Raspberry pi 3B WiFi video robot kit
Instruction manual

Shenzhen • China

FC CE RoHS

Product Introduction

● Raspberry Pi DS Robot base on Raspberry Pi 3B+ mainboard and PWR.A53 robot driver module,which is a robot for education and teaching

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.Use cross platform Python language to program, suitable for those players who fami-liar with raspberry pi
● XIAO R Technology Robot Forum:http://www.robotsfans.com provides a technical discussion place for maker.

Parts list

|			
PWR.A53.APower and motor driver board		Instructions DVD	
8G Micro SDcard		8.4V lithium battery charger	
Robot-Eye robot USB camera		Hardware connection includes (M3 long screw M3 nut* 22 nylon column Data line Motor wire)	X8 X8 X22
PCB multi-function chassis			
rubber tires motors		2200mah 8A protection board lithium battery pack	
Two degrees of freedom video PTZ(Camera cradle) (with SG90 servo)			

First, open the power of the robot car

Second,The red light will on after power on,About 25S later blue light running water, red light on, bule light off.The bule light will twinkle when cellphone controls car direction and PZT

Third,Wait 40 seconds,use mobile phone or PC to control robot.

1．PC control software

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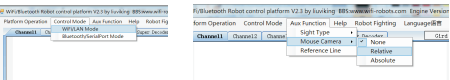
Android、PC
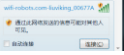
iOS software

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

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.

2．mobile phone control software

1, download the XIAO R technology APK installation package and install to the phone (Android sys-tem); 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 PZT rotation
7,Use to lock current servos' angle,double click screen to make the servos turn to the angle which is locked.
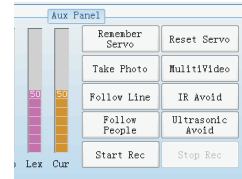
Fourth, the software switch follow line / ultrasonic obstacle avoidance mode tutorial

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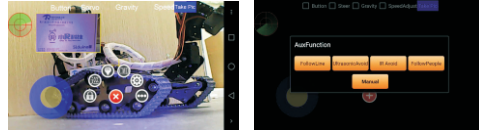
Click on the button on the screen can call up the shortcut menu,
click the button in the menu to bring up the expansion function mode interface.

PC software

Aux-function mode command:
Follow the master: FF130100FF
Follow line: FF130200FF
Infrared obstruction: FF130300FF
Ultrasonic obstacle avoidance: FF130400FF
Manual control: FF130000FF
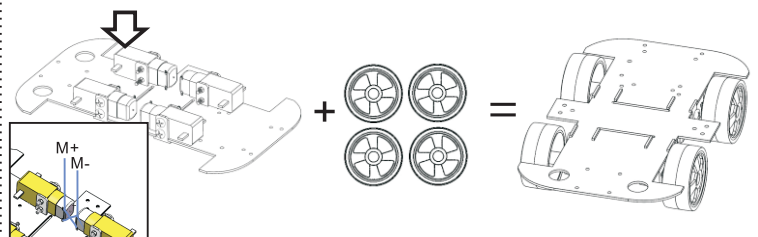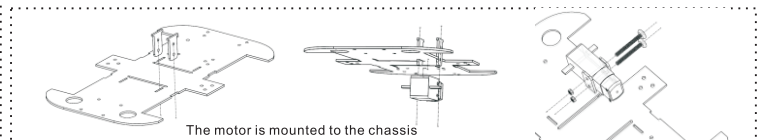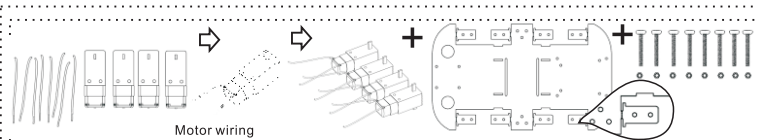
Frequently Asked Questions and Troubleshooting Methods

❶ : 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.

❷ : Turn on the switch, can not search wireless signals from robots.
Solution: Check if the camera is connected to Raspberry pi.

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

❹ :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.

❺ :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: Update the latest version of the control software.

❻ :You can control the robot, but the directions are disorder.
Solution: In the setting page of the control software, replace the opposite action instruc-tions,and save.

❼ :There is no problem with the video, option WiFi mode selection of PC control software, the software pop-up error warning prompt box .
Solution: Turn off the computer firewall, restart the robot and software, waiting for about 40 seconds, the WiFi module system initialization completed after the connection.

❽ : Electricity or mechanical arm to head stuck in the position, the abnormal noises.
Solution: Disconnect all servos or camera cradle(PTZ), then refer to the tutorial: one by one to access the servos, adjust the appropriate angle of each servo in turn, and lock the current appropriate angle.

❾ : The camera back to the video is not clear enough : manually rotate the camera lens, adjust the focal length

❿ : Camera without image, the robot can be controlled
Solution: 1), Check if the camera's USB interface is connected
Solution:2), The camera connected to the computer, verify the camera is intact, such as the computer can not be used, please contact customer service repla cement camera.

⓫ : The effective control of the robot is very close (less than 2 meters)
Solution: Avoid the use of many wireless routers around

⓬ : 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.

System information

XIAO R Geek Technology provides WIN10 IOT and UBNTUN MATE with full functions.
1. Some combo offers 8G SD card, the default OS is Ubuntu mate. robot driver, GPIO library, opencv2 are preloaded, the remaining space is 2G.
2. SSH enabled, ACCOUNT: liuviking PASSWORD: adminadmin Wireless SSID: wifi-robots.com PASSWORD: 12345678 IP address: 192.168.1.1, the RJ45 internet port is stastic IP, address is: 192.168.88.2.

1.Chassis assembly

Motor wiring

Attention: Remove 8 pieces of motor fixed mounts

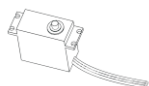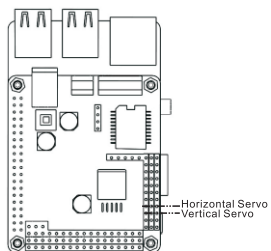The motor is mounted to the chassis

M+
M-

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-
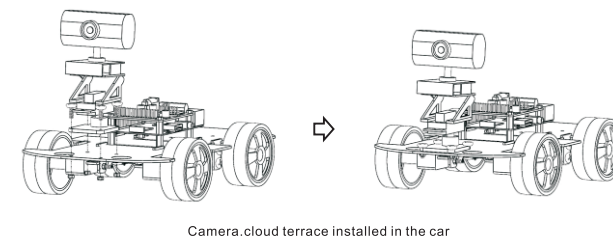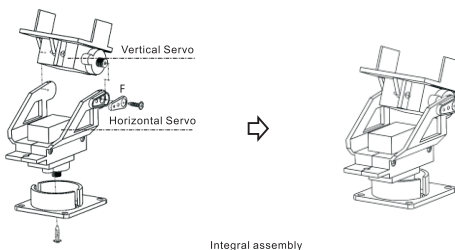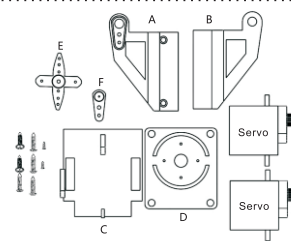
2.Drive board and Raspberry Pi combination
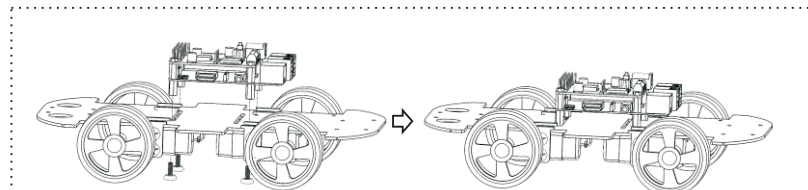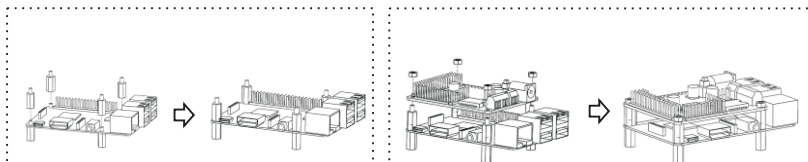
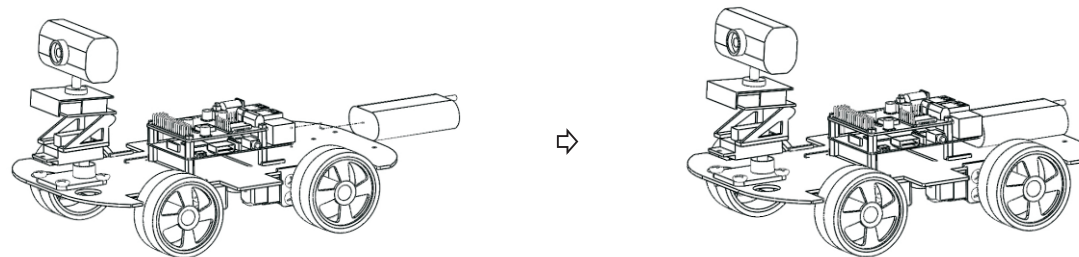## Connection between PTZ(Camera cradle) and PWR board

Horizontal Servo
Vertical Servo

Servo connection define:
The yellow one is PWM
The red one is VCC
The brown one is GND

See the fourth step of the cloud terrace steering engine

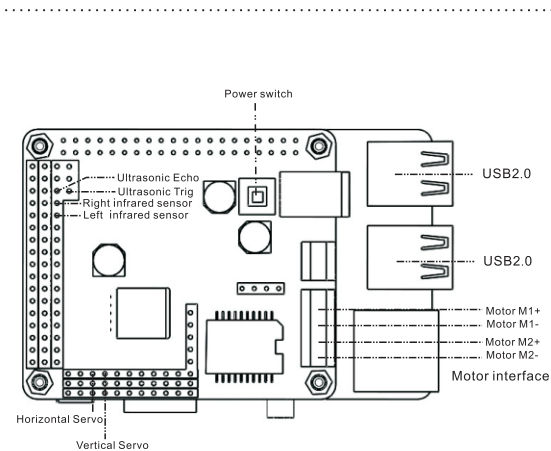# 3.Camera,PTZ(Cradle) assembly

A   B
E
F
Servo
Servo
C   D
Spare parts list

E
D
servo wheel

A   B
Horizontal Servo

C
Vertical Servo

Vertical Servo
F
Horizontal Servo

Integral assembly

Camera.cloud terrace installed in the car

4.battery installation

PWR   Mainboard   Introduction

Power switch

Ultrasonic Echo
Ultrasonic Trig
Right infrared sensor
Left infrared sensor

USB2.0

USB2.0

Motor M1+
Motor M1-
Motor M2+
Motor M2-
Motor interface

Horizontal Servo

Vertical Servo

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

Electronic system wiring diagram

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

PWR board

Camera

Battery

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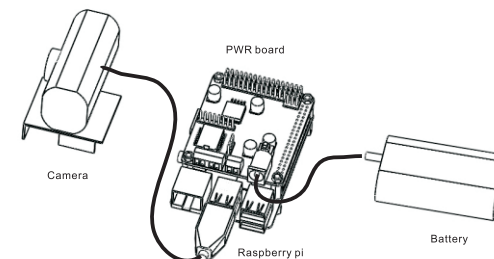
Note: the battery is connected to the power supply interface of the PWR board