KUMAN

Arduino DS Robot WiFi video smart robot

Instruction manual

Shenzhen China

FC CE RoHS

FCC ID: 2AI8ADSR51XR1MTPLA

About Us

Shen zhen KUMAN and XIAO R GEEKS Technology Co.,Ltd was founded in 2014 . Which is mainly engaged in the first person video control of the robot, it is based on WiFi wireless technology and MCU technology, research and development of smart car and robot teaching kit of solutions. And it is training create electronic laboratory enthusiasts to providingsystem of robot, hardware and software equipment and training course for domestic colleges and universities

The products include 51duino (8051), Arduino (AVR), STMduino (STM32), FPGA, Raspberry Pi, five hardware platforms, 40 kinds of morphology of the robot secondary development training package , while providing massive robot application tutorial, teaching case , sourcecode demo, to provide customers with a depth of learning, escalating teaching system.

We have a "XIAO R ecosystem", combined with XIAO R Robots-Store, online robot mall, technical forums, and offline distributors to build a sustainable, in-depth study, It can be continuously upgraded, gaining the return of the robot education ecological system. Which is quietly different from the traditional "just once trading" form of robotic products.

We have WiFi Robot Forum BBS "www.wifi-robots.com",a huge user base with more than 40 thousand members, 17 QQ exchange group.

The team "Heart to Perfection, Born for maker" is for the purpose of the content close to the fans and college electronics professional courses.The products are exported to overseas markets and innovating education, Zhejiang University, Wuhan University,Tongji University and other well-known institutions have long-term cooperation.Arduino DS Robot WiFi Video Car Robot is an educational and teaching robot kit based on the UNO R3 main controller and Robot-Link WiFi wireless video transmission module.

Product Introduction

- Arduino DS Robot WiFi Video Car Robot is an education and teaching robot kit based on the UNO R3 main controller and Robot-Link WiFi wireless video transmission module.

The main function :

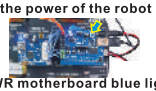
1.Use the phone, computer and other terminals, controlled by wireless WiFi
2.The robot can capture video data, and real-time transmission to control software.
3.Provided with the source code, you can carry out secondary development learning.
4.IO interface of the robot is completely open and can be easily extended to the sensor.
5.compatible with Arduino IDE, the use of graphical or code form of programming software, low degree of difficulty,Suitable for entry-level game players.

- XIAO R Technology Robots-Store "www.robots-store.com" provides a large number of robot application source code and tutorials, you can learn more robot programming and **development knowledge.**.
- XIAO R Technology Robot Forum: www.wifi-robots.com provides a technical discussion place for maker.

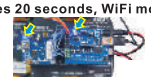
Steps for usage

Software download address:http://120.24.65.205:8888/xrsoftware

First, open the power of the robot car



Second, PWR motherboard blue light is on, Arduino motherboard green light flashes 20 seconds, WiFi module blue light flashing 20 seconds



Third, the use of mobile phones or computer for control

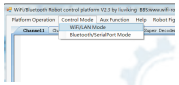
1 . PC control software

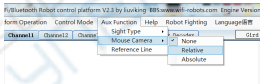
1, the computer connected to the wireless signal hotpot named 'wifi-robots.com' Android、PC

2, double-click the blue R icon to run the program.

iOS 控制端

3, select the type of language, the default is Chinese.
4, then you can see the software shows the robot camera to capture the video screen.
5, select the software above the menu "control mode-WiFi / network cable mode", you can use the keyboard WASD to control the movement of the robot.





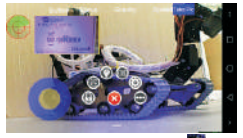
6,choose the software above the menu "Aux function->Mouse Camera" in the video screen can use the mouse to drag the motion control camera rotation.
7, more features described in more details: www.wifi-robots.com

2. mobile phone control software

1, download the XIAO R technology APK installation package and install to the phone (Android system); or scan QR code to install iOS APP (iOS System).
2, run APP, the first time to run it may need authorization, please follow the screen prompts to send ID to customer service, then connect the Internet , start the APP to complete the authorization, the device will be authorized operation only once.
3, complete the authorization, put the robot power on and wait for 20 seconds. Use the WiFi function of the mobile phone, searching the name of wifi-robots.com wireless signal and connect.
4, enter the control interface, then the screen background is the video captured by the robot
5, use the virtual joystick or button to control the direction of the robot action.
6, slide the screen to control the PTZ rotation
7,Use to lock current servos' angle,double click screen to make the servos turn to the angle which is locked.
8, more features described in: www.wifi-robots.com

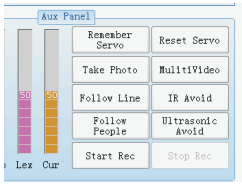
Fourth, the software switch follow line / ultrasonic obstacle avoidance mode tutorial

mobile phone software



Click on the button on the screen can call up the shortcut menu, click the button in the menu to bring up the expansion function mode interface.

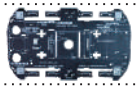
PC software



Aux-function mode command:

Follow the master: FF130100FF
Follow line: FF130200FF
Infrared obstruction: FF130300FF
Ultrasonic obstacle avoidance: FF130400FF
Manual control: FF130000FF

Parts list

Arduino UNO R3 compatible motherboard * 1		Instructions* 1 DVD * 1	
PWR.AR power supply and motor drive shell board * 1		8.4V lithium battery; charger * 1	
Robot-Link WiFi wireless video and data transfer module * 1 (including 2Db antenna)		Programming USB line (blue)	
Robot-Eye robot USB camera * 1		Hardware connection includes (M3 long screw * 8 M3 nut* 22 nylon column * 8 USB port line * 1 Data line * 1 Motor wire * 1)	
PCB multi-function chassis*1		2200mah 8A protection board lithium battery pack * 1	
Solid rubber tires * 4 high power motors * 4			
Two degrees of freedom video PTZ * 1 (with SG90 servo * 2)		【sensors version】 Infrared follow line sensor * 2 Ultrasonic obstacle avoidance sensor * 1 Dupont Line*4	

Frequently Asked Questions and Troubleshooting Methods

1: Turn on the switch, you can search for the robot's wireless signal, but can not be connected or can not be a stable connection.
Solution: Please get the robot fully charged before trying to control.

2: Turn on the switch, the robot's WiFi module LED lights have been flashing non-stop.
Solution: 1),Electrifying moment, fast continuous press Reset WiFi module.until the module's LED lights flash quickly. Use RJ45 cable to connect the WiFi module and PC, thePC's local IP is set to 192.168.1.3 play Open the PC command prompt window, execute the command telnet 192.168.1.1; and then execute the command firstboot; and power-off restart.
Solution: 2) If the first step does not work, please contact customer service assistance toresolve

3:Open the PC control client software, prompted the need to install. Net framework components.
Solution: Baidu or Google keyword ". Net framework download" to find the system prompts framework version, download and install it.

4:PC client software can not control the robot, mobile phone or Pad client can be controled.
Solution: 1), Turn off the PC firewall
Solution: 2), Remove the PC's RJ45 cable, and restart the computer.
Solution: 3), Using another computer for comparison.

5:Search the robot's signal, it can display the robot's video, but the PC client software and the mobile phone Client software are unable to control the robot.
Solution: 1) Check the rear of the MICRO USB (non-side serial pins) jumper cap pin position to ensure that two jumper caps are installed.
Solution: 2), Replace the USB data cable.
Solution: 3), The above steps do not work with the browser login 192.168.1.1 WIFI module management interface (password admin), find the system classification, in the classification of a factory reset button (perform reset), the implementation of a recovery Factory settings.
Solution: 4), If you can not control, please observe the switch on the main board, the blue LED lights flashing about 30 seconds, if not flashing, please re-burn the main control program.

6:You can control the robot, but the directions are disorder.
Solution: In the setting page of the control software,replace the opposite action instructions, and save.

7:There is no problem with the video, option WiFi mode selection of PC control software, the software pop-up error warning prompt box .
Solution: 1), Turn off the computer firewall, restart the car and software, waiting for about 30 seconds, , the WiFi module system initialization completed after the connection
Solution: 2), Use the browser login 192.168.1.1WiFi module management interface, the WiFi module to restore a factory settings (see question 5).

8:PC client select WiFi mode, there is no warning tips, but can not control the car, mobile client can control.
Solution: 1), Use the browser login 192.168.1.1WIFI module management interface, the WIFI module to restore a factory settings (see question 5).
Solution: 2), If the first step is still not working, it may be the MicroUSB interface loose, resulting in data can not be transmitted through the USB data wire to the main control board, then the TTL serial port pin with the DuPont line in the WiFi module on the other side,the WiFi module RXD and the main control board TX is connected, TXD and the main control board RX Connected, GND connected to the main control board GND. If still can not be controlled, Exchange the connection position of the TX and RX (two DuPont line).

9: Electricity or mechanical arm to head stuck in the position, the abnormal noises.
Solution: Disconnect all steering gear or Cloud Terrace, then refer to the tutorial: one by one to access the steering gear, adjust the appropriate angle of each servo in turn, and lock the current appropriate angle.

10: The camera back to the video is not clear enough : manually rotate the cameralens, adjust the focal length.

11: Camera without image, the robot can control.
Solution: 1), Check if the camera's USB interface is connected.
Solution:2), The camera connected to the computer, try QQ video chat, verify the camera is intact, such as the computer can not be used, please contact customer service replacement camera.

12: The effective control of the robot is very close (less than 2 meters)
Solution: 1), Check if the antenna is loose, please tighten.
Solution: 2), Avoid the use of many wireless routers in the surrounding environment.
Solution: 3), Use the browser to log in the management interface of the 192.168.1.1 WiFi module, in the "Wifi" classification, the default channel 11 switch to 1 or 3, and save settings

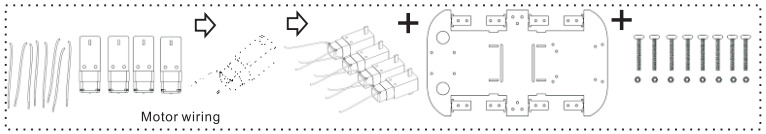
13: Manual control mode is normal, patrol escape or other automatic mode robot motion disorder.
Solution: 1), According to the tutorial, check carefully if the sensor wiring is correct, and if the sensitivity adjustment is correct.
Solution: 2), In the line vault or other automatic mode, the robot should be the overall performance of the forward state, respectively, to observe the left and right side of the motor rotation direction, and the side of the motor on the side of the line change position, so that the vehicle was forward state, And then refer to "Problem 6" to adjust the robot direction in manual mode.

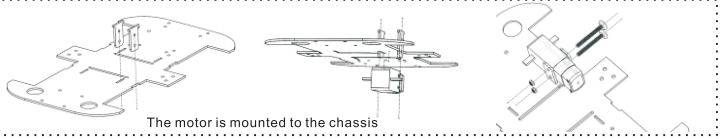
14: After making contact , the robot move around regularly, out of control.
Solution: Let the car run 15S, it will automatically exit the test mode; if not, please contact customer service.

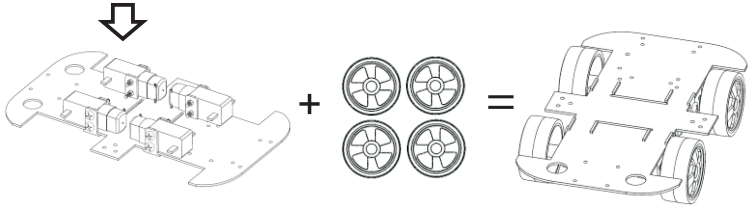
15: Secondary development, the robot can not be controlled to download the master program
Solution: 1), Remove the USB data wire connected to the main control board.
Solution: 2), Reduce the baud rate of the burning software. 3), replace the burning tool hardware or computer.

16: USB connection is correct, turn on the switch,the WiFi module LED light does not bright, and the wireless signal cannot be found.
Solution: Check the WiFi module R68 silk screen at the resistance of the external force is knocked off, if you have to touch please contact customer service.

1.Chassis assembly

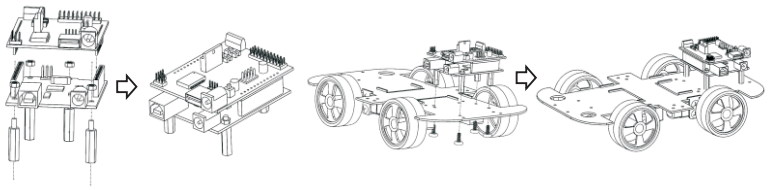




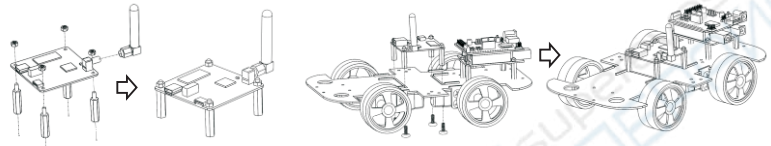


Motor connection: the same side of the two motors, wiring copper solid line and the dotted line in parallel and connected to the drive board corresponding to the motor interface: M1 +, M1- and M2 +, M2-

2.drive board combination

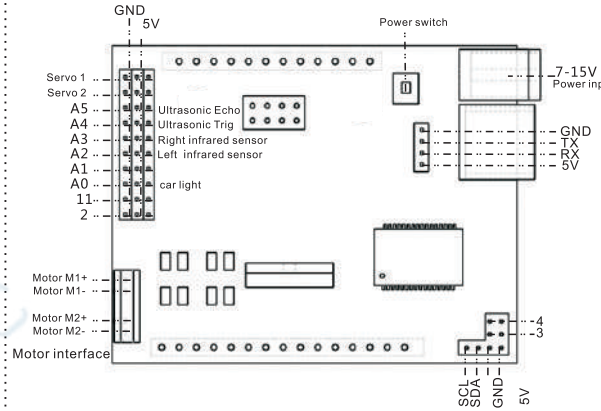


3.WiFi board combination



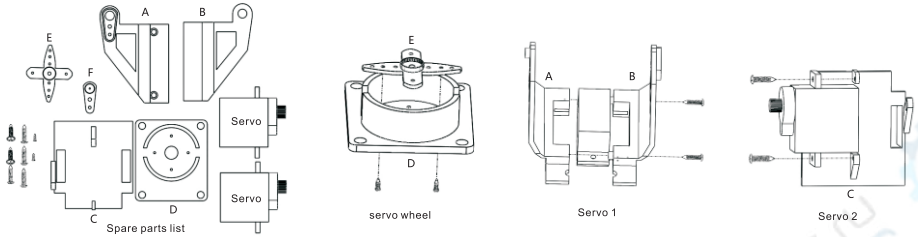
[pay attention]Pay special attention to the WiFi module to install the nylon column, we must pay attention to the WiFi module on the R68 mark at the resistance, it is recommended to keep the nuts do not move,
The other side of the rotation of the nylon column to install the way, otherwise the rotation of the nut side is likely to lead to R68 resistance was external force off.

PWR Motherboard Introduction



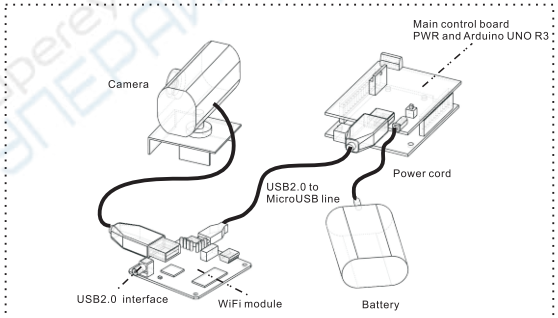
Main board interface define: Yellow-IO Red-VCC Black-GND

4.Camera,PTZ(Cradle) assembly



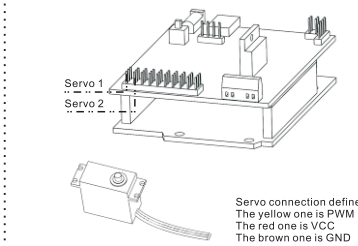
Electronic system wiring diagram

Note: exposed electronic systems are forbidden to do static testing!



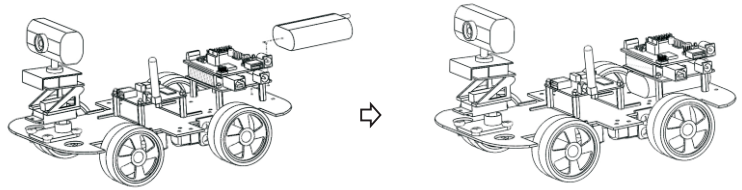
Note: the battery is connected to the power supply interface of the PWR board

Connection between PTZ and Arduino

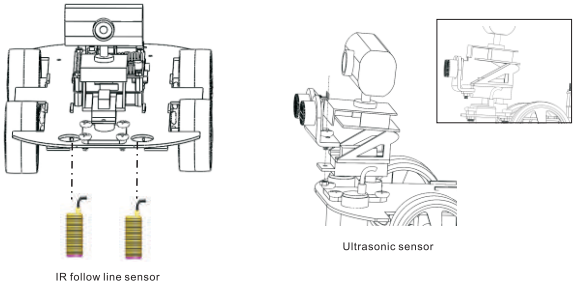


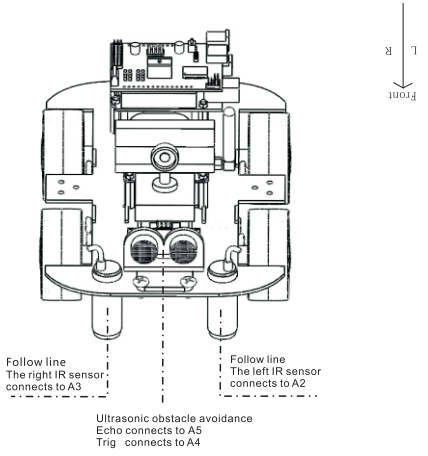
See the fourth step of the cloud terrace steering engine

5.Battery installation



Sensor details





Please pay attention to the positive and negative of the IR follow line sensors, The sensor needs to adjust the tail of the sensitivity knob untill the red light up when facing the normal ground and light off when facingthe black line.