



Introduction

In this section, we just take T900 as a 4wd car example. But in fact, it can widely be used other 4wd car chassis.

— Materials

Materials List

items	quantity
T900 4wd tank car	1
ESPDuino development board	1
Motor driver board	1
11.1V battery	1
HD camera	1
Doit router	1
switch	1
Dupont	10
Portable power	1

As shown in the following



T900 car chassis



ESPDuino 开发板



Motor driver board



11.1V battery



HD camera



Router



switch

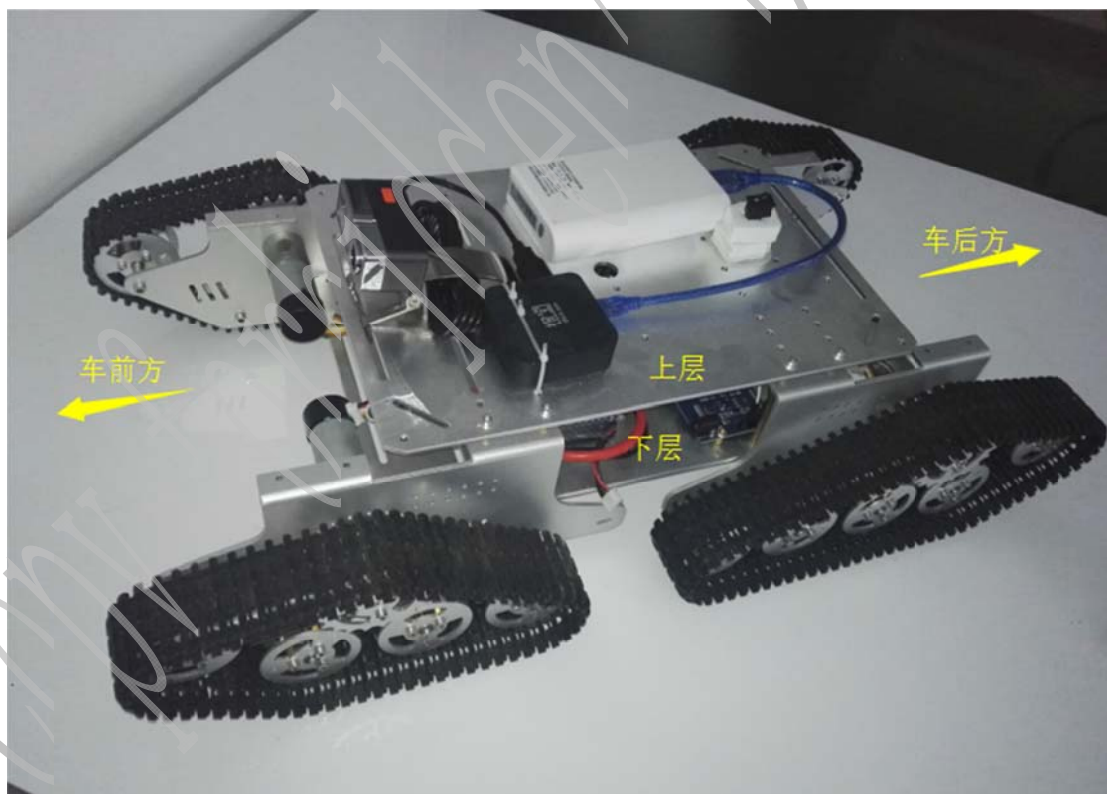


dupont

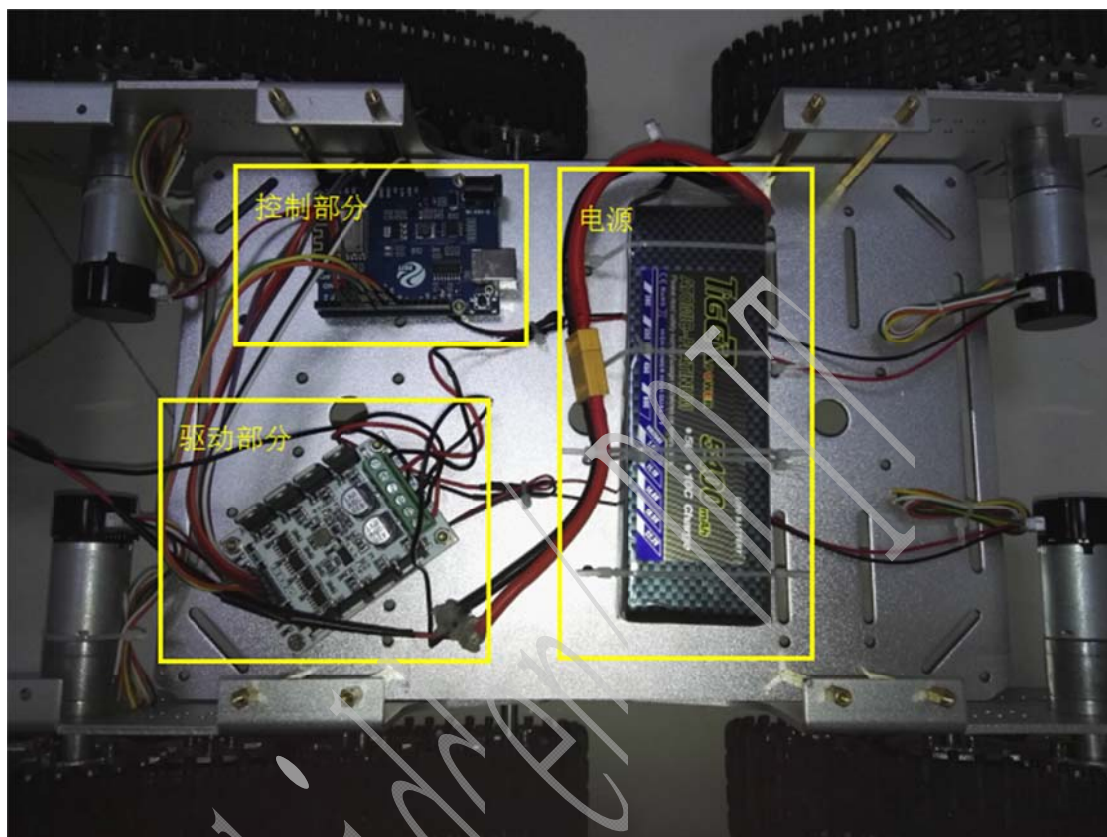
Note:

1. For router, the color may be different;
2. There is no switch, battery and dupont cable in our shipping list.

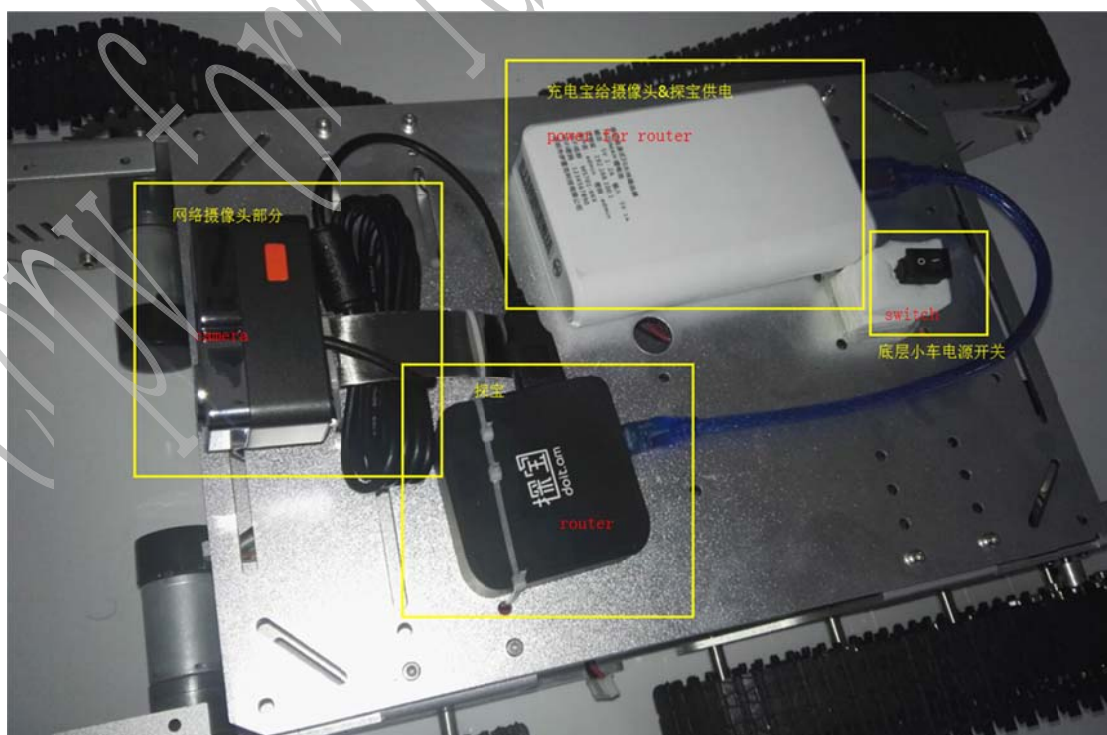
二 Illustration for car chassis structure



T900



下层

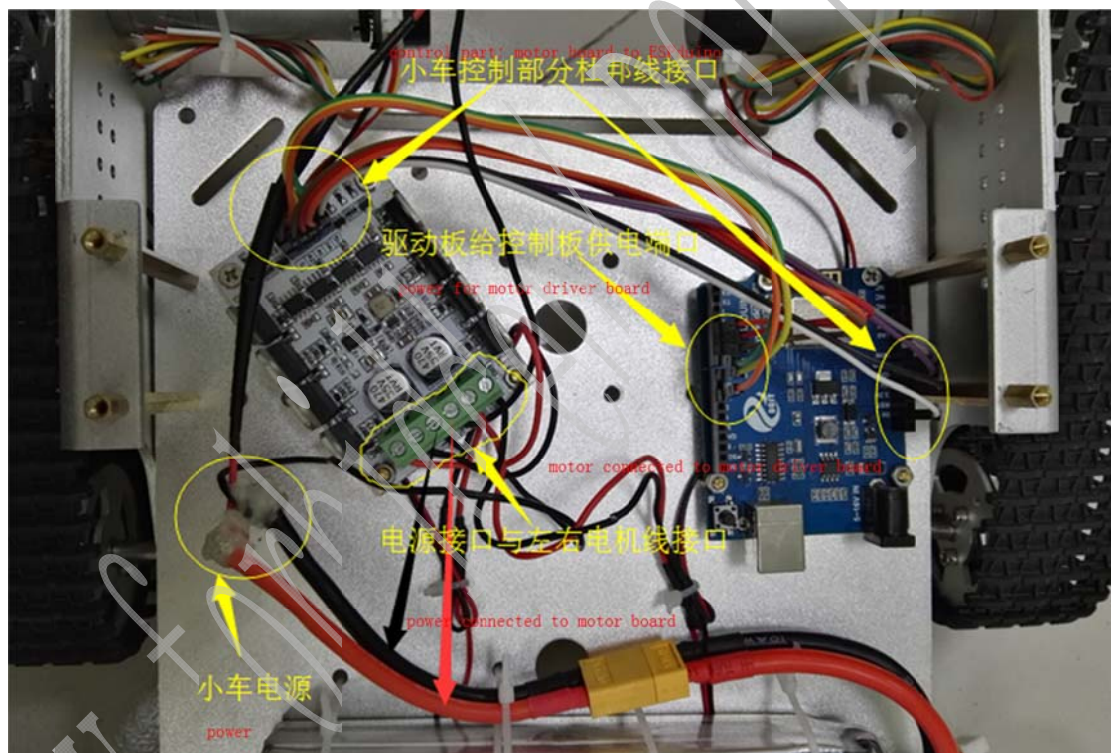


上层

三 circuit connection

1 power unite

Low layer

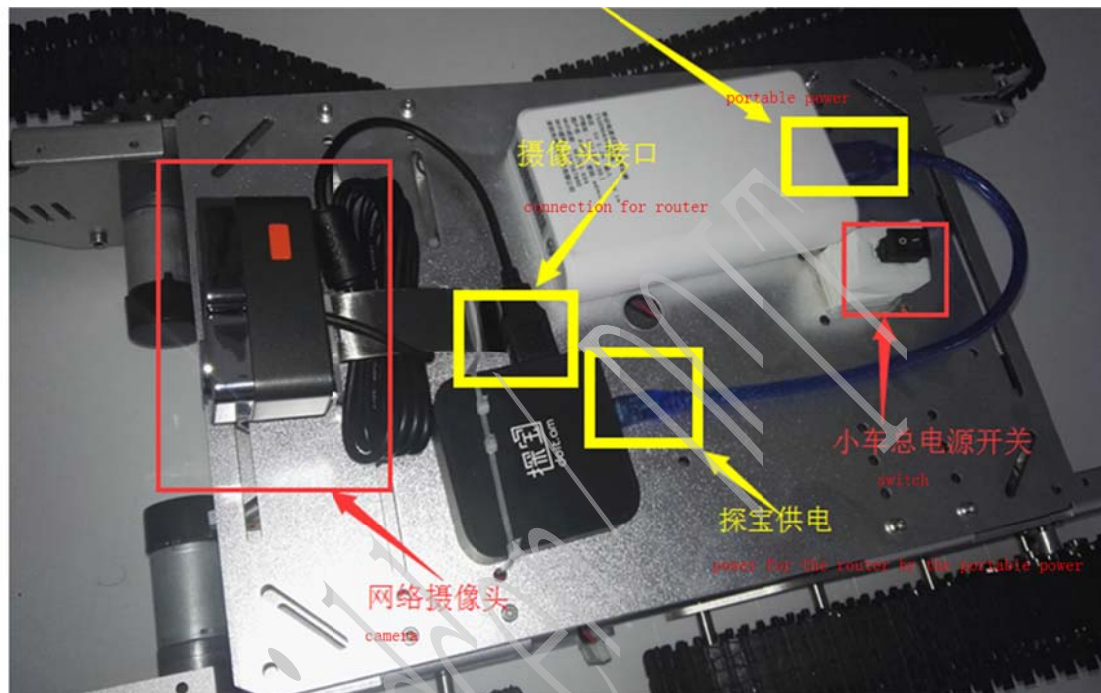


Power for motor driver board: the positive of 11.1V battery (red) is connected to the “电源+” on the driver board, and the negative of 11.1V battery (black cable) is connected to “电源-”. Note that, since the power cable is very thick, please note that the connection.

Power for ESPduino: the pair of “5V/GND” is temporarily connected to the relative port control board ESPduino, to power the ESPduino.

Power for left and right motor:先 Firstly, please let the connect together for cable of motor on the left side, i.e., black connected black, and red connected red. By this way, the two motors on the left side can be viewed as one motor, and named as left-way motor. Similarly, connect together by the right two motors, and named as right-way motor. Then, let the left-way motor connect to the port “电机 A” on the driver board, and similarly, let right-way motor connect to the port “电机 B” on the driver board.

Up Layer



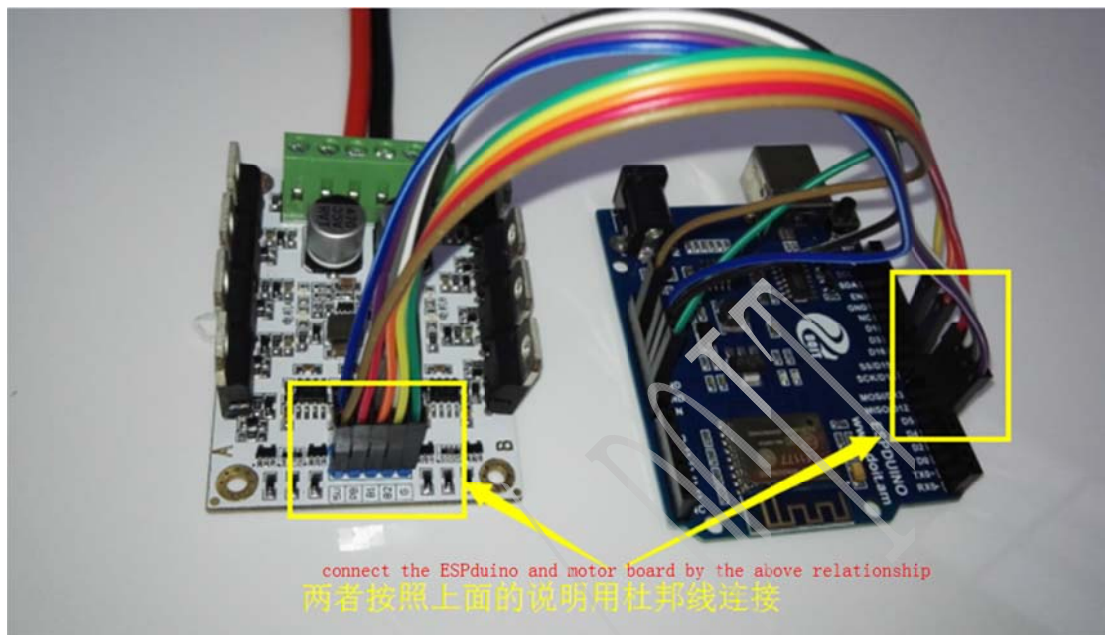
Power for camera: 摄像头的供电: use a miniUSB to connect to the wireless router, and another usb port connect to the portable power, to power the HD camera.

2 Control part

Use dupont cable connect to ESPDuino board and motor driver board together by the following.

ESPDuino	<----->	motor driver board
D4	<----->	PA
D5	<----->	A1
D12	<----->	A2
D13	<----->	PB
D14	<----->	B1
D16	<----->	B2

As shown in the following picture.



3 video unite

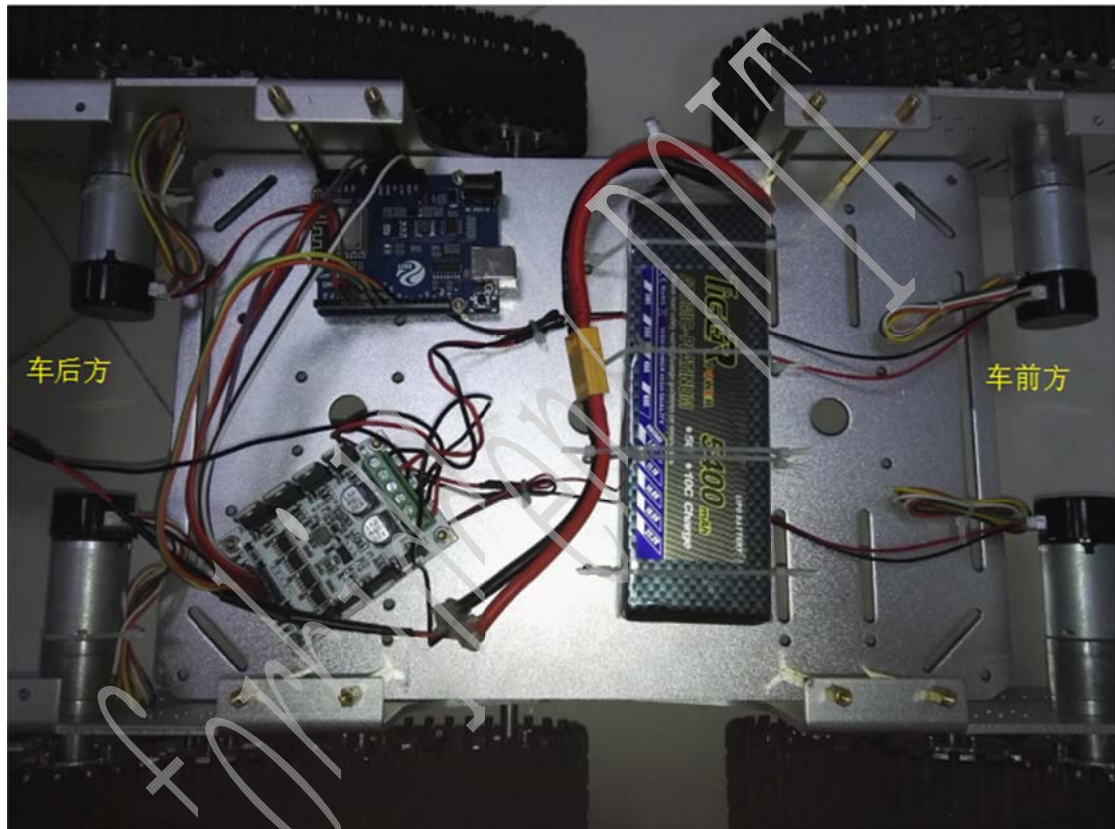
After install the camera, let its usb connect to router, to realize the upload the video to the router.

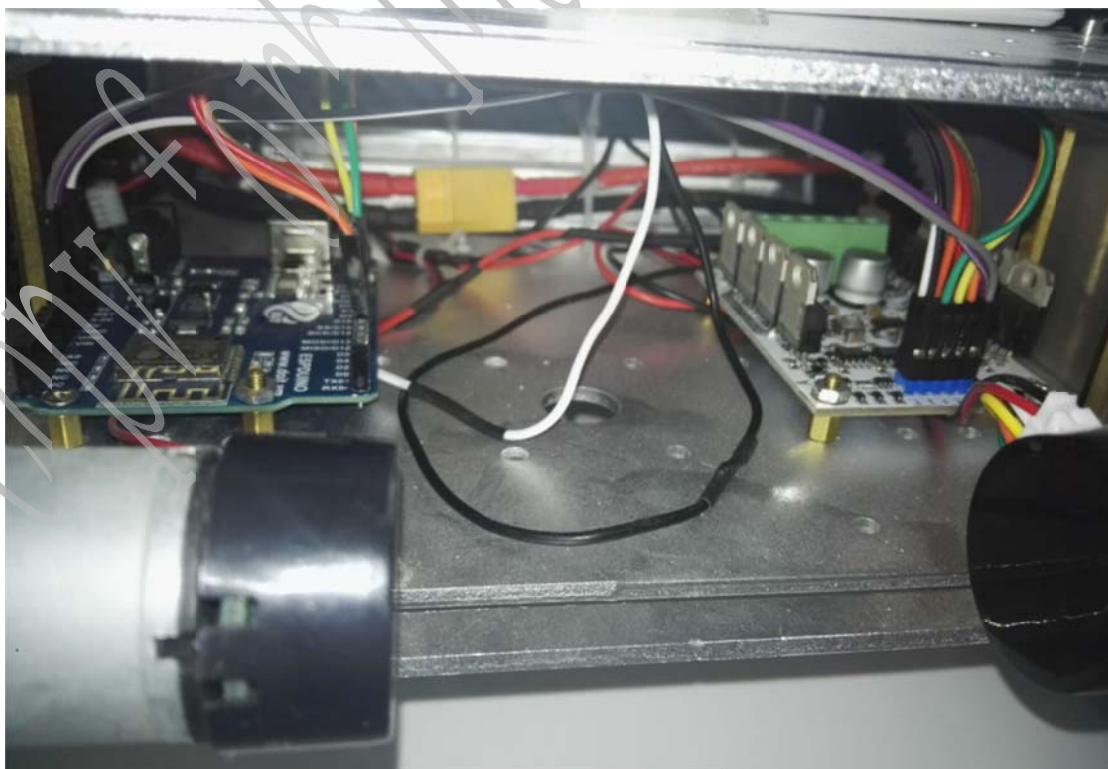
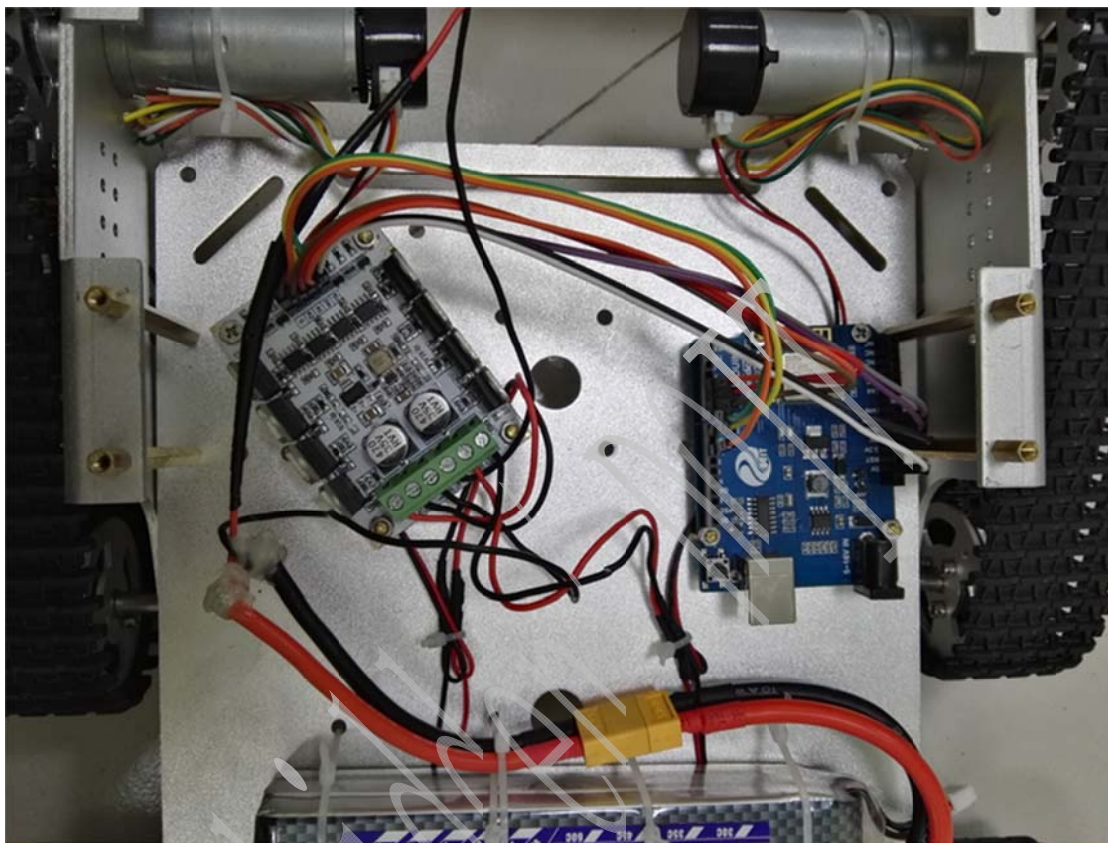


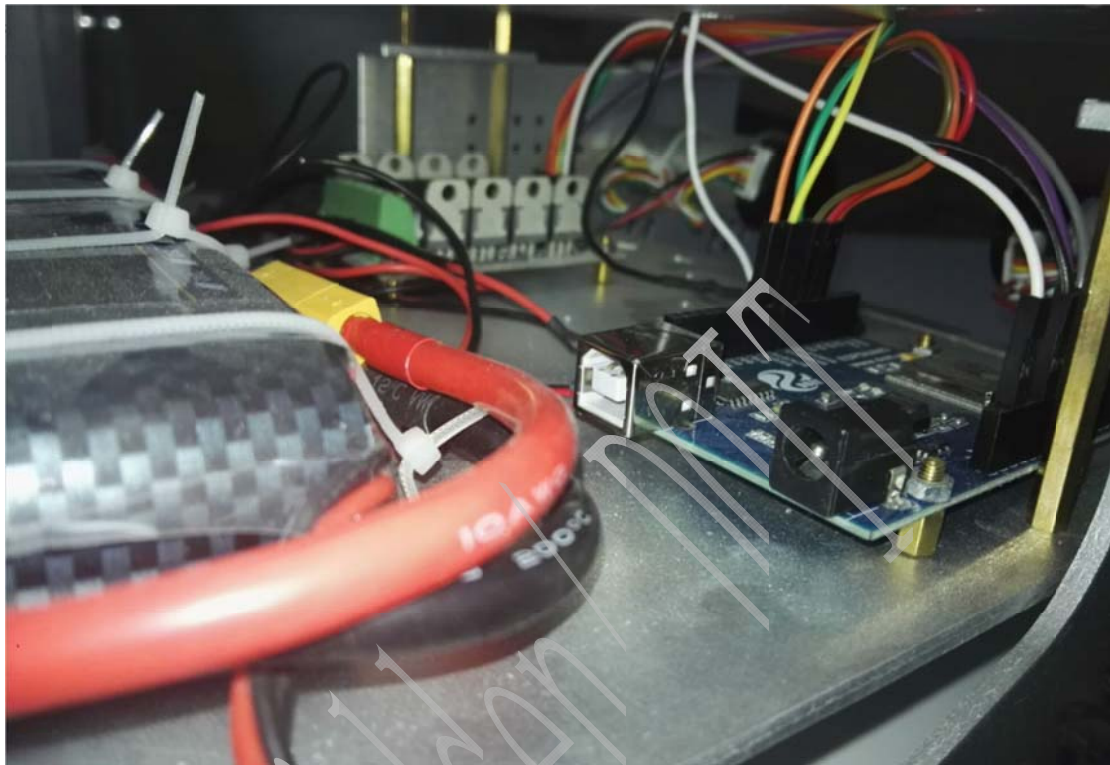


四 real connection

1 low layer







2 up layer





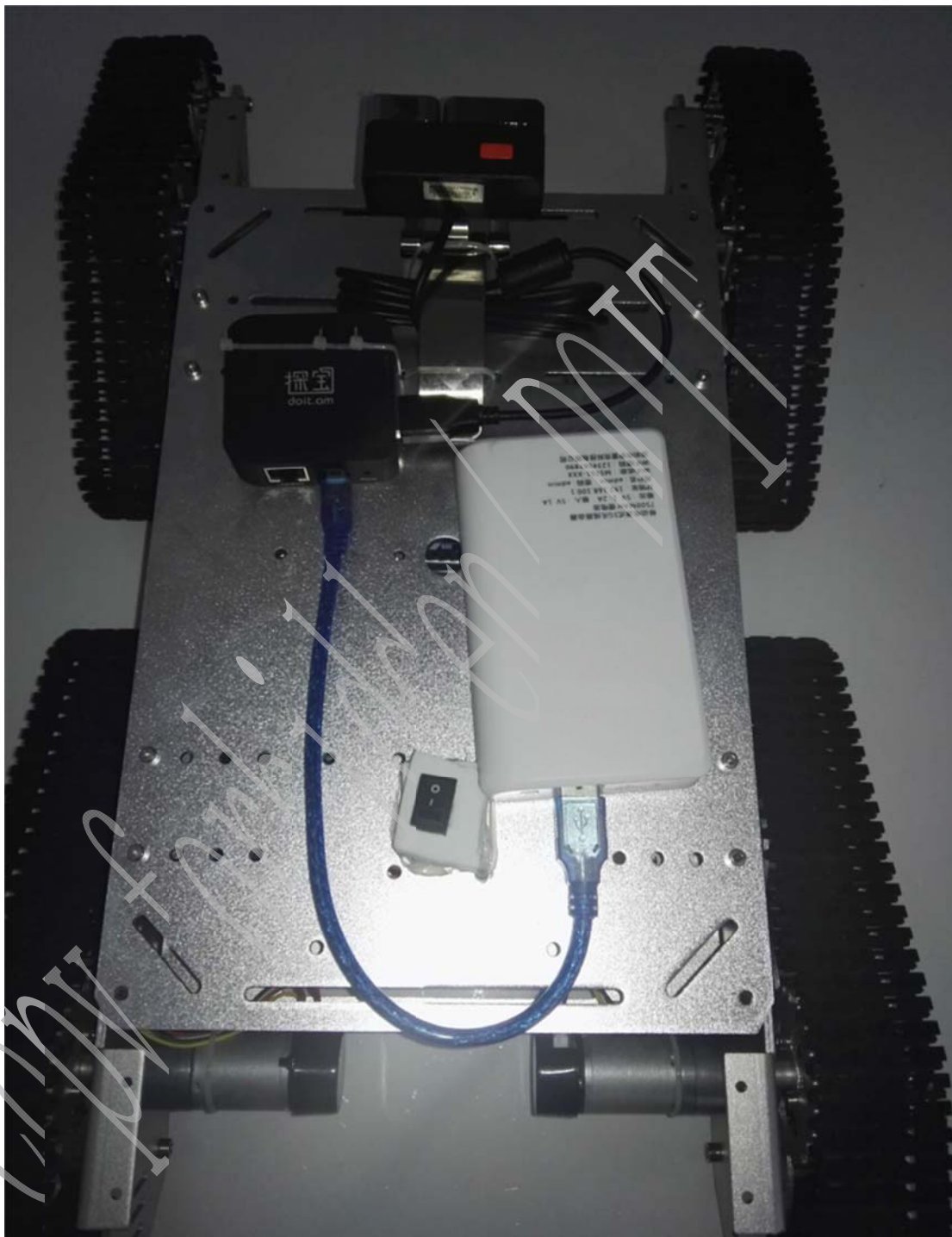
3 whole view



正视图



左视图



俯视图



3D 立体图

五 principle

The video car can be divided into 2 part: car control and video transmission, where, driver board is connected directly by 11.1V power, and ESPduino is power by the driver board at 5V.

How to work

- 1) wireless router build up a AP hotspot, named as Doit_tank, and the password is: 12345678
- 2) Doit-ESP866 (including ESPduino) board and APP simultaneously are connected to this hotspot.
- 3) APP connect to the wireless router to control the tank car.

Communication (for the second develop)

1. Video is encoded by mjpeg by the following way to get:
<http://192.168.2.1:8080/?action=stream>

2. Control command:

APP set ip: 192.168.2.1, port: 9001 (TCP connection) to control the car:

Command type: (add \r\n after each command)

- 0 stop
- 1 forward
- 2 backward
- 3 left
- 4 right



- 6 acceleration for left
- 7 deceleration for left
- 8 acceleration for right
- 9 deceleration for right

s get the state (each 1s)

3. Get the state

Formate

cmd=upload_stat&topic=device_stat&message=100|200|0|0(note that the speed of left, speed of right, temperature, and humidity)

六 Download

Firmware for Video ESPDuino car chassis:

https://github.com/SmartArduino/DoitCar/blob/master/ESPDuinoT900_video_car.ino.zip