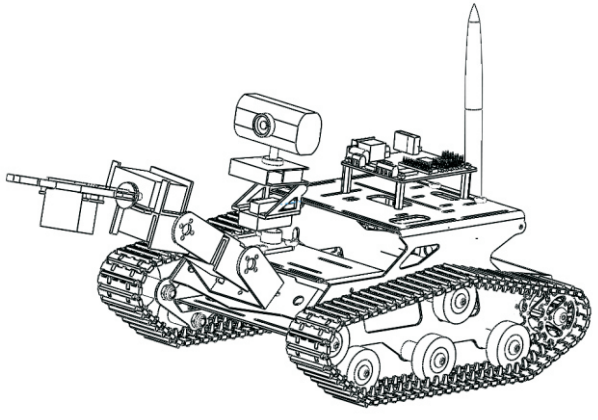


Heart to perfection 、Born for maker

小R科技
XIAO R GEEK TECHNOLOGY

Xiao R Robots Instructions



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Solemnly declare

Solemnly declare:

1、The technical data and the copyright of system software which are provided by this product one and only belongs to the Shenzhen Xiao Er Geek technology Co., LTD. (Xiao R technology Co.,LTD),and the use is protected by the copyright law of the People's Republic of China. Without the written permission, any unit or individual shall not sell , rental, copy, modify, or disclose the technical data and software content to third parties, and your side will beheld responsible for all the consequences for its all property property disputes which creatived by the technical data or softwareversion .

2、This product is suitable for 12 years of age and older users, and enthusiasts and education or teaching aims, shall not suitable for industrial, consumer, military and other fields.

3、Please use the battery and electronic accessories as our company standard. If the users change to the other accessories ,all mistakes or damages of robot can not enjoy the warranty.

4、The company reserves the right to change without prior notice of this products described in this manual. For printing errors and program changes ,the company can make the necessary changes at any time to the new manual.

5、The company reserves the rights of software upgrade and interests of the final function at the actual situation in the machine,and the company has the final explanation right.

6、I have carefully read and noted the best statement of the content.

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一、 The list of items

一、DS Robot

①、PCB material chassis*1
②、Main control board *1
③、Regulated power supply and motor driver board(PWR board)*1
(no this type in 51duino)
④、Robot-Link WiFi video data module*1
⑤、Robot-Eyes USB camera*1
⑥、Te battery and the charger*1
⑦、The wheels and motor*4
⑧、SG90 servo *2
⑨、The nylon parts of cradle*1
⑩、USB2.0 to MicroUSB cable *1
⑪、Hardware in bag*1
⑫、Wire *1

二、TH Robot

①、Crawler chassis*1
②、Main control board *1
③、Regulated power supply and motor driver board(PWR board)*1
(no this type in 51duino)
④、Robot-Link WiFi video data module*1
⑤、Robot-Eyes USB camera*1
⑥、Te battery and the charger*1
⑦、SG90 servo*2
⑧、The nylon parts of cradle*1
⑨、USB2.0 to MicroUSB cable *1
⑩、Hardware in bag*1
⑪、Wire*1
⑫、Four degrees of freedom manipulator
(The version with manipulator)
⑬、Driver board of manipulator(The version with manipulator)
⑭、Extension card of motor*3(The version with manipulator)
⑮、Infrared sensor*2 (The version with line patrol)
infrared sensor*3
(The version with line patrol&obstacle avoidance & following)
⑯、Uitrasonic sensors*1(The version with obstacle avoidance)
⑰、Miunting base of sensor(The version with sensor)

Note (Each product packages are not the same,the real object should be considered as final actual purchase of goods)

二、 Matters needing attention

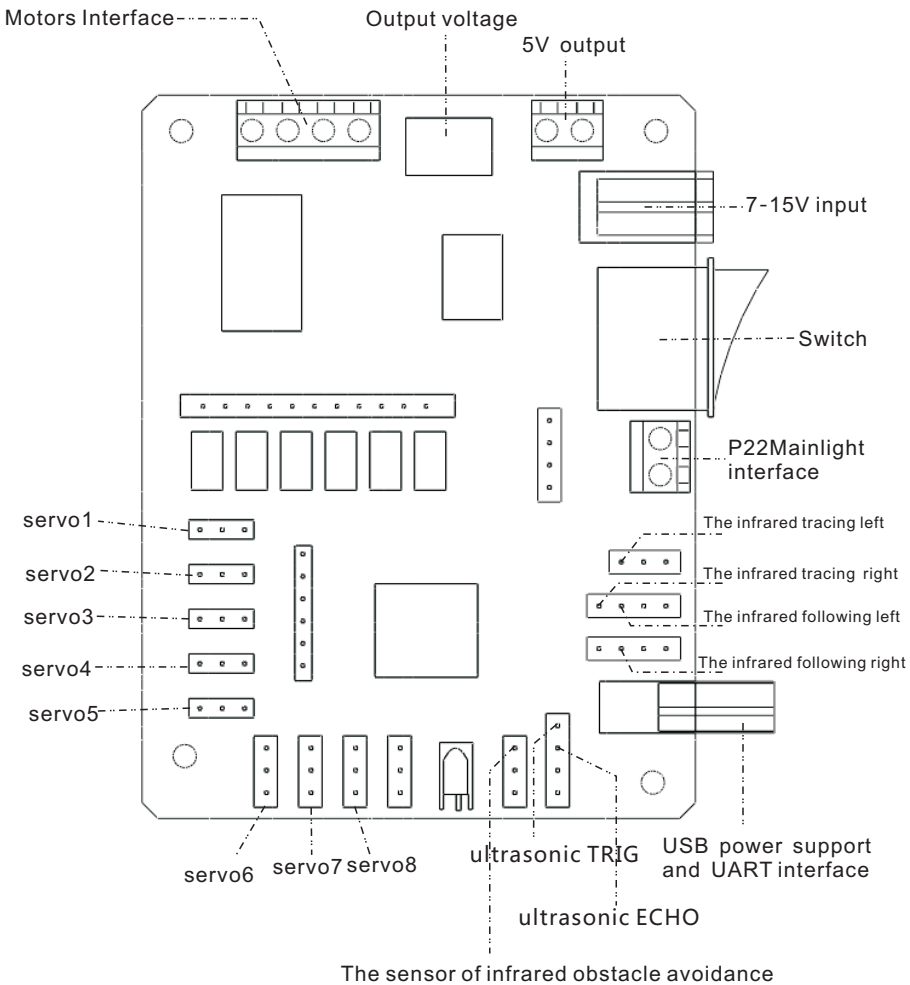
1, please do not install the battery in the mother board at first step. It will easily burned circuit because of short circuit while installing, please install the other electrical equipment, and then put the battery into the main control board.
2, Before power on, please carefully check the wiring is correct, if there are other metal objects on the circuit board, eliminate all short circuit conditions before you can turn it on.
3, The battery is not allowed to inversely connect, otherwise it will cause irreversible damage.
4, The robot only allows one client software access at a time, if you have a client software in the control condition, it needs to quit the current clientsoftware to access another new one.
5, 【Special attention】Before electrify the robot with cradle or robotic arm,the users should read specification of client software, then according it to adjust the angle of each steering gear,finally use the 'locking' function to lock all angles of servo. Without this step, it will lead to the servo damage cause long time to go to the unavailable zone.
6,【Special attention】Please do not turn on the robot when TX, RX of WiFi board in short circuit conditions, otherwise it will cause the lights in WiFi board always shining, and the users can not search the single. Find more solve ways in Common problems and trouble shooting solution.
7,【Special attention】Note: when installing nylon column to the WiFi module, it is important to note that resistance in R68 mark on the WiFi module.We suggest clamp nut not moving,and use the rotating way to install the column nylon on the otherside, otherwise the rotary nut in this side of is likely to lead to R68 resistance touch off by external forces.

三、Common problems and trouble shooting solution

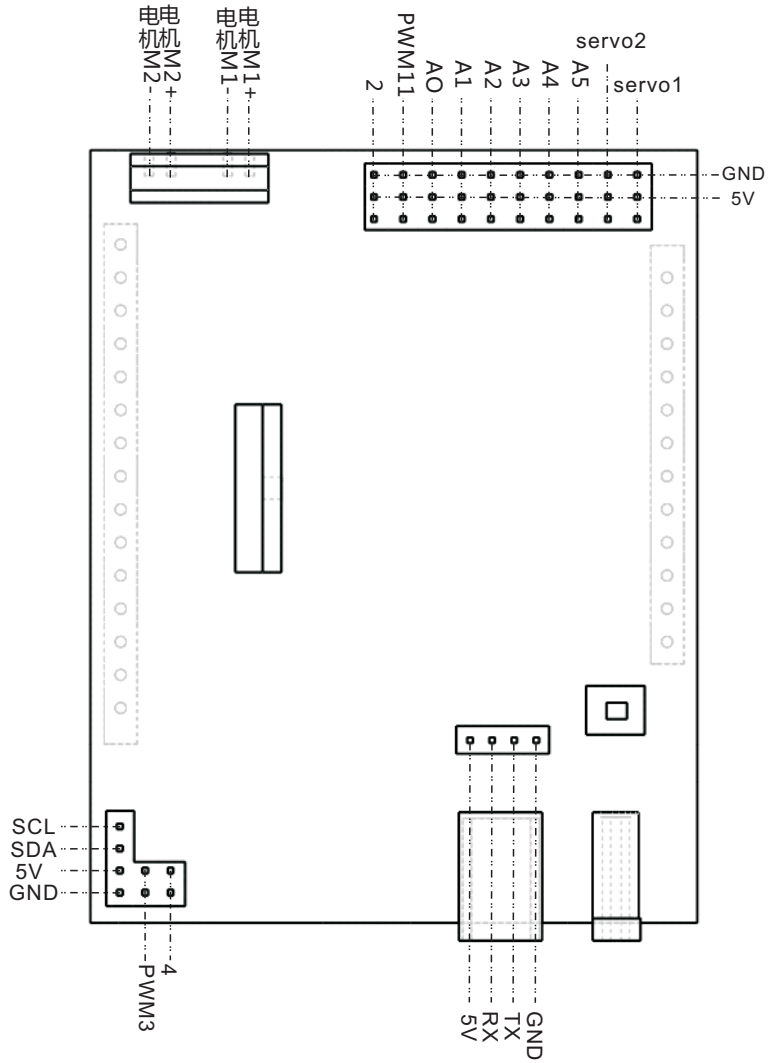
Q1: The power is on, and I can search the wifi signal of robot, but I can not or hardly connect .
S:Please charge up the battery of robot and then try to control again.
Q2:Turn on the switch, the LED light of WiFi module is blinking continuously .
S:1).At the moment of power on, quickly press the Reset button of Wifi board rapidly and continuously, until the LED light is blinking quickly. Use the Rj45 cable to connect Wifi board and PC, then set the local IP as 192.168.1.3, run command ‘telnet 192.168.1.1' in CMD,and run command ‘firstboot’.
2).If the first step is not working, please contact the customer servicer to solve this problem.
Q3: Open the client software of PC, showing that I should set up the software of .net framework.
S: 1). Google or Baidu the keywords'.net framework download', find the version of framework, download and install it.
Q4: The software of computer can not control the robot, but mobile phone or Pad can.
S:1).Close the firewall of computer.
2).Remove the RJ45 Ethernet cable of PC, then restart computer.
3).Use the another computer to contrast.
Q5: You can search the signature of robot, and it can show the radio of robot, but the software of PC and mobile phone can not control the robot.
S:1). Plug the two jumper cap, make sure the instruction transmission is correct.
2).change the USB cable.
3). If the steps as above is not working, please use the explorer to log in 192.168.1.1 which is a management interface of Wifi board (The code is admin), find the classification of system, then press the button of restore the factory settings.
Q6: The robot can be controlled, but the direction of all side is on the contrary.
S: in setting version of upper machine, change the instruction of opposite action, then save it.
Q7: The video is no problem, but when choosing the Wifi mode options of controlling software in computer, the software will display a wrong pop-up hint box.
S:1). Close the firewll of computer, restart the robot and software, wait for about 30 seconds, then connect after module system initialization is complete.
2).Use the explorer to land in 192.168.1.1 management interface module, restore the factory settings again.(These questions are provided in Q5)
Q8: Choosing the Wifi mode in PC client software, there is not a wrong pop-up hint box, but can not control the robot car, but mobile phone can.
S:1). Use the explorer to log in 192.168.1.1 management interface module, restore the factory settings again.(These questions are provided in Q5)
2).If the first step is not working, maybe the MicroUSB is loose, it cause the data can not pass through the USB cable to the main board. At the same time, use the Dupont Line in TTL serial port pin of WiFi module

Q9: The cradle or robotic arm make noise when turn to the dead zone of position.
S: Stop the servo of cradle and arms, then connect each servo according to the instruction , and adjust the angle and lock the proper one.
Q10:The video of camera is not clear.
S: Rotating camera lens by hands, adjust the focal length.
Q11: The camera has no photos, the robot can control.
S:1). Check the USB interface is connecting correctly.
2).Use the camera with computer, try to chat by video, make sure the camera is perfect, if it can not be used by computer, please contact customer servicer to change it.
Q12: The distance of robot controlling is near (less than 2 meters)
S:1). Check whether the antenna is loose, please tighten. 2), Avoid using the robot surrounding the environment of many wireless router. 3), using the explorer login 192.168.1.1 WiFi module management interface, Under the "WiFi" category, change the channel eleven (11) to 1 or 3, and save the Settings.
Q13: Manual control mode is normal, but the robot movement is amiss in line walking and obstacle avoidance and other mode of automatic.
S:1). According to the tutorial, carefully check if the sensor wiring is correct, the sensitivity adjustment is correct.
2).In the patrol still or other automatic mode, the robot should be overall performance for the forward, please observe left and right side of the motor rotation direction, exchange the position of the retreat side of motor wiring, making the state of the vehicle go forward, and then refer to "Q6" adjust the direction of the robot in manual control mode.
Q14: After electrify, robot itself regularly move around, uncontrolled.
S: 1.Contact client servicer, quit the test mode.
Q15: The users can not download burning program when secondary development.
S: 1).Remove the USB cable which is connected with the main control board.
2).Reduce the baud rate of the burning software.
3). Replace the burn tool or computer .
Q16:The USB is installed correctly, and turn on the switch, the LED light is not on in WiFi module, and can not find the Wireless signal.
S:Checking whether the R68 resistance touch off by external forces. If off, please contact the client servicer to solve it.

四、Mainboard instructions
—— 51duino Mainboard



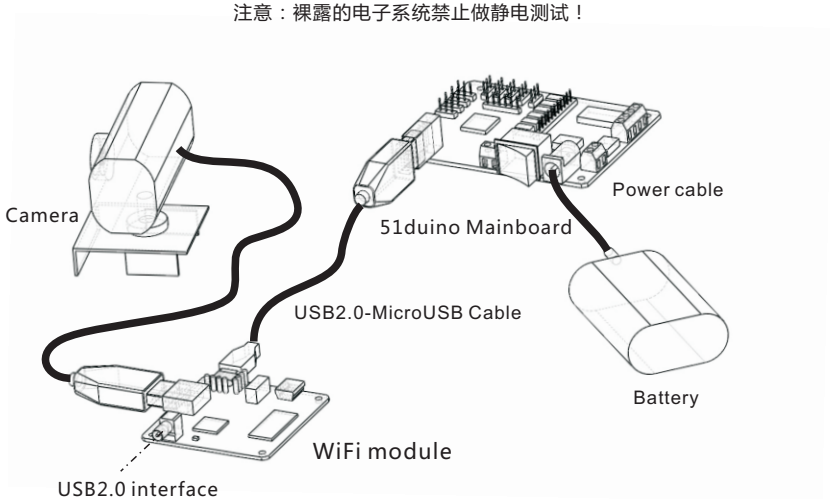
Arduino PWR Power–Motor driver board



五、Assembly drawings

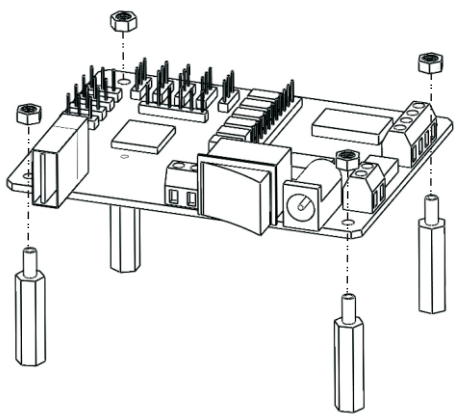
5.1、Integral wiring diagram of electronic system for 51duino

注意：裸露的电子系统禁止做静电测试！



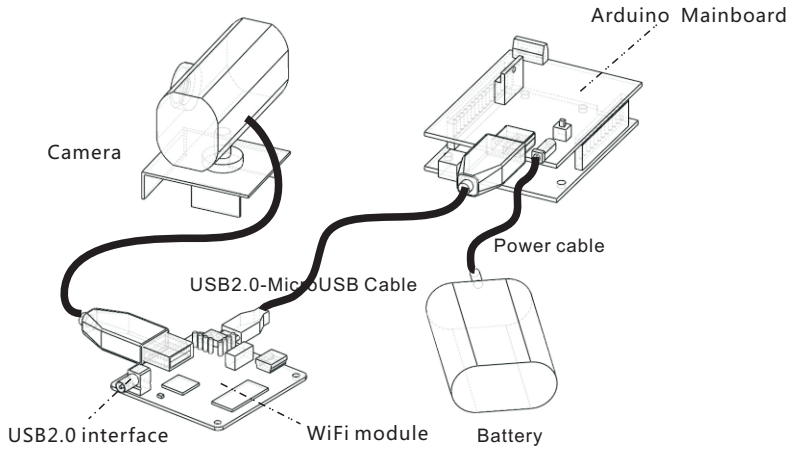
5.2、Hardware installation

5.2.1、 Hardware installation for 51duino

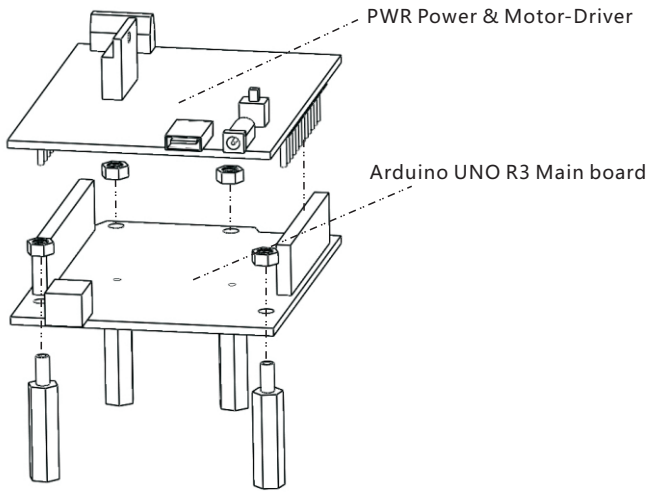


5.1、Integral wiring diagram of electronic system for Arduino

注意：裸露的电子系统禁止做静电测试！

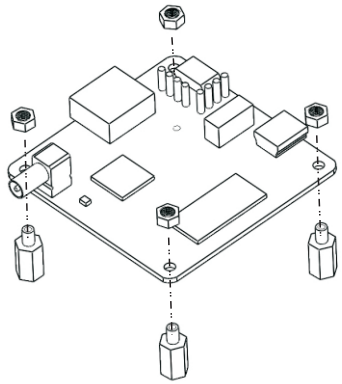


5.2.1、 Hardware installation for Arduino

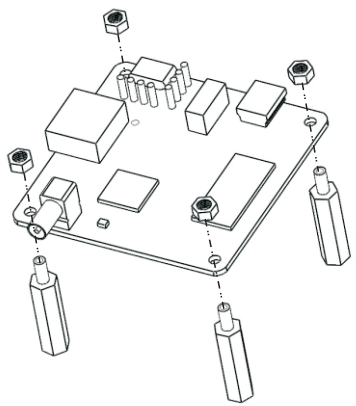


5.2.2 、 Robot Link WiFi installation

a) 、Use short nylon columns to fix WiFi board in TH Robot



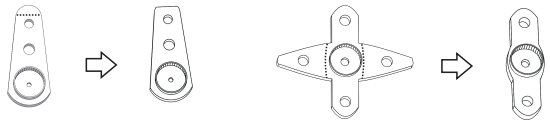
b) 、Use long nylon columns to fix WiFi board in DS Robot



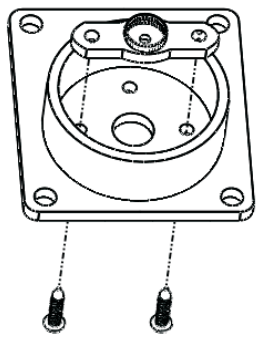
【Special attention】Note: when installing nylon column to the WiFi module, it is important to note that resistance in R68 mark on the WiFi module.We suggest clamp nut not moving, and use the rotating way to install the column nylon on the otherside, otherwise the rotary nut in this side of is likely to lead to R68 resistance touch off by external forces.

5.2.3、 Assembly drawings for Camera and Cradle

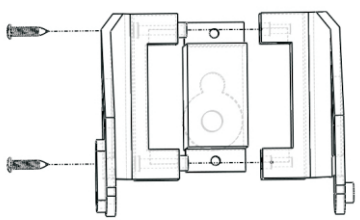
Servo wheel may not suitable for cradle,manual cut it



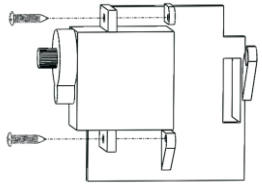
Follow the drawings to install the cradle ,use screw to fix parts



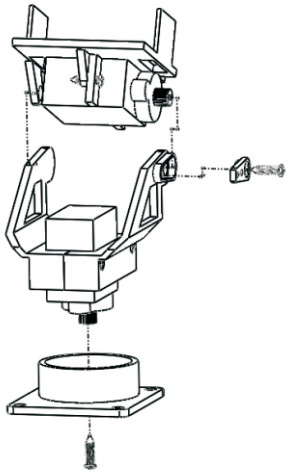
(1)



(2)

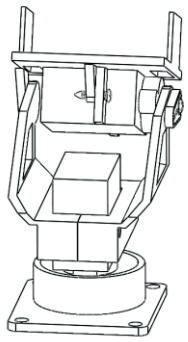


(3)



(4)

assemble the parts of cradle and servos

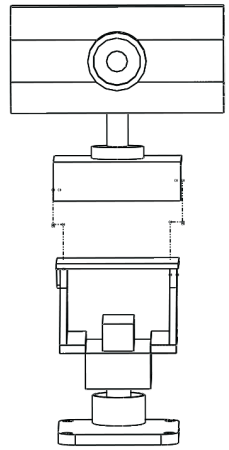


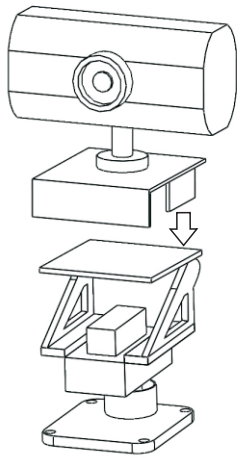
(5)

Final product

5.2.3、 Assembly drawings for Camera and Cradle

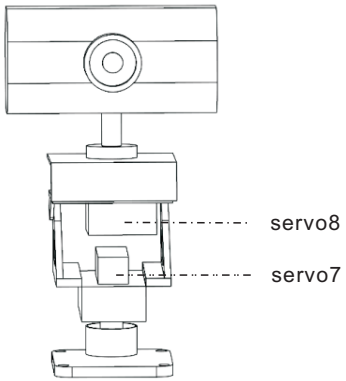
Camera and Cradle installation

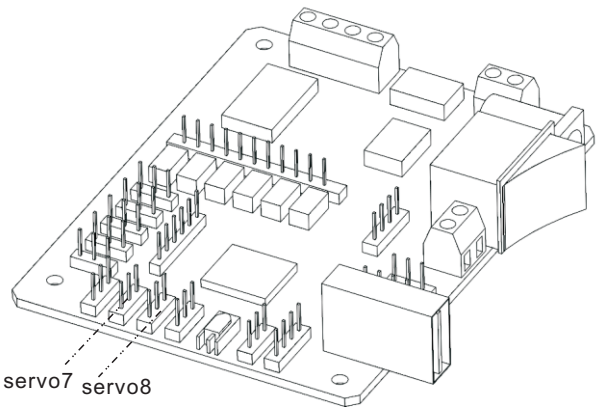


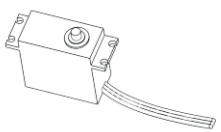


5.2.3、Assembly drawings for Camera and Cradle

The connection of cradle with 51duino main board

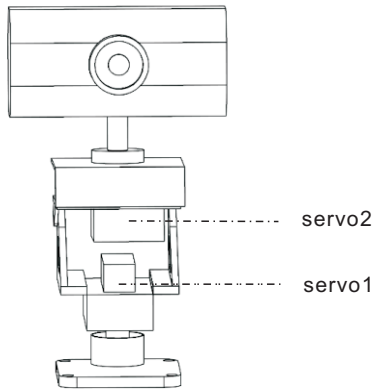


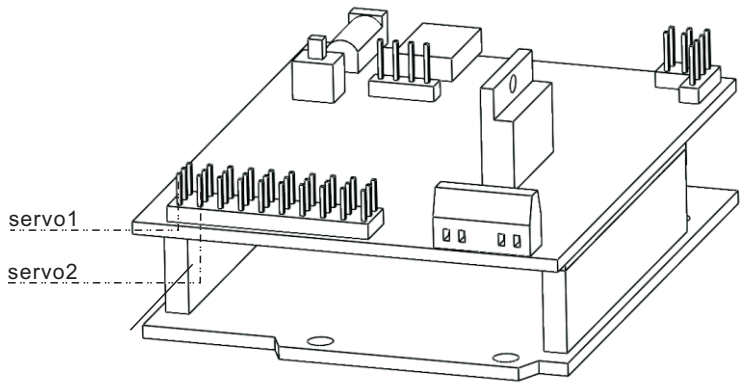


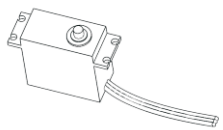


The connection of servo:
The yellow one is PWM
The red one is VCC
The brown one is GND

The connection of cradle with Arduino main board

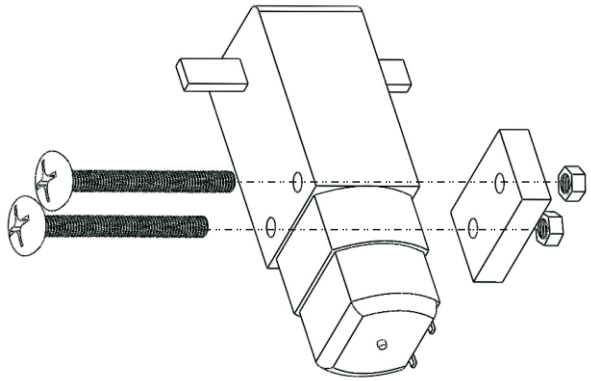




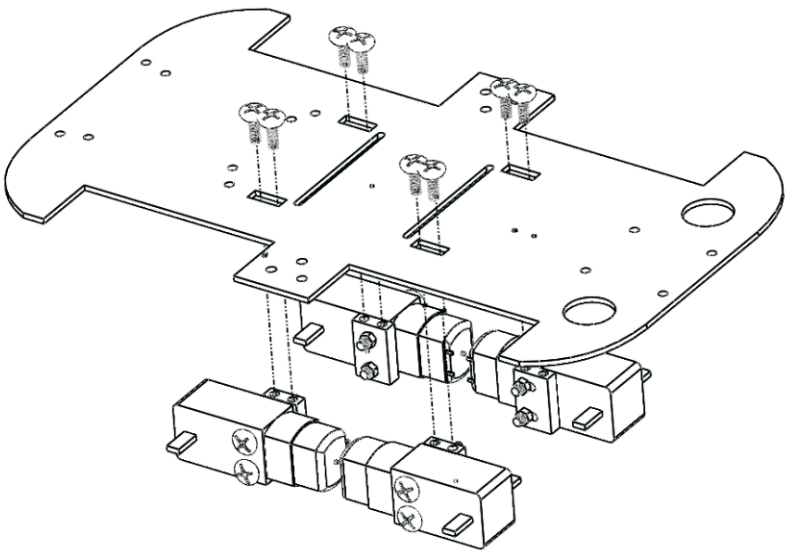


The connection of servo:
The yellow one is PWM
The red one is VCC
The brown one is GND

5.2.4 Motors assembly（DS only）

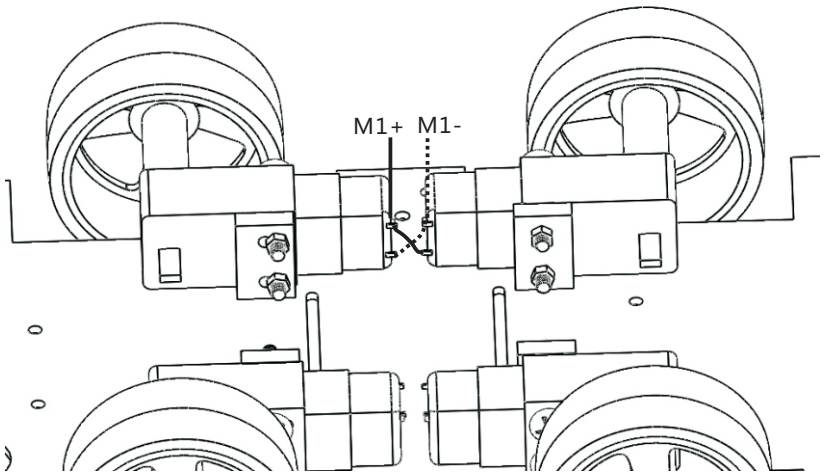


Motors Installation tutorial



Motor installation

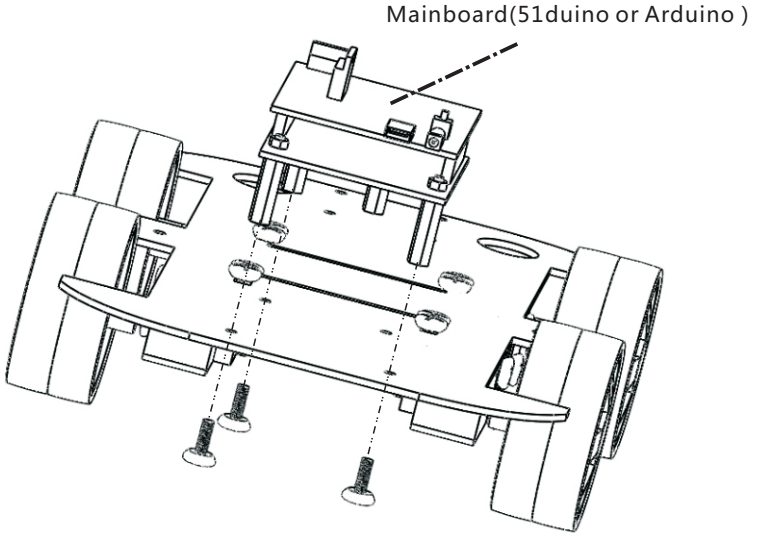
Motor connect installation



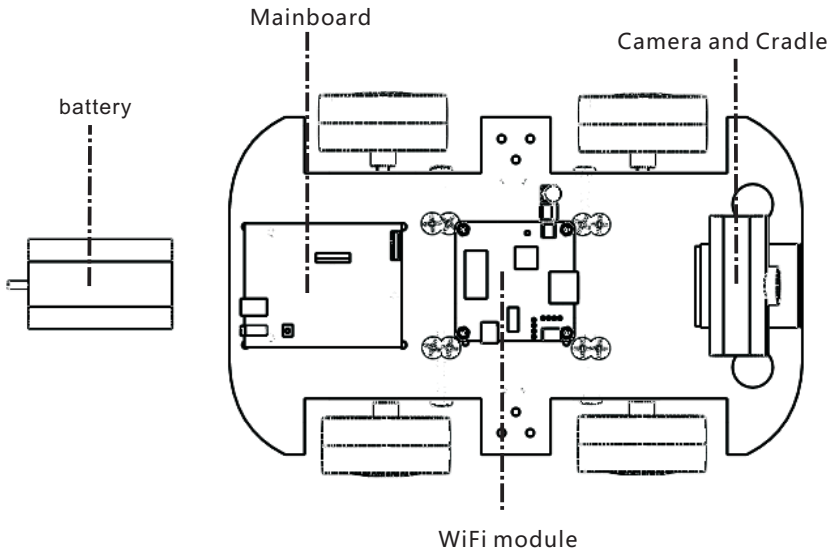
Parallel connect the same side of motors in cross ,then connect to motor interface M1+, M1- or M2+,M2- in mainboard.

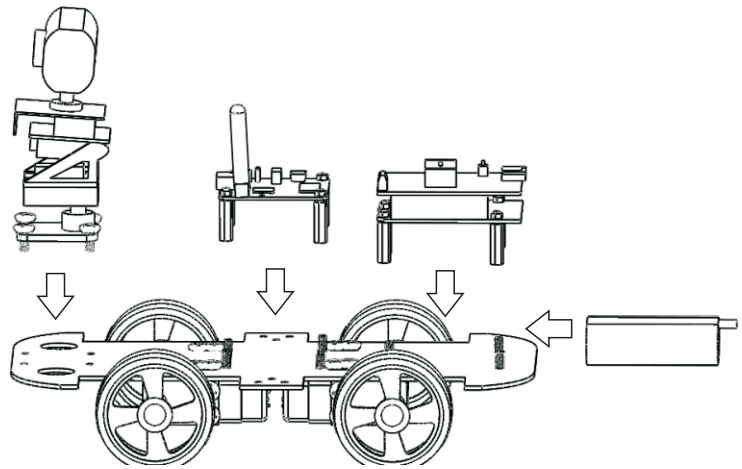
5.3 Assembly drawings overview for DS Robot

Installation of electronic systems Ⅰ



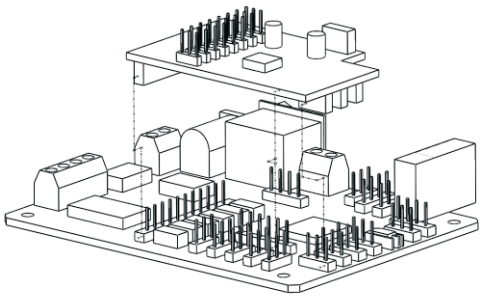
Installation of electronic systems Ⅱ

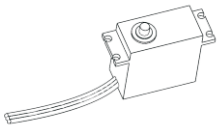




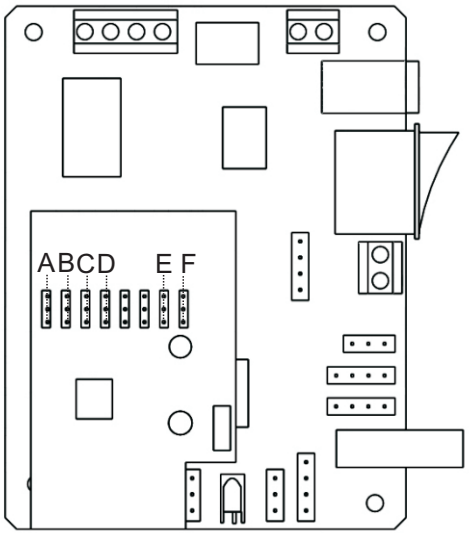
5.4 Assembly drawings overview for TH Robot

5.4.1 、The electronic system installation of 51 duino manipulator



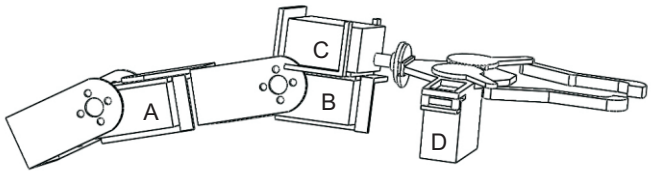


The connection of servo:
The yellow one is PWM
The red one is VCC
The brown one is GND

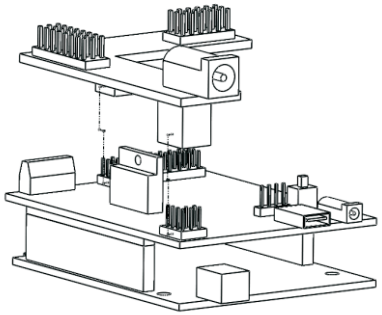


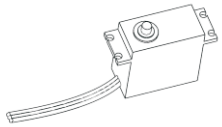
Connection details:
Maintaining a strict one-to-one correlation between ABCD in main board and mechanical hand , E F is cradle interface

【Special attention】Before electrify the robot with cradle or robotic arm, the users should read specification of client software,then according it to adjust the angle of each steering gear,finally use the 'locking' function to lock all angles of servo. Without this step, it will lead to the servo damage cause long time to go to the unavailable zone.

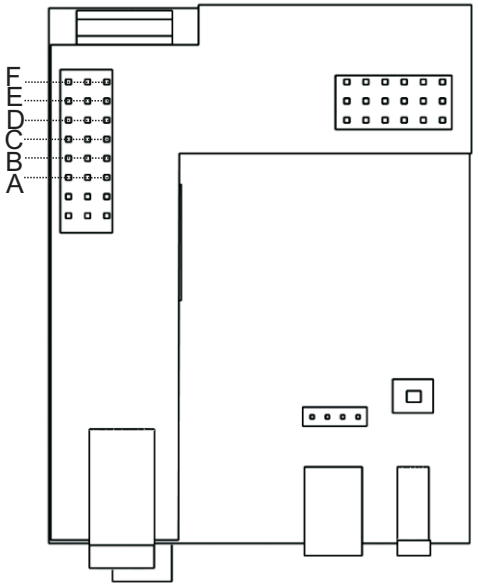


5.4.1、The electronic system installation of Arduino manipulator



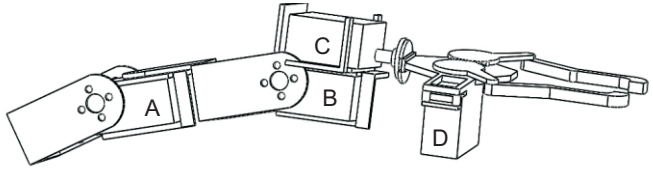


The connection of servo:
The yellow one is PWM
The red one is VCC
The brown one is GND

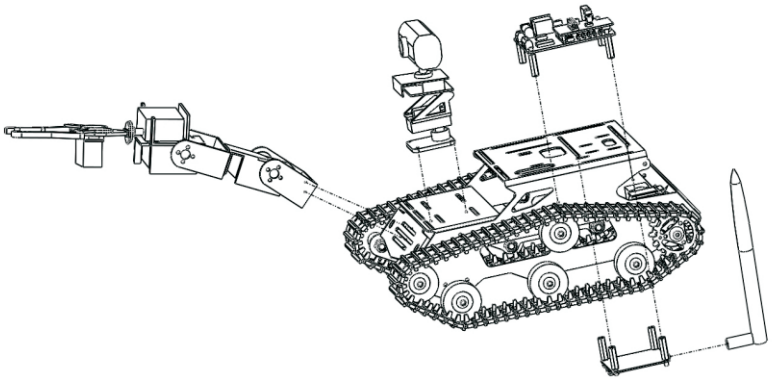


Connection details:
Maintaining a strict one-to-one correlation between ABCD in main board and mechanical hand , E F is cradle interface

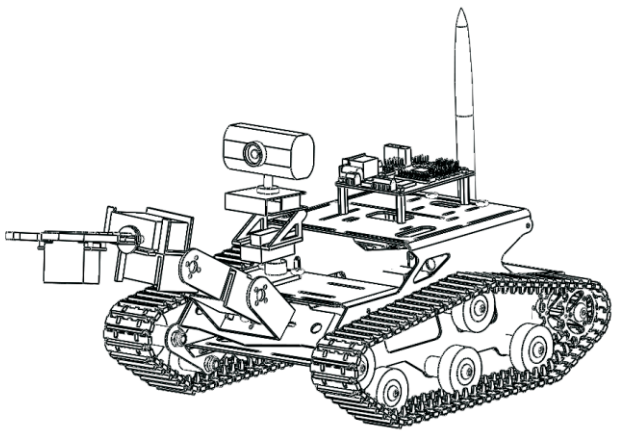
【Special attention】Before electrify the robot with cradle or robotic arm, the users should read specification of client software,then according it to adjust the angle of each steering gear,finally use the 'locking' function to lock all angles of servo. Without this step, it will lead to the servo damage cause long time to go to the unavailable zone.



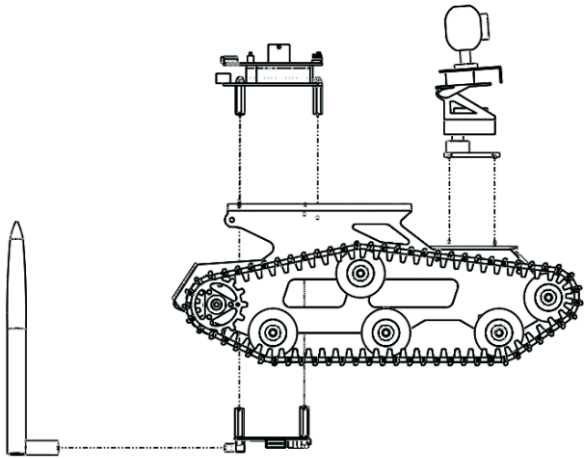
5.4.2、51duino version TH Robot assembly drawings



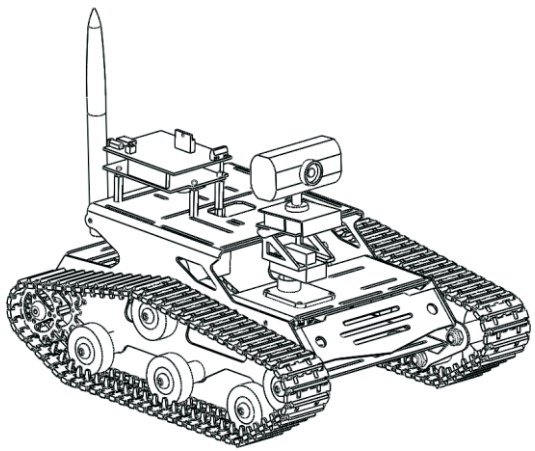
51duino version TH Robot finished photograph



5.4.2、Arduino version TH Robot assembly drawings



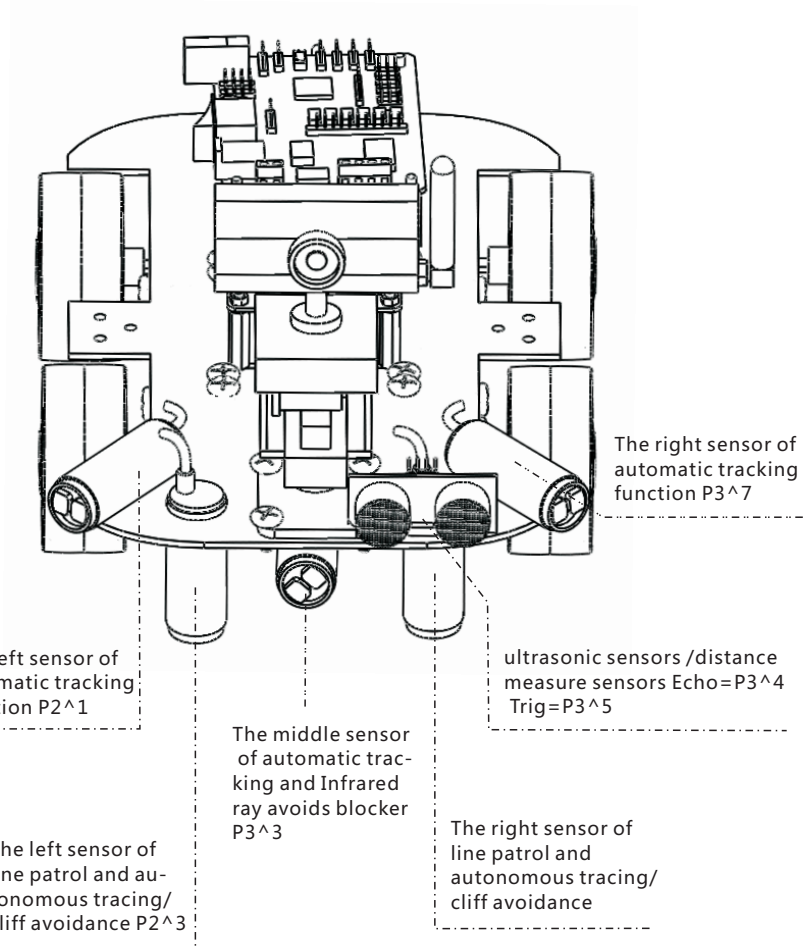
Arduino version TH Robot finished photograph



六、Extras functions of Sensors and mode switch

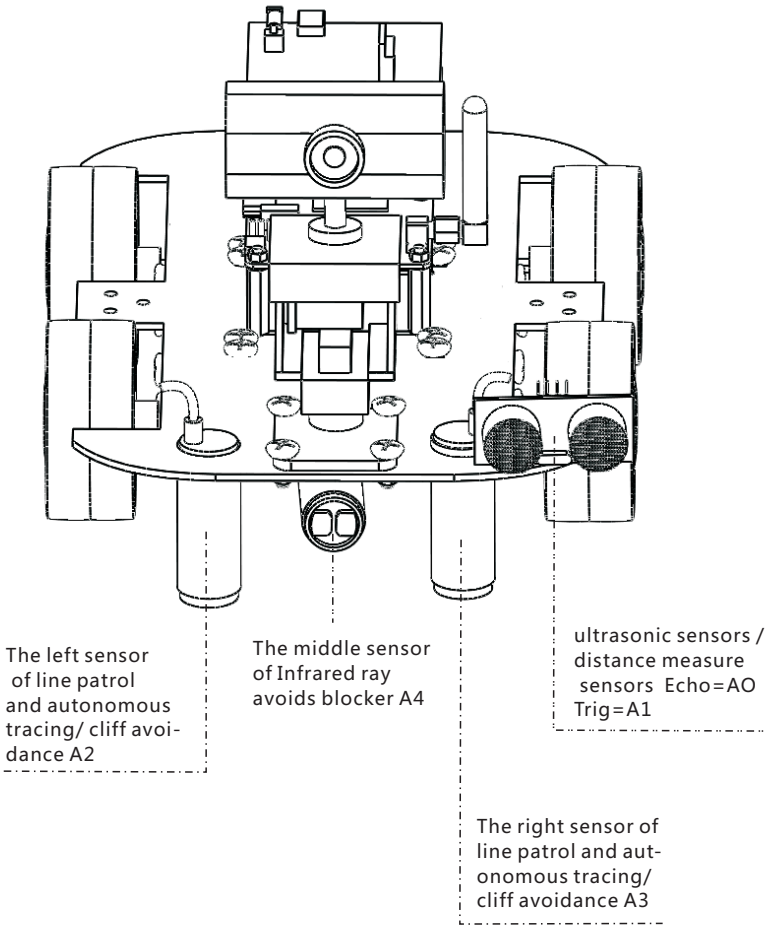
6.1、The instruction of 51duino sensors with full functions

refer to page 13

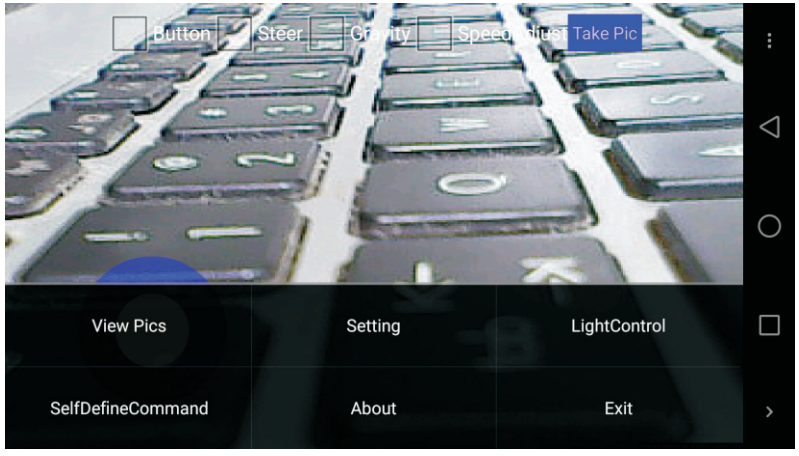


6.1、The instruction of Arduino sensors with full functions

refer to page 14

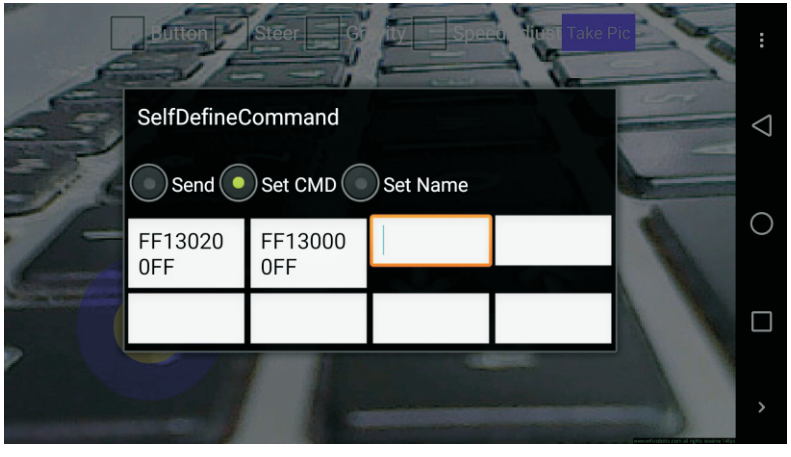


6.2、The tutorial of switching mode in the software



Bring up the multi-functional options by pressing the phone menu or clicking the small white circle on the interface

Choosing custom commands in the multi-function options of mobile phone



The switching instruction in custom command mode:

FF130100FF The following mode
FF130200FF The line patrol mode
FF130300FF The infrared obstacle avoidance mode
FF130400FF The ultrasonic obstacle avoidance mode
FF130000FF The normal mode

七、Operation instructions to the product(PC)

1、Turn on the power switch of robot, the LED lights of Wifi module and main control board start blinking, wait about 30 seconds, the LED lights of Wifi module and main control board is always on, the LED light of 51duino main control board is closed, it represents the system is starting competely.

2、Use the computer's wireless to search the hot spot signal of robot, our hot spot is "wifi-robots.com" at the beginning of list, then connect.



3、Starting the software of PC, choose the 'control mode'-'WiFi mode' on the top of the software, if there is no error in software interface, the users can start controlling the robot.



4、WASD is default operation of controlling four directions movement with robot in the keyboard .Choosing 'Auxiliary function '- ' The mouse and cradle of camera ' , then the users can drag and control the movement of camera and cradle in video.



5、More functions reference the "help" option of software.

七、Operation instructions to the product(PHONE/PAD)

1、Open the power switch of robot, the LED lights of Wifi module and main control board start blinking, wait about 30 seconds, the LED lights of Wifi module and main control board is always on, the LED light of 51duino main control board is closed, it represents the system is starting competely.

2、Use the phone's wireless to search the hot spot signal of robot, our hot spot is "wifi-robots.com" at the beginning of list, then connect.



Open the software in mobile phone , select start item ,the user can cotrol the robot if see the real-time video screen . The users may need to activate the software at first time using by long press-ing activation information to copy ID of mobile phone ， and send it to the customer servicer.



The default mode of operation is the circular cotrol board on the interface to control the directions of robot movement . Using the fingers slide screen can control the cradle of robot.



Finding more functions in software prompts.