why does the program upload fail?

A: It may be caused by the serial port being occupied or the wrong development board and serial port number being selected.

Check whether the development board model and serial port number selected by Arduino IDE are correct; then check whether the WiFi camera is connected to the expansion board and occupies the serial port.

Q4. Why can't I see the picture on APP?

A: It may be caused by WiFi camera and the mobile phone APP are not in the same LAN or Yahboom Cam APP login IP is wrong.

We recommend that users use the hotspot that comes with the WiFi camera for control. The login IP of the built-in hotspot is 192.168.4.1.

Q5. Why can't control car by APP?

A: Re-upload the corresponding program and make sure that the program is uploaded successfully.

Q6. When using the APP remote control, the servo cannot rotate to the far-left or far-right?

A: In order to avoid damaging the servo and camera module, servo rotation range is limited to 35°~145°, but the APP does not limit the angle of sending commands. So the data sent by the APP is 0°~180°, and the servo can only rotate within the range of 35°~145°.

Q7. Why can't control car by infrared remote control?

A: First, we can use the mobile phone camera to aim at the indicator light of the infrared remote control, press the infrared remote control button, and check if the infrared remote control has a purple light flashing, indicating that the infrared remote control can transmit signals normally. Then, we need to upload the corresponding program and make sure that the program is uploaded successfully.

Lithium-ion battery safety specification

1. It is strictly forbidden to connect to equipment that exceeds the load used by the product.

2. Please use the official battery, power adapter provided by Yahboom.

3. When the battery level is too low, the buzzer will sound the alarm. At this time, we need to turn off the power switch and charge the battery.

4. Please turn off the power switch before charging. For safety reasons, the robot cannot be used during charging.

5. When charging, the indicator light of the charger is red; when the indicator light becomes green, it indicates that the battery is fully charged. When charging the battery, someone should take care of it. After charging, unplug the charger in time to avoid over-charging.

6. After use, the power switch should be turned off. When the device is not used for a long time, we should keep the battery voltage between 7.0V-7.8V. Remove the bottom battery box and unplug the battery cable, take out the lithium battery pack and place it in a battery safe area.

Do not mix with metal objects, and the insulating film wrapped outside cannot be torn off.

7. Keep away from heat, fire, any liquid. Don't use it in wet or rainy environments. Damp environment may cause the battery to ignite or even explode.

8. If the charger or battery pack smokes or is hot (the outer packaging will crack in severe cases) or the battery leaks, please disconnect the power strip or the main gate, then quickly pull out the charger, remove the battery and put it in an open area.

9. When the lithium battery pack or battery charger catches fire or smoke, please use sand or dry powder fire extinguisher to extinguish the fire, and then quickly evacuate to a safe area.

10. Don't use the battery when it is leaking, damaged, heated, deformed, discolored, smelly or any other abnormal phenomenon, and contact Yahboom or other agents in time.

11. Please use the battery at 0°C~45°C environment. The battery will be damaged or the discharge performance will be extremely reduced at other temperatures.

12. Deliberate piercing, short circuit, reverse connection, unauthorized welding, impact, extrusion and throwing of batteries are strictly prohibited.

13. Do not use the battery in a strong static and magnetic-field environment, otherwise the battery may leak fluid, catch fire or even explode.

14. It is strictly forbidden to modify the hardware circuit board without permission.

15. Do not allow children to replace batteries without adult supervision. Keep batteries out of the reach of children.

Solemnly declare: Users must read this manual carefully, especially the parameter indicators, precautions, etc., understand the use method and application range of the product. Any economic loss and safety accident caused by failure to comply with the above-mentioned lithium ion battery use specifications or operating errors shall be borne by the user.

Tutorial Link

<http://www.yahboom.net/study/Roboduino-V2>

Technical Support

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