AIoT 201 XRover Robot Car

XRover Robot Car Kit for Raspberry Pi

www.csailab.com

Machinery Parts

Screw

M2*8	10	M2.5*10	1
M2*14	7	M2.5*4	4
M2.5*8	6		
M3*12	7		
M3*16	17		
M3*25	2		
M3*35	3		
M4*40	2		
M4*45	2		
M3*8	44		
M4*6	2		

Nut

M2	17
M3	31
M4	2

Lock Nut

M4	4
M3	4

Countersunk Head Screw

M3*14	4

Copper Standoff

M2.5*10+6	4
M2.5*14	4
M2*6	4

Nylon Standoff

M3*6	5
M3*20	8
M3*10	6
M3*15	2
M3*30	2
M3*40	2

Spring Washer

M4*8*1	8
M4*14*3	4
M4	4

Self-tapping Screw

M1.7*6*6	1

Bearing

F624zz	8

Electronic Parts

Robot Hat	X1
Ultrasonic module	X1
18650 batteries holder	X1
LED bar	X4
Raspberry Pi Camera	X1
Tracking module	X1
MPU6050	X1
Wheel	X4
3pin cable	X4
4pin cable	X2
Camera cable	X1
AD002 servo	X3
Motor	X1
D3.9L120 Axle	X1
Nylon Isolation column	X2
Bevel gear unit	X2
S12D4 Coupling Set	X2
USB Mic	X1
5pin cable	X2
51108 Bearing	X1

Tools

Hex Wrench-1.5mm	X1
Hex Wrench-2.0mm	X1
Cross Screwdriver	X1
Cross Socket Wrench	X1
Ribbon	X1
Large Cross-head Screwdriver	X1
Winding Pipe	X1
Tweezers	x1
Large slotted screwdriver	x1

Warning

Please pay attention to the following issues when purchasing or using the product:

- There are small components included in this kit. Swallowing mistakenly or misoperation can cause serious infection and be even fatal. When an accident occurs, please seek medical assistance immediately.
- Please place the product in a safe place where an under-6-year-old cannot touch, who should not use or approach the product.
- Juveniles should use the product with their parents.
- Do not place the product or the components near any AC socket or other circuits to avoid electric shock.
- Do not use the product near any liquid or flame.
- Do not use or store the product in an extreme environment such as in extremely low or high temperature and heavy humidness.
- Please remember to power off when the product is not in use.
- Do not touch the moving or rotating part of the product.
- The product may get heat at some part, which is just normal. But misoperation may cause overheat.
- Misoperation may cause damage to the product. Please take care.
- Do not connect the positive and negative poles of the power inversely,or the devices in the circuit may be damaged.
- Please place and put the product gently. Do not smash or shock it.

About

Adeept is a technical service team of open source software and hardware. Dedicated to applying the Internet and the latest industrial technology in open source area, we strive to provide the best hardware support and software service for general makers and electronic enthusiasts around the world. We aim to create infinite possibilities with sharing. No matter what field you are in, we can lead you into the electronic world and bring your ideas into reality.

The code and manual of our product are open source. You can check on our website: http://www.adeept.com/

If you have any problems, feel free to send an email for technical support and assistance: support@adeept.com

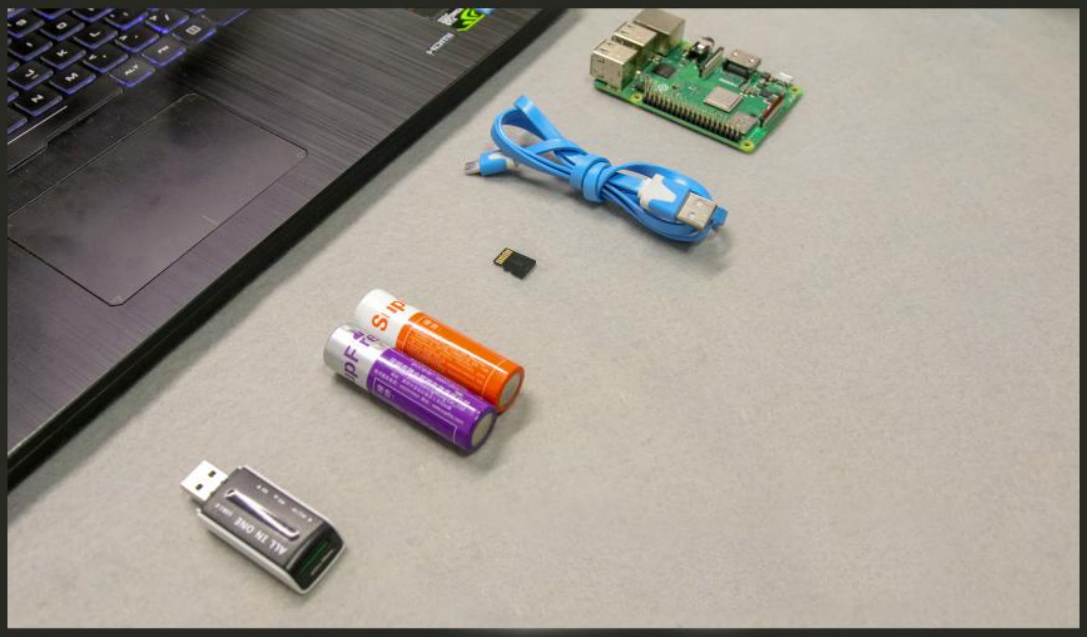
On weekdays, we usually will reply within 24 hours. Also welcome to post in our official forum:http://www.adeept.com/forum/

Copyright

Software Installation

Since this robot product uses multiple servos and has certain requirements for the installation angle of the rocker arm of the servo, we need to install the software first, so that the Raspberry Pi will automatically control the servos to rotate to the middle angle after starting up. Then install the rocker arm or other parts connected to the servo according to the installation requirements.

The parts that need to be prepared by the customer include Raspberry Pi, power supply cable, SD card reader and the batteries.



You can refer to this video for software installation and learn how to solve the common issues.

YouTube

General software installation tutorial(and solutions to common issues)for Raspberry Pi robots.
https://www.youtube.com/watch?v=tMAnKYpuBY4

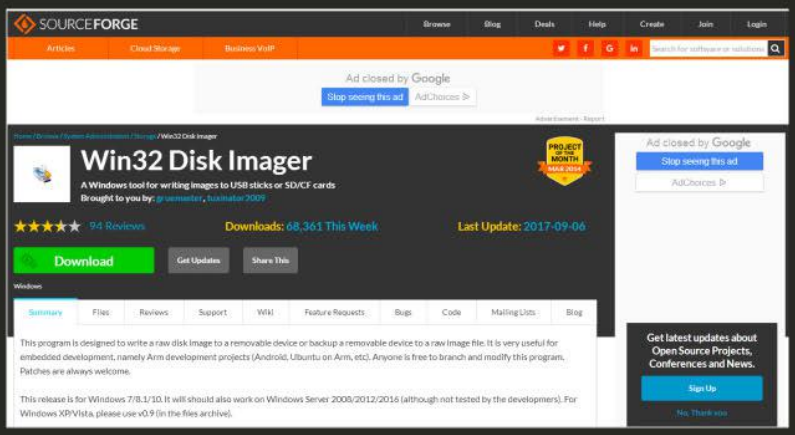
Insert the SD card into the card reader.
And connect the card reader to the computer.

Install the Raspberry Pi operating system,Raspbian

First of all, we need to burn the Raspberry Pi operating system in the SD card. The Raspberry Pi can use many different systems. Here we choose the official system Raspbian to install. You need to download the disk image burning tool Win32 Disk Imager and install it. This software is used to burn the image file of the Raspberry Pi system to the SD card. This process will change the file system of the SD card and delete the original content. If there is a personal file in the SD card, remember to backup.

Win32 Disk Imager download address (easy to find on Google):

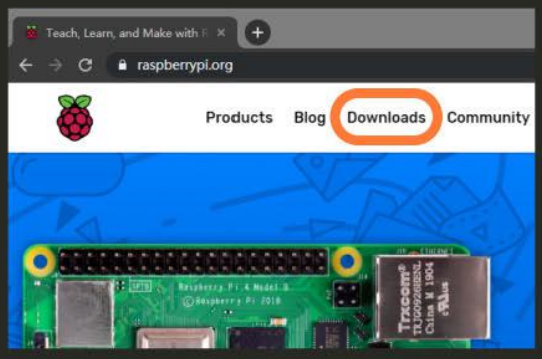
https://sourceforge.net/projects/win32diskimager/

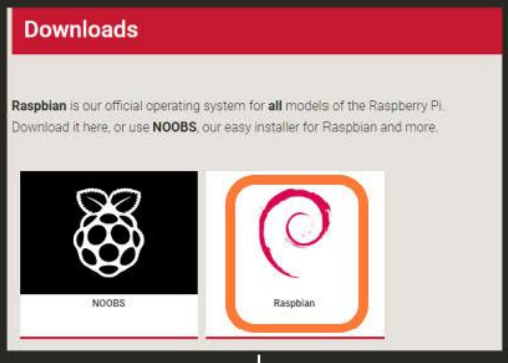


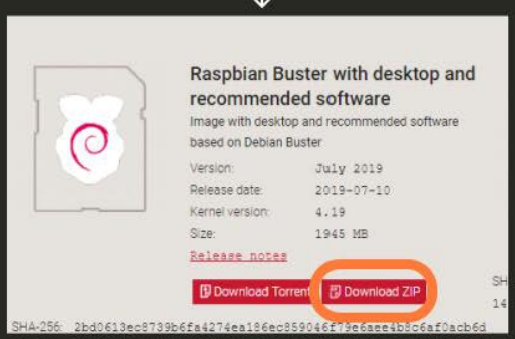
Download the image file of Raspbian system

We can download this image file on the Raspberry Pi official website:

https://www.raspberrypi.org/







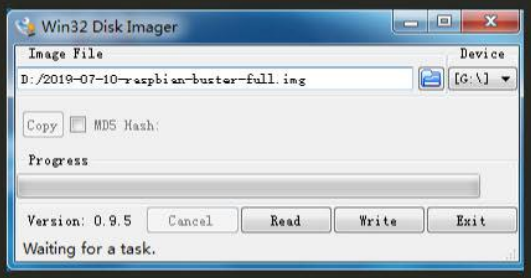
Here we choose the complete version of Raspbian (... with desktop and recommended software).

After downloading, unzip the package, the extracted files are reserved for the subsequent installation.

Burn the operating system of the Raspberry Pi to the SD card

Run Win32 Disk Imager and select the drive letter of the SD card in Device. Do not choose the wrong one. (For example, my SD card is G drive, you need to determine your SD drive letter, it may differ from everyone's).

Click on the blue folder icon to select the .img file that was extracted before, and then click on Write.



Begin to burn the system image file, which may last for ten minutes.

At the same time, you can start preparing for the Raspberry Pi SSH service and the files needed to automatically connect to Wi-Fi.

Display file extension

Some of the next steps involve changing the file extension. On most Windows systems, the file extension is hidden, and you need some operation to display the file extension.

For example, in Windows 10, you can open the Explorer - View - display file extension, and check it. Other versions of the operating system may have some differences.

Enable the Raspberry Pi SHH service

Create a new file named ssh without any extension and content. You can create a new ssh.txt file and delete .txt by right-clicking->new-text file.

You need SSH service to remotely control the Raspberry Pi.

Set up Wi-Fi for the Raspberry Pi

Create a new text file and name it wpa supplicant.txt

And write the following content in this file, replace "WIFI" with your Wi-Fi name; replace "PASSWORD" with your Wi-Fi password, and save.

Finally, remember to change the extension of this file from .txt to .conf.

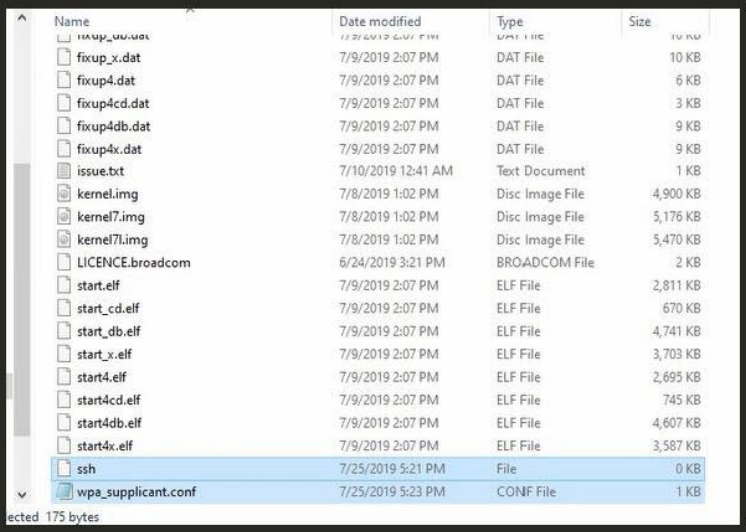
(wpa_supplicant.conf)

```
country=US
ctrl_interface=DIR=/var/run/wpa_supplicant GROUP=netdev
update_config=1

network={
  ssid="WIFI"
  psk="PASSWORD"
  key_mgmt=WPA-PSK
  priority=1
}
```

Now the operating system of the Raspberry Pi should be almost finished, we open the root directory of the SD card.

Copy the two newly created files (ssh and wpa supplicant.conf) to the SD card root directory.

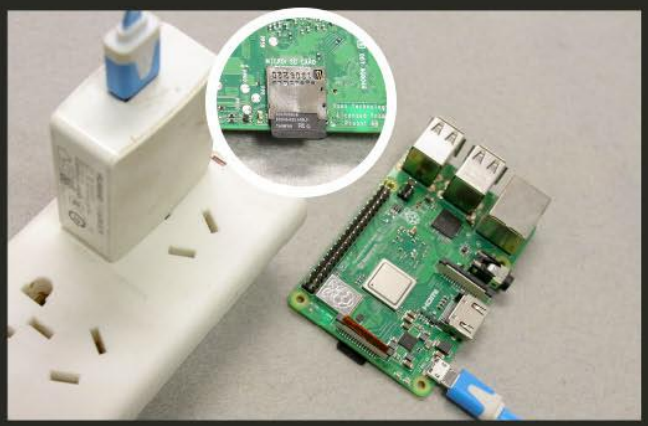


Download and install PuTTy

PuTTy is the software for remotely controlling the Raspberry Pi. You can search for PuTTy in Bing to find out its download address.

Download address:

https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html



Next we need to install the robot program in the Raspberry Pi.

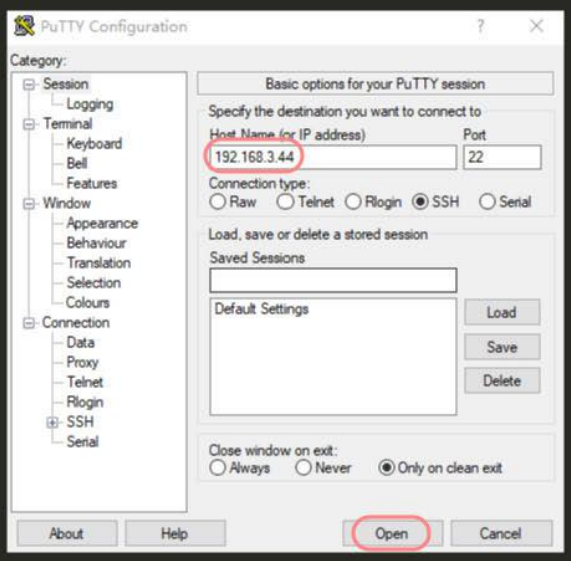
Insert the SD card into the Raspberry Pi, you can use the power cable to power the Raspberry Pi, or you can use the batteries. Since some products need to install OpenCV and related dependencies and may take a long time, we recommend using the power cable for software installation.

It should be noted that the power cable or other power supply need to support at least 2A of current (the Raspberry Pi 4 requires 3A).

After powering up, the Raspberry Pi takes about 3040 seconds to boot.

The Raspberry Pi will automatically connect to Wi-Fi after booting. We need to know the IP address of the Raspberry Pi. You can download the app, Network Scanner on your mobile phone. After running,find Raspberry Pi Foundation (Raspberry Pi 4 is RASPBERRYPI)and get the IP address of the Raspberry Pi..

Run putty on the computer, enter the IP address of the Raspberry Pi and click open.



The first connection will pop up a dialog box, select Yes.
Then we need to log in to the Raspberry Pi.
The default username is pi;
The default password is raspberry.
When you enter the password, there will be no display on the screen, but this does not mean that the input is not successful. After entering the password, press the Enter to log in to Raspberry Pi.

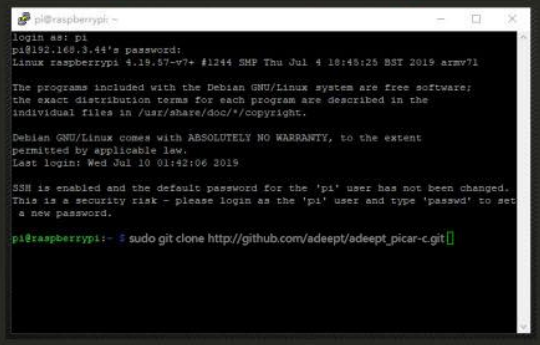
Download the robot program to the Raspberry Pi

• The various settings in the Raspberry Pi can take a long time, so we created a Python script to help you install the required software and related dependencies, and it will automatically finish the system-related settings.

• If you are interested in the installation process, you can open this Python script to check the relevant information.

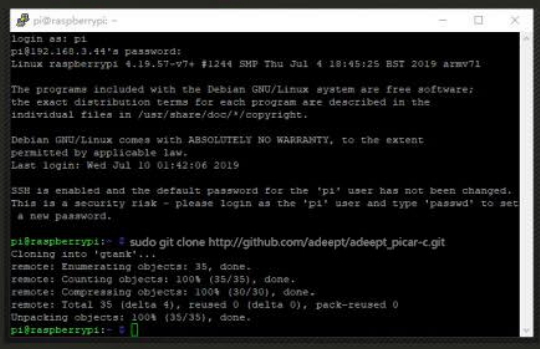
• Enter the following command to download the robot program (Multi-function Tracking Platform G tank):

sudo git clone https://github.com/adeept/adeept_picar-c.git



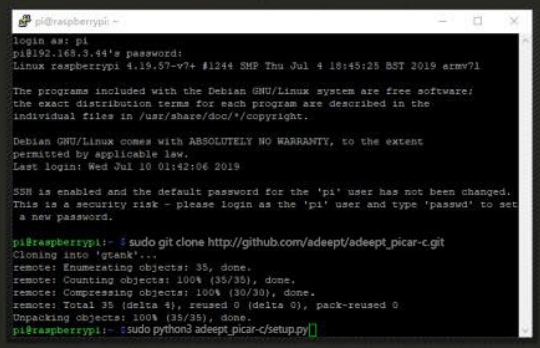
enter the command

enter



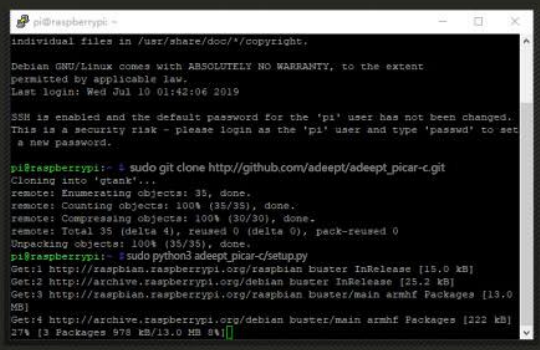
and then install:

sudo python3 adeept_picar-c/setup.py



enter the command

enter

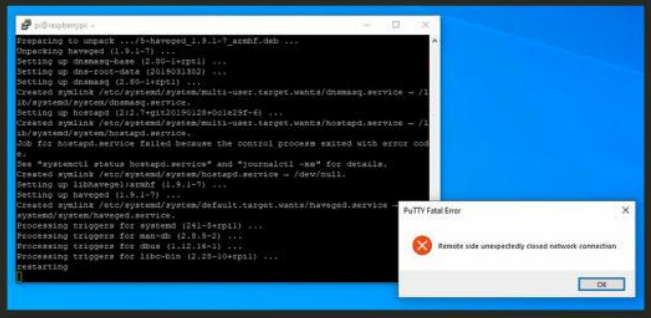


The installation process can last for several hours.

Note: Linux is case-sensitive, all the commands must be input in lowercase to ensure that the autorun program can run automatically.

• Since the installation process in the Raspberry Pi can last for a few hours, you can minimize this terminal window and start preparing the programs needed on your computer.

• When the Raspberry Pi installation is complete, it will automatically disconnect the ssh and restart, you will get a dialog box as shown below, indicating that the Raspberry Pi software installation part has been completed. You can power it off and start the mechanical assembly.



If you have any problems during the installation process, you can refer to this Raspberry Pi robot tutorial。

YouTube

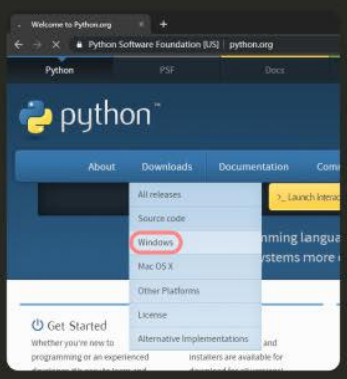
General software installation tutorial for Raspberry Pi robots.

https://www.youtube.com/watch?v=tMAnKYpuBY4

Install Python3 on the computer

First download Python3 on Python official website.

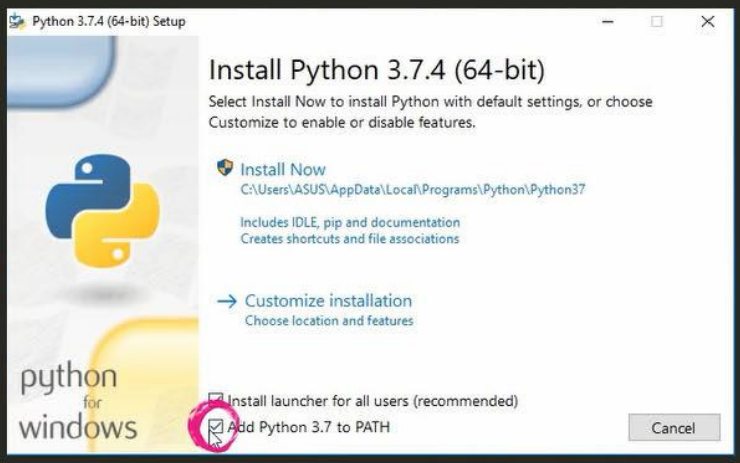
https://www.python.org/

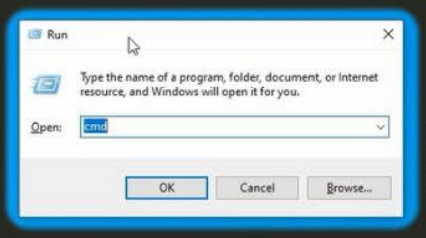


Very important

Remember to check when installing

Add Python to PATH





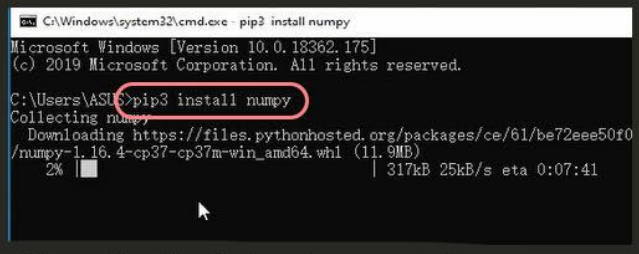
After the installation is complete, open CMD

Press the Win and R, then type cmd in the pop-up window and click OK.

Install Numpy

Enter the following command in cmd:

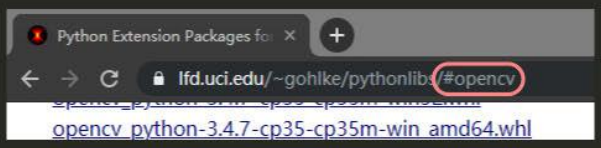
pip3 install numpy



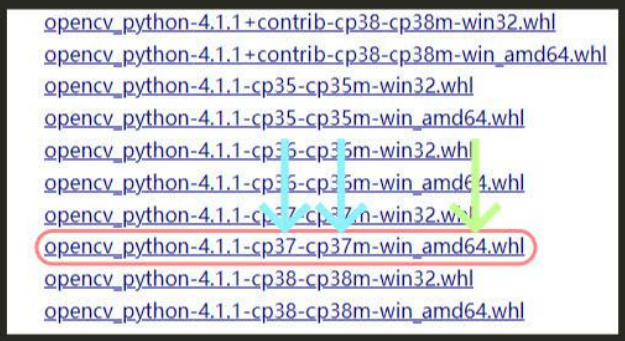
- NumPy (Numerical Python) is an extension library for the Python language that supports a large number of dimensional arrays and matrix operations. It also provides a large library of mathematical functions for array operations.
- OpenCV related functions require this library to assist in operations.

Address for downloading OpenCV_ python.whl,'

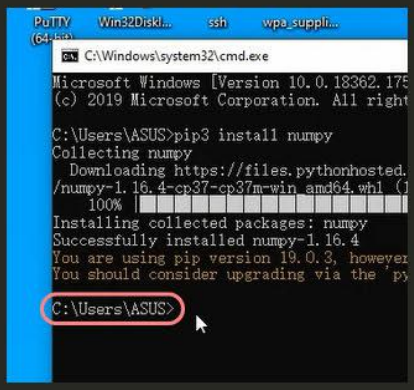
https://www.lfd.uci.edu/~gohlke/pythonlibs/#opencv

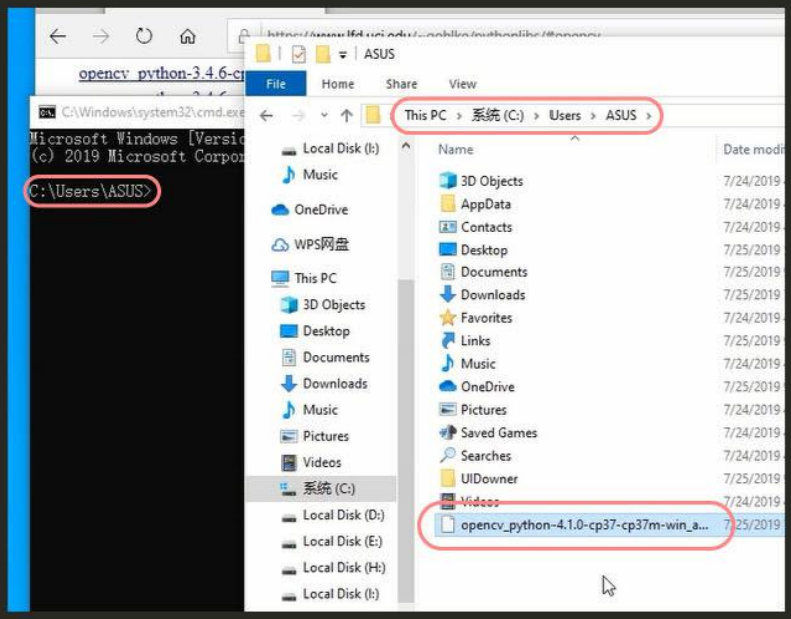


• You may need to manually enter the .whl file name you need at the very end of the browser address bar to find it.
• As shown above, type #opencv at the very end of the address and press Enter.
• The page will automatically scroll to the location where OpenCV is located.
• Download the .whl file that matches your Python version and number of bits. (The cp37 in the .whl file represents python3.7, 64 and 32 represent the number of bits respectively. If you are not sure, you can type python in cmd and press Enter. It will display the version and number of bits of Python, then enter exit 0, press Enter to exit Python to continue to enter the command in cmd).



Copy the .whl file to the path shown in cmd so that you don't need to enter the path during installation.
My path is shown below, note that this path is not the same for all computers.

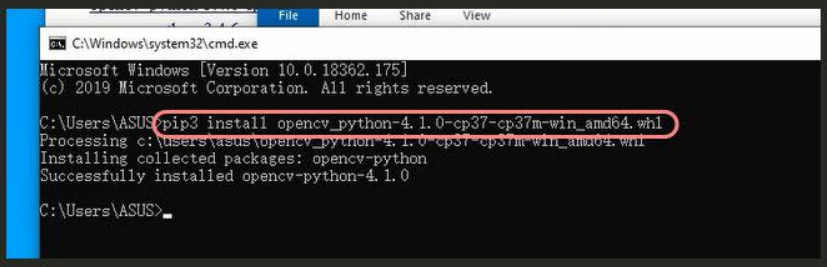




After copying the .whl file here, you don't need to enter the path during installation.

Now you can install OpenCV_ python,enter the command:

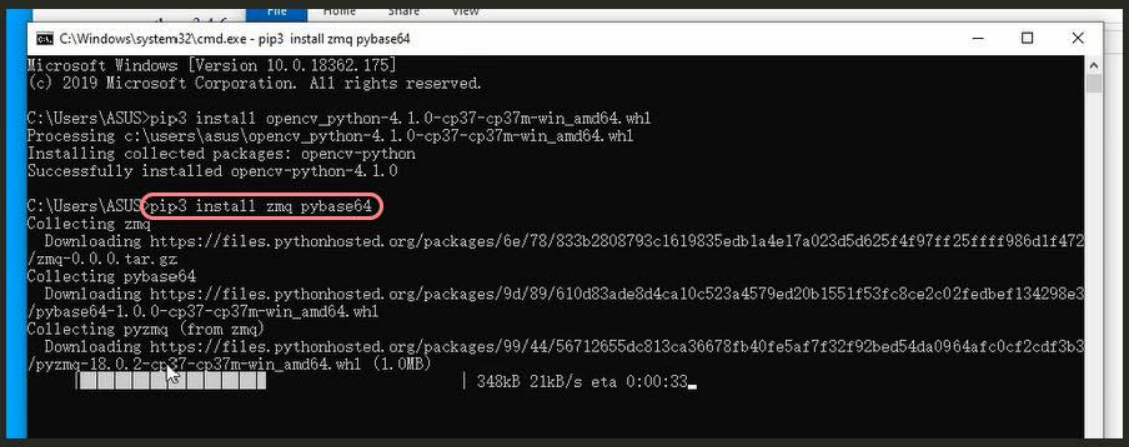
pip3 install opencv_python-4.1.0-cp37-cp37m-win_amd64.whl

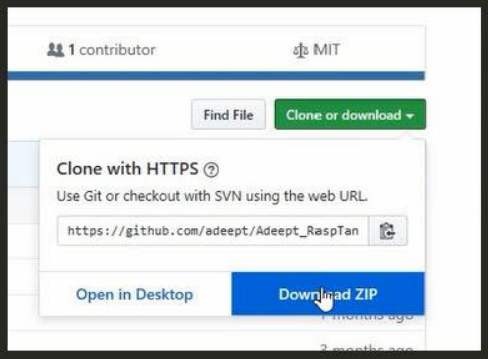


Tip: Enter the command pip3 install opencv in cmd and press TAB, the system will automatically complete the name of this file, press Enter to start the installation. Wait a moment for OpenCV to be installed.

Next you need to install the libraries needed for real-time video transmission:

pip3 install zmq pybase64

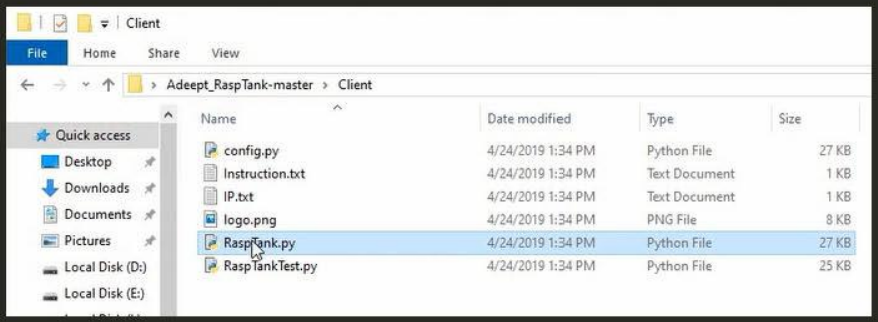




After the installation is complete, you can close the cmd.
Open the browser,
download the program of the robot product to the computer,
address:

https://github.com/adeept/adeept_picar-c

Then unzip this installation package.

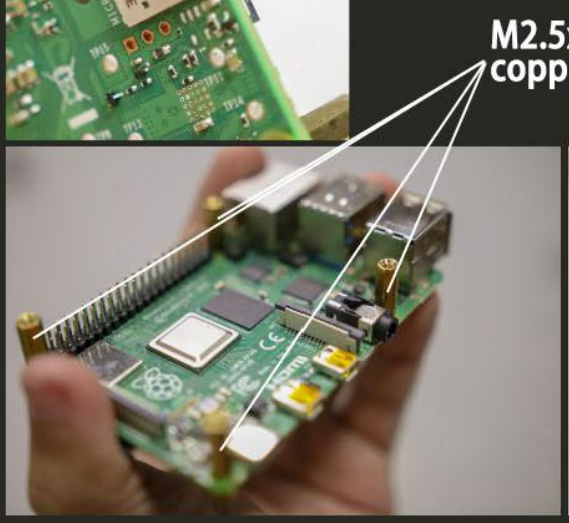


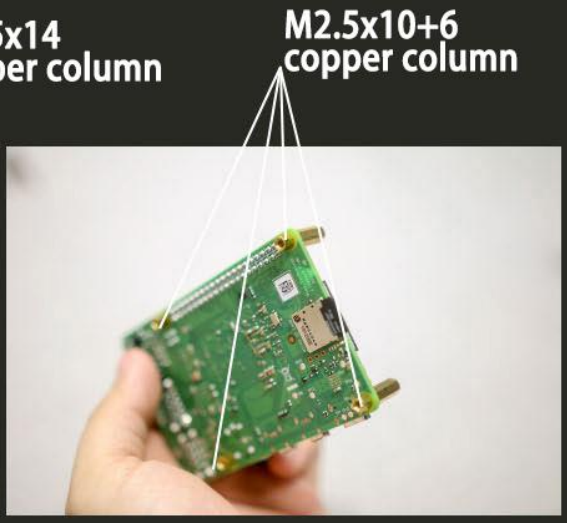
There are some products whose GUI.py files are named after the product name in the Client folder.
Hint: We don't need to run this program until it is assembled.

In order to demonstrate clearly, the protective films of the acrylic plates are not peeled off. You need to peel them off when assembling in case of problems during the assembly.

Mechanical assembly

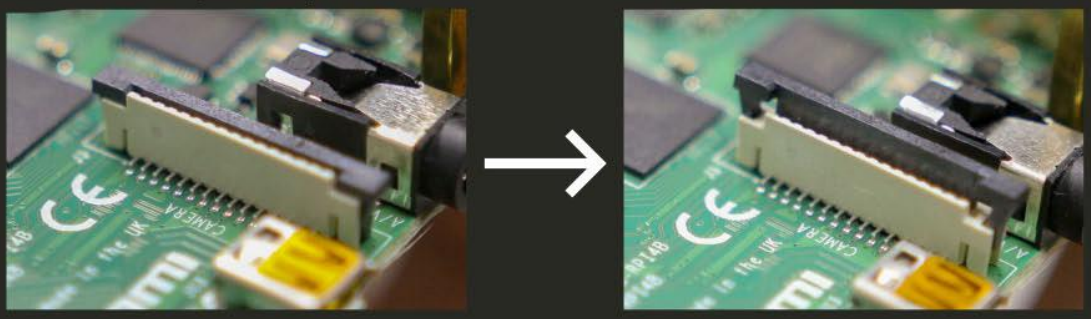
Take the SD card out of the card reader and insert the Raspberry Pi. Install the M2.5x6+6 and 2.5x14 copper column on the Raspberry Pi as shown.



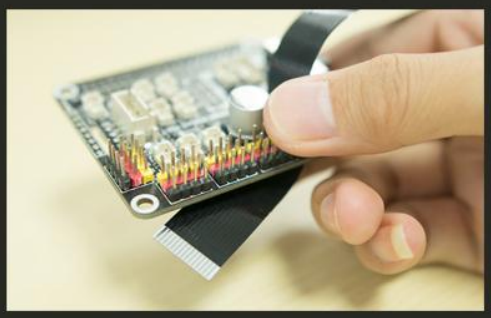


Install camera

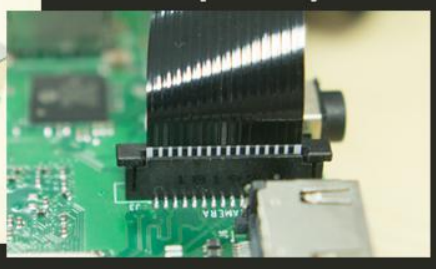
Pull out the plastic piece used to secure the camera cable.



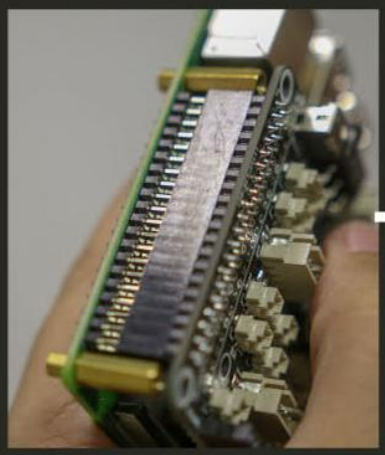
Insert the camera cable into the interface, and pay attention not to reverse the cable.

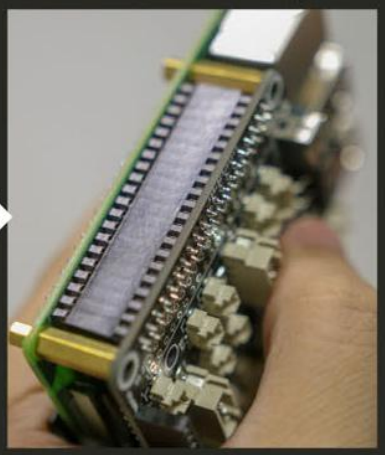


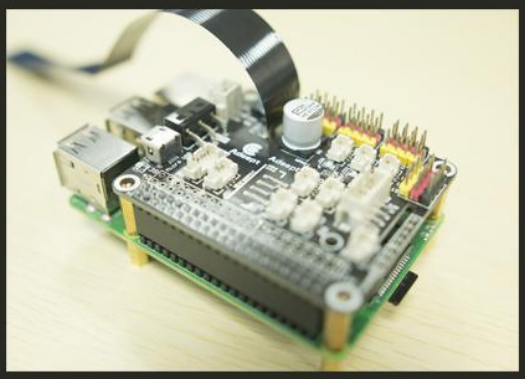
Press the plastic piece.



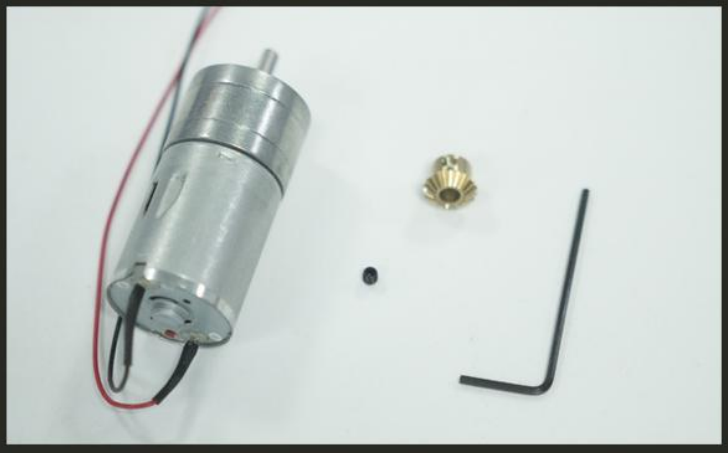
Install the robot hat and fix it with M2.5*4 screws.

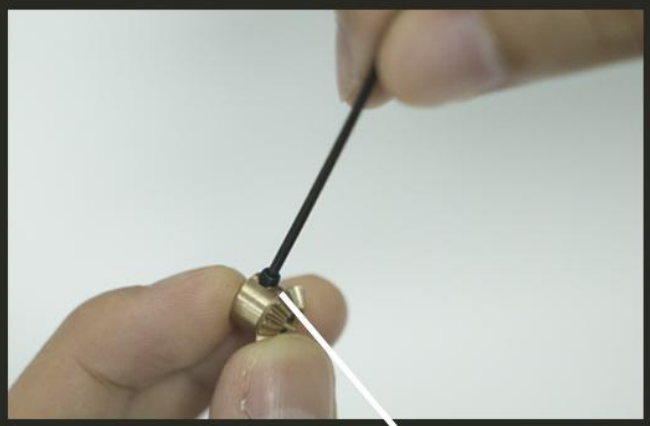






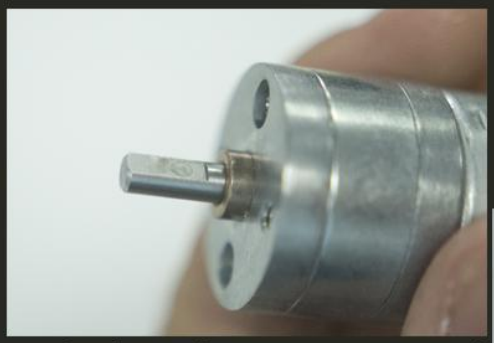
Fix the bevel gear on the motor with the set screw (fix with the 1.5mm wrench).





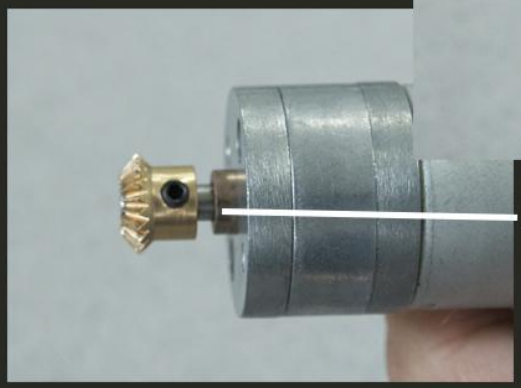
Effect diagram after assembling

1.5mm wrench



The bevel gear is screwed into this cross section

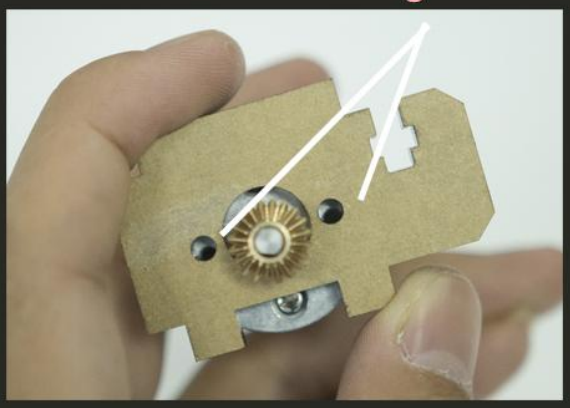
The bevel gear just coincides with the front end of the motor



Notice the spacing here

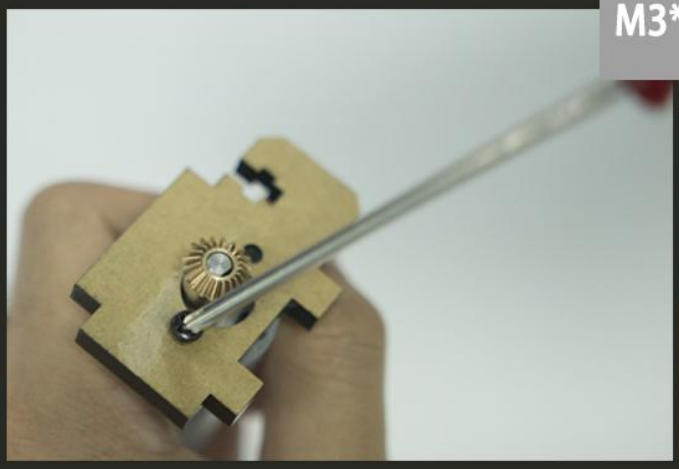
Fix the motor to the acrylic plate with M3*8 screws.

Pay attention to the alignment of the orifice

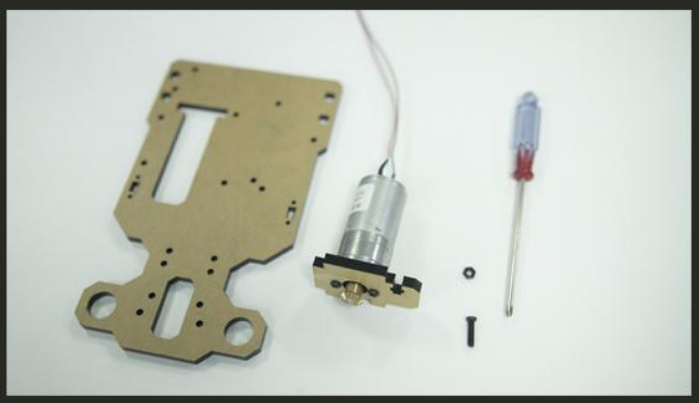


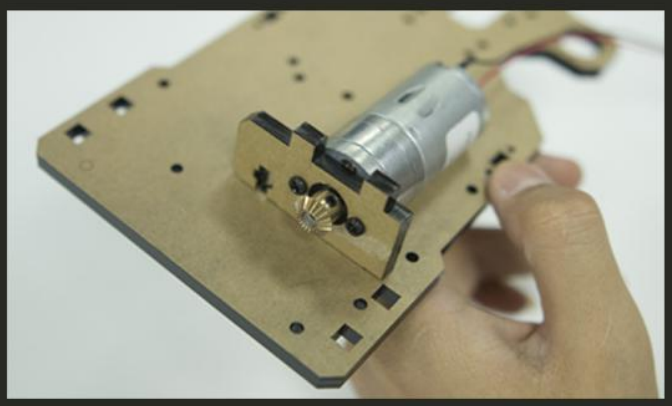
Effect diagram after assembling

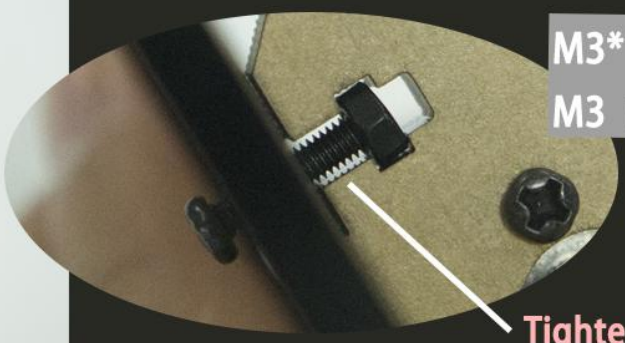
M3*8 Screw x 2



Install the acrylic plate with the motor on the main plate of the car and fix it with M3*12 screw and M3 nut.



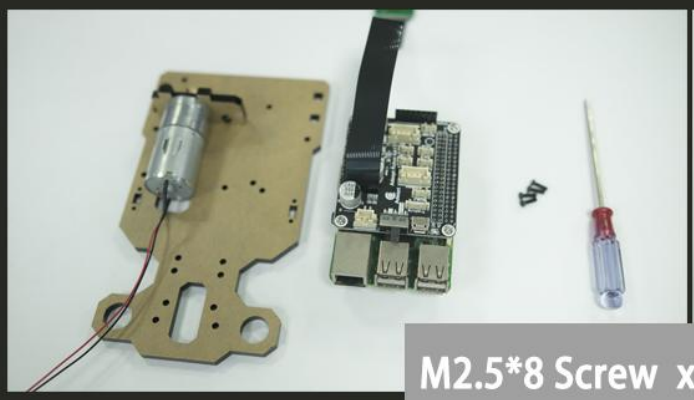


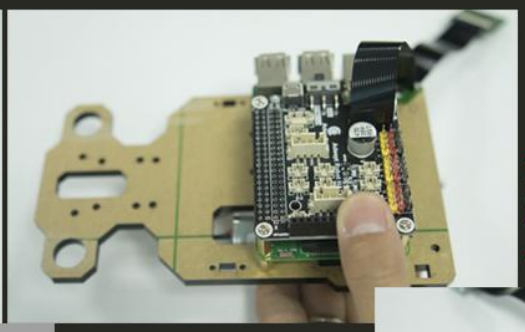


M3*12 Screw x 1
M3 Nut x1

Tighten screws

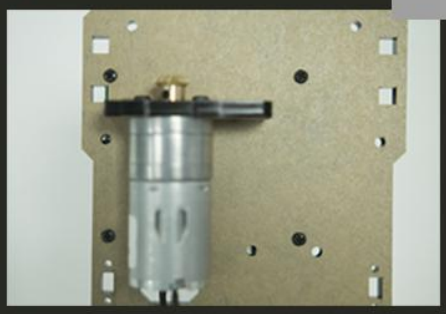
Mount the Raspberry Pi and the driver board on the top plate and secure with M2.5*8 screws.

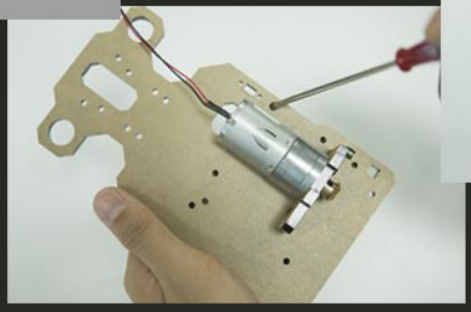




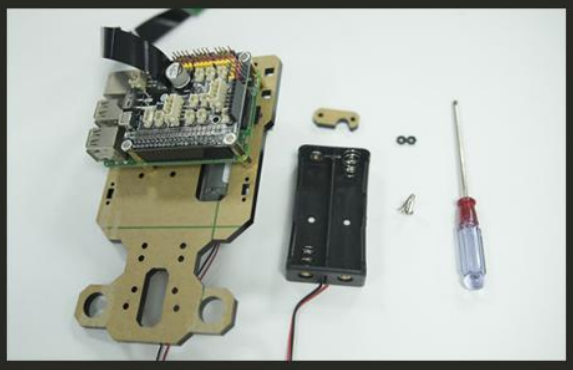
Pay attention to the installation of the drive board

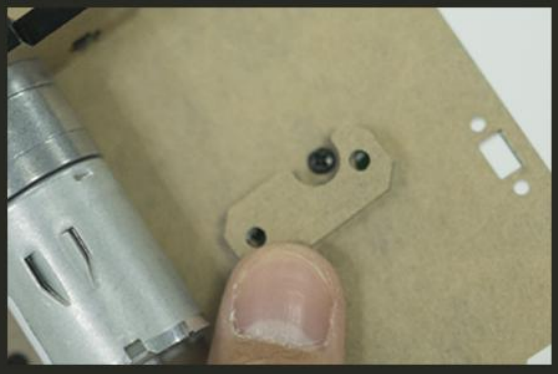
M2.5*8 Screw x4

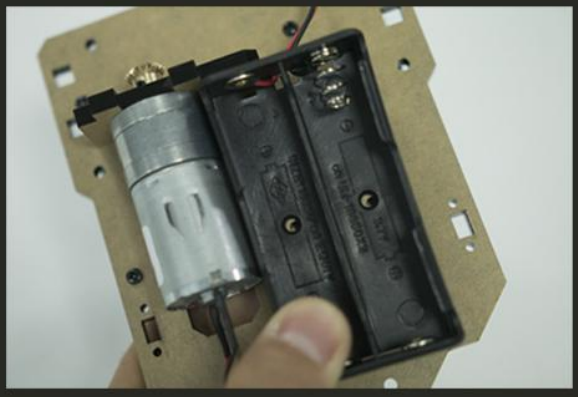


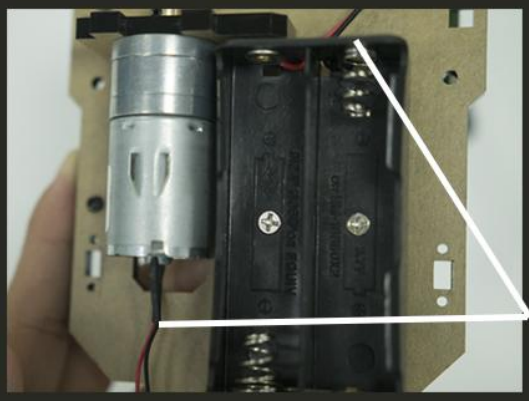


Install the battery case on the back side of the motor and secure it with M3*14 Countersunk Head Screw and M3 nuts.



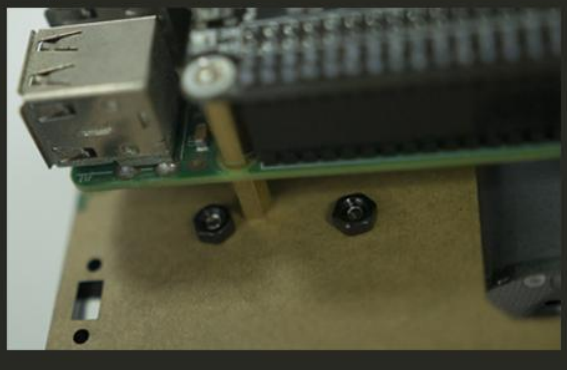






The connecting wire between the motor and the battery box passes through the middle large hole

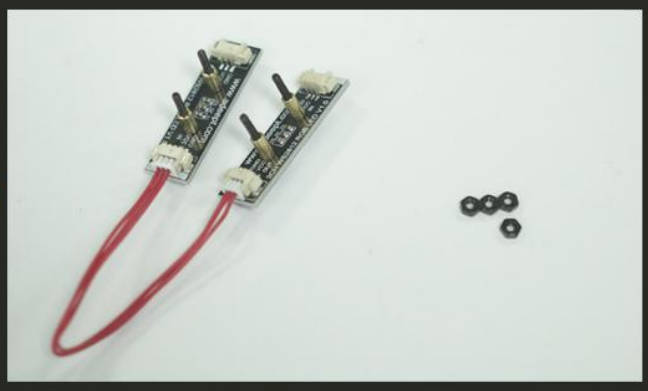
Tighten the screws and nuts



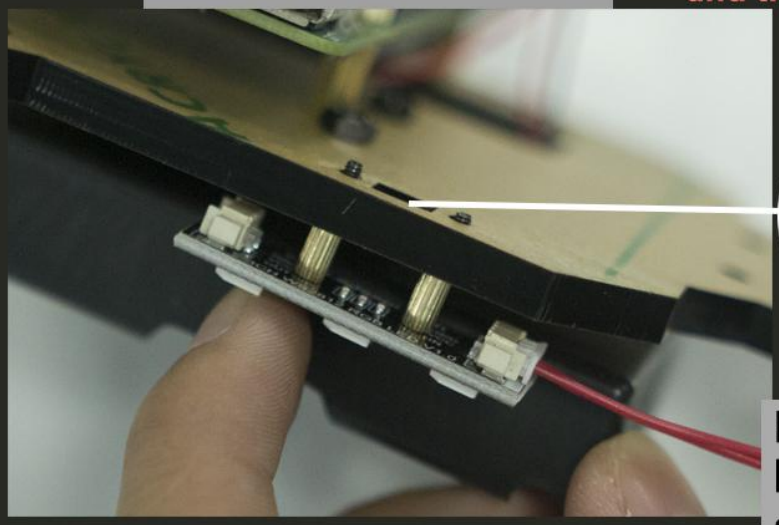
Effect diagram after assembling

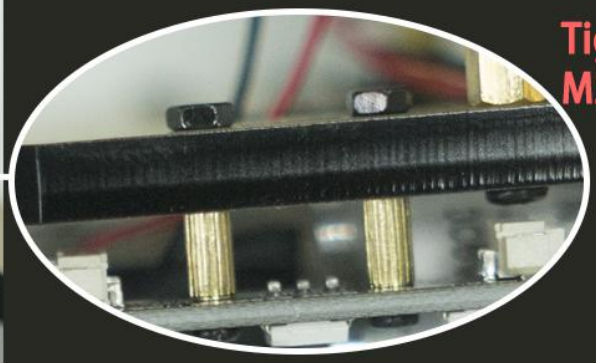
Install the LED bar on the same side with the motor and fix it with M2*14 screws and M2 nuts.

M2*14 Screw	X4
M2*6 Copper Standoff	X4
M2 Nuts	X4



Pass M2*14 screw through the LED bar first and then through the copper standoff of M2*6



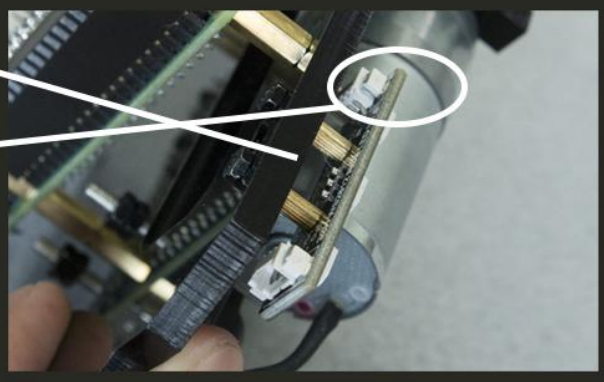


Tighten M2 nuts

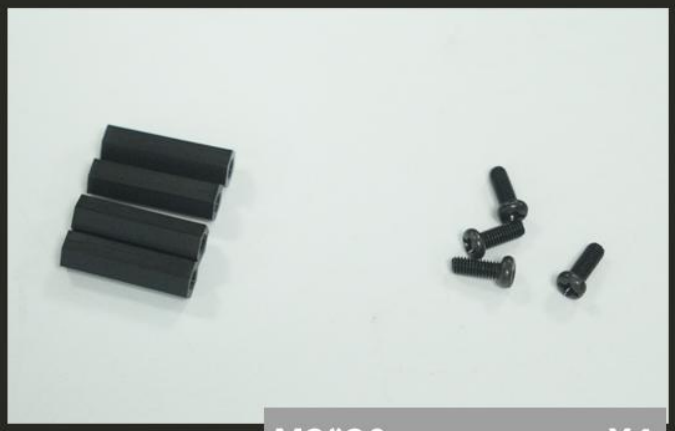
Please refer to the circuit connection listed at the end of the tutorial for specific assembly method of the LED bar

On the other side, follow the above steps

assemble the two LED bars, one with the white on the front and the other with the white on the back



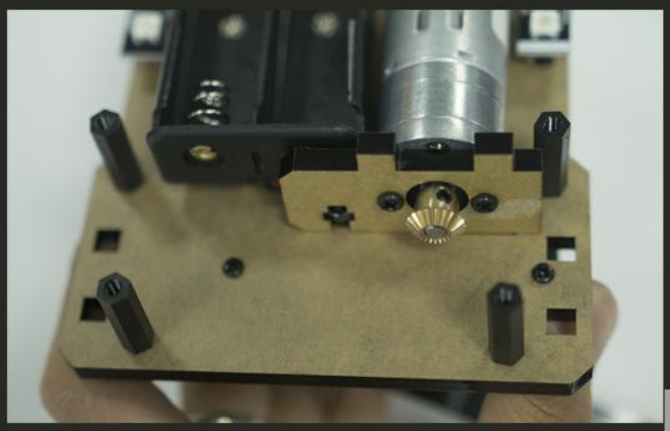
Fix the M3*20 nylon standoff on the acrylic plate with M3*8 screws.



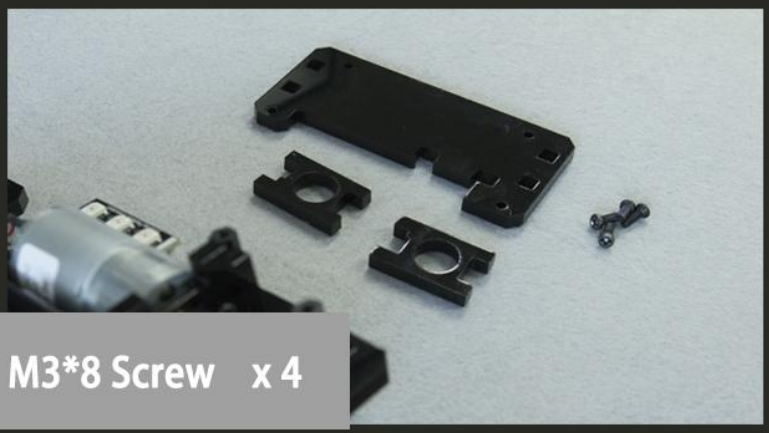
M3*20 Nylon standoff	X4
M3*8 Screw	X4

the screws that fix the nylon standoff can be directly screwed with hand, no need using a screwdriver)

Effect diagram after assembling

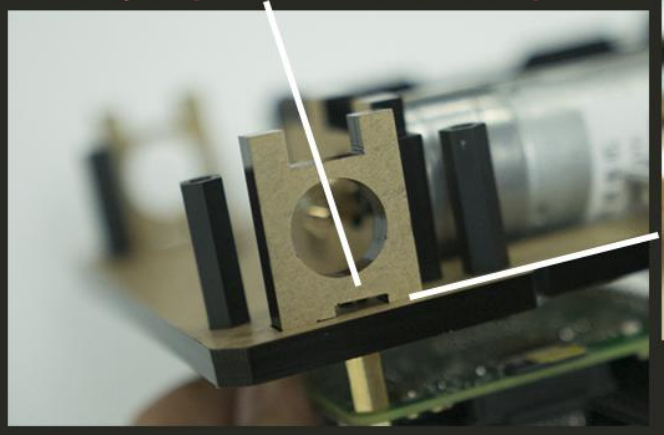


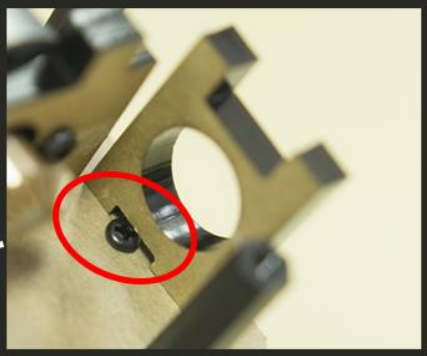
Install the two acrylic plates of the fixed bearing on the main plate

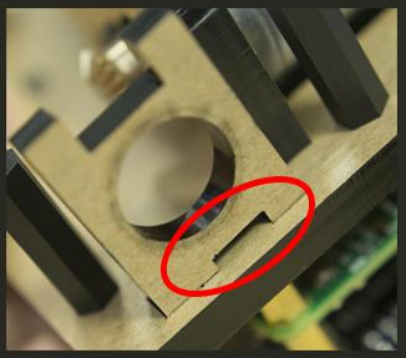


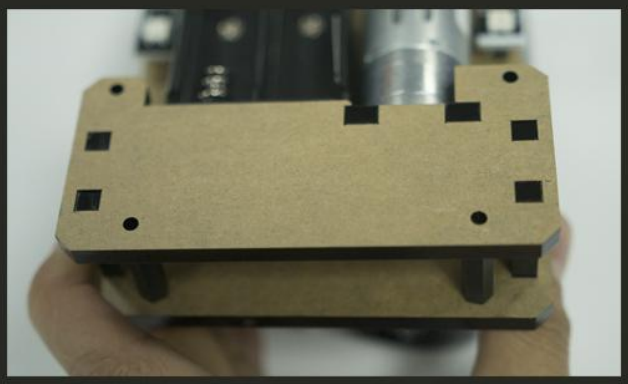
M3*8 Screw x 4

Note the gap of the screws between the acrylic plate and the main plate.

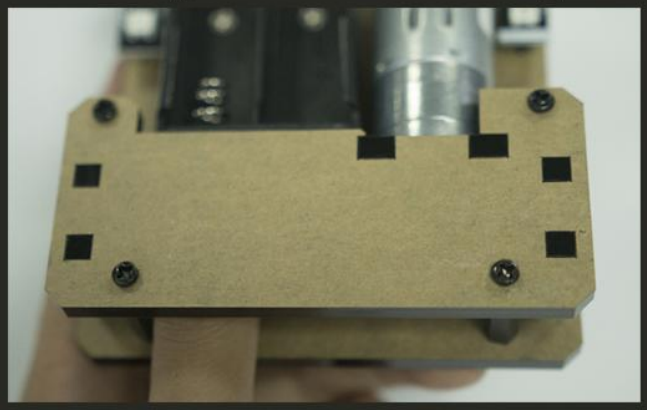






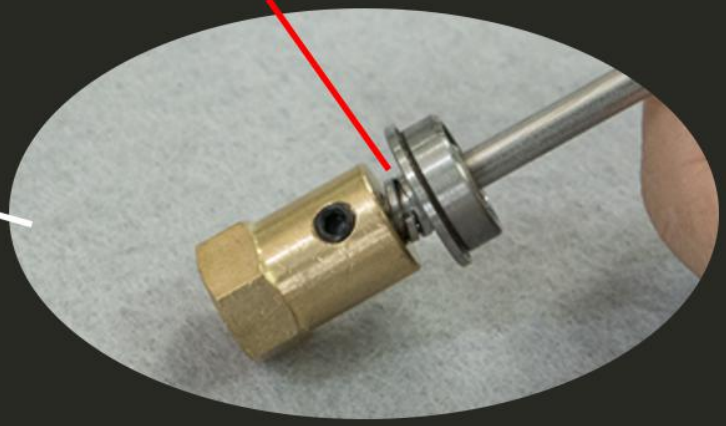


Effect diagram after assembling

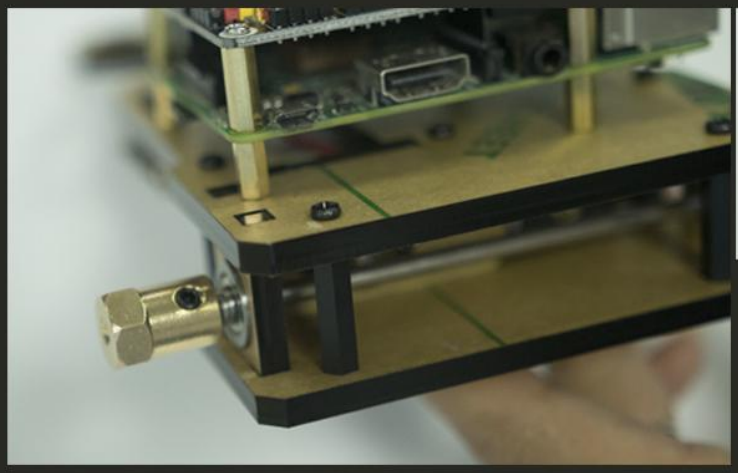


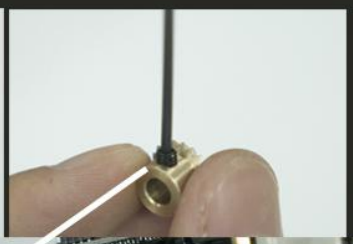
Fix the coupling on the shaft

Two M4 spacers

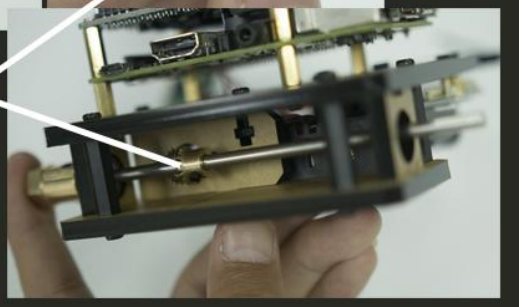


Pass the shaft through the acrylic plate and put the bevel gear into the shaft from the other end

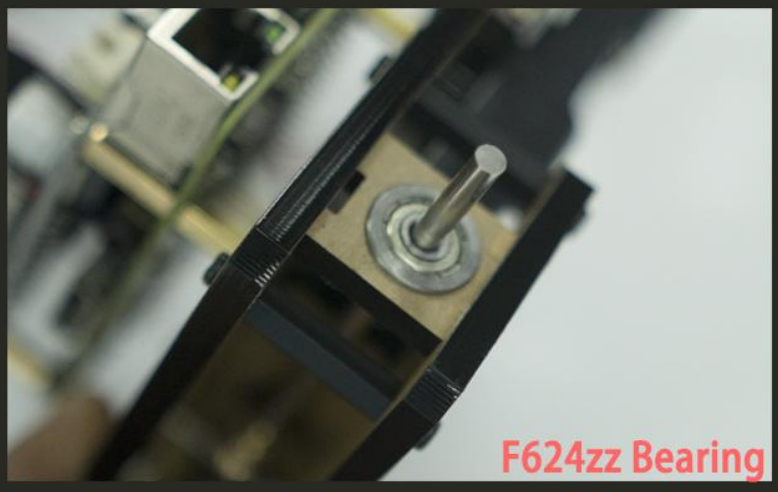




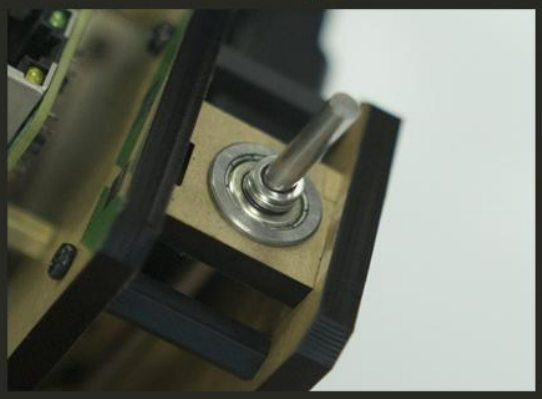
No need to tighten up.



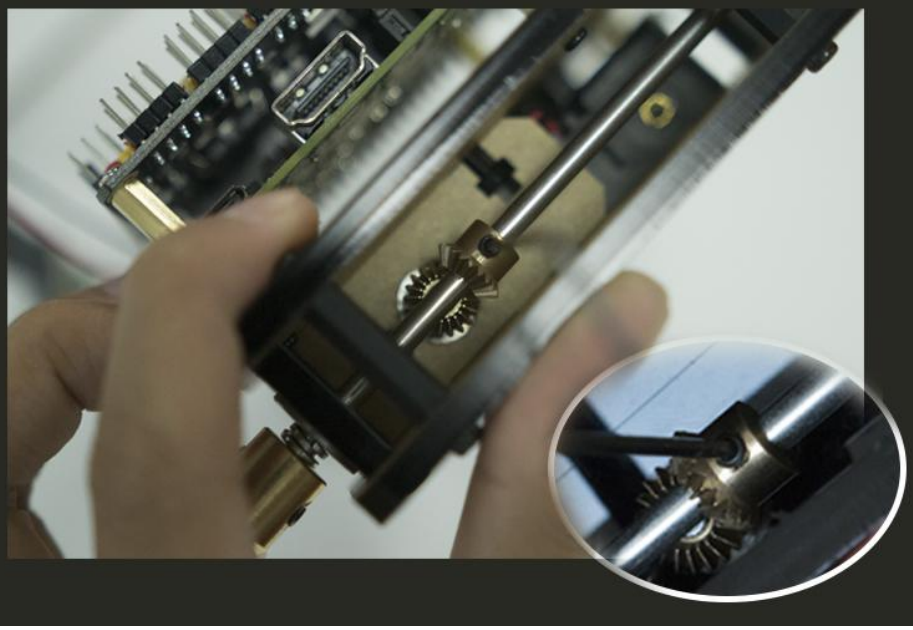
Place the F624zz bearing and the two M4 spacers on the other end, then fix the coupling to the shaft and tighten the set screw

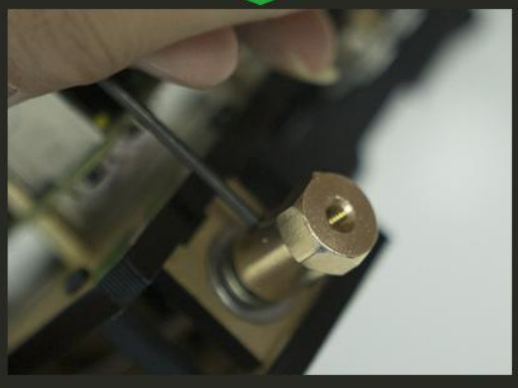


Two M4 spacers



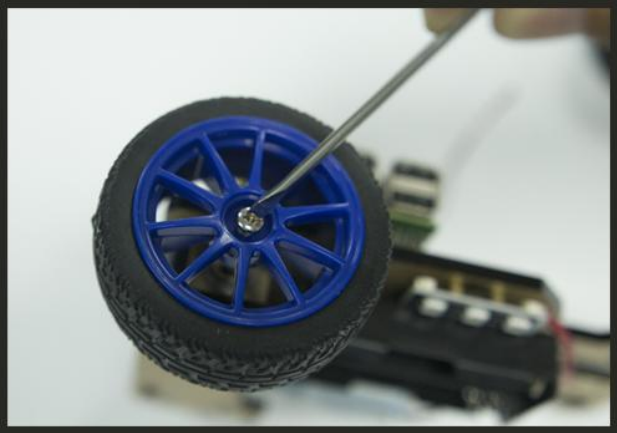
(after the couplings at both ends are fixed, position the two bevel gears and use the 1.5mm wrench to tighten the screws).



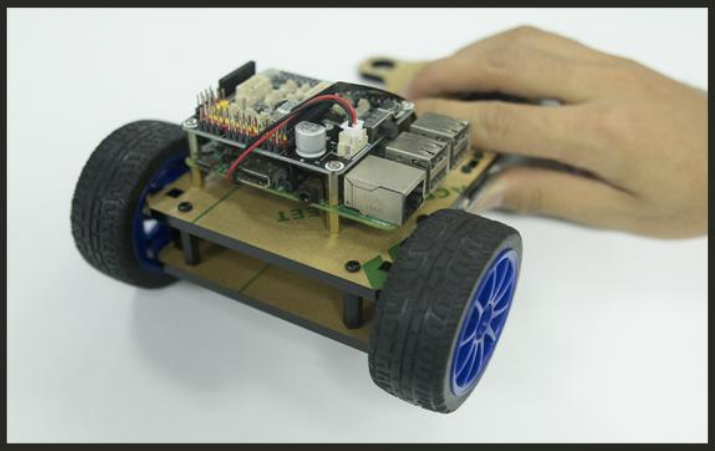


Tighten the machine screws at both ends of the coupling

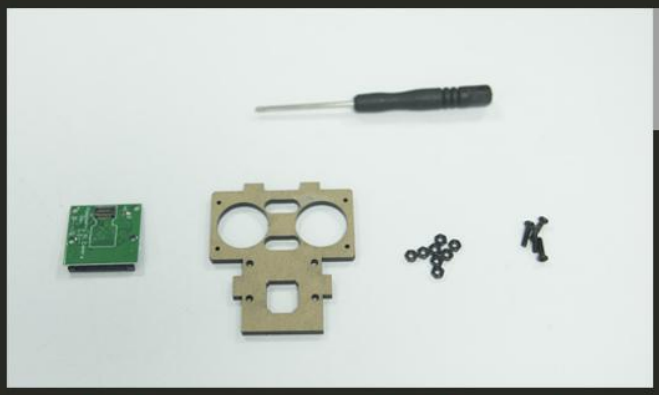
Secure the wheel to the coupling with M4*6 screws.



Effect diagram after assembling

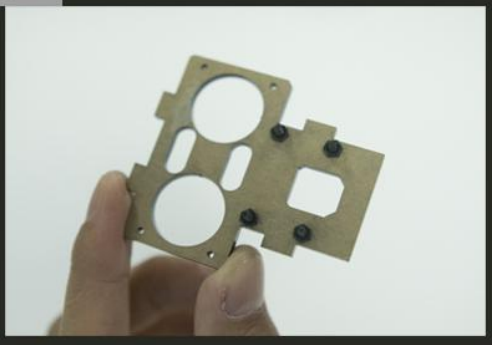


Fix the camera and the acrylic plate with M2*8 screws. First pass the screws through the acrylic plate and fix the spacer with M2 nut. Then assemble the camera and fix it with M2 nut.

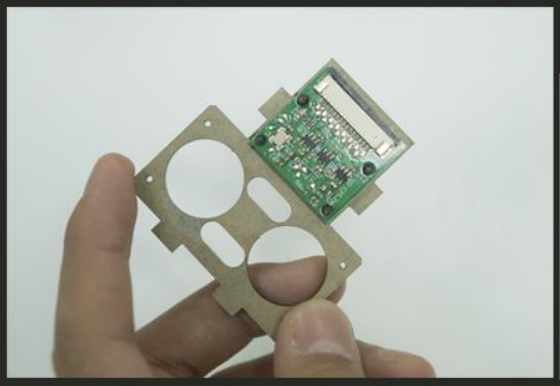


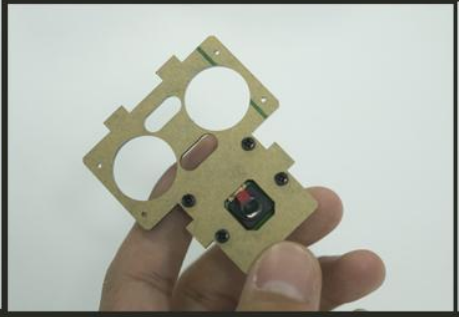
M2*8 Screw x 4
M2 Nut x 8

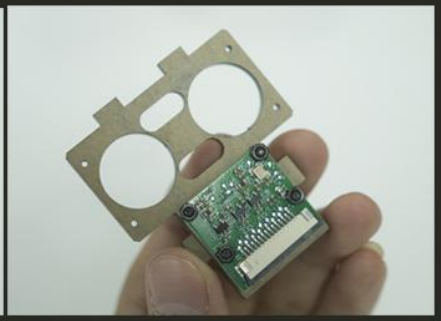
Screw the nuts once



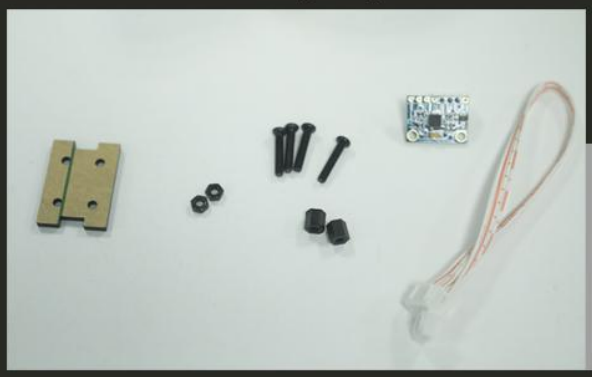
Install the camera and tighten the screws



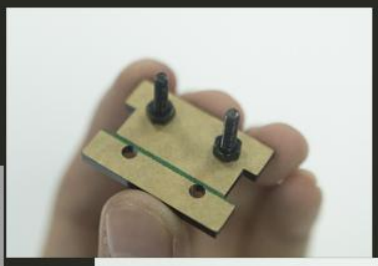


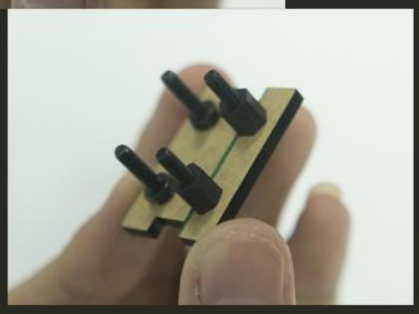


Mount the MPU6050 on the acrylic plate, fix one end with the M3*16 screw, and pass the screw of the other end through the M3*6 nylon standoff and then fix the whole on the acrylic plate.



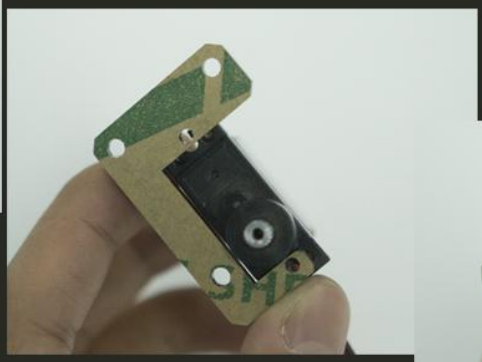
M3*16 Screw	x 4
M3 Nut	x 2
M3*6 Nylon Standoff	x 2



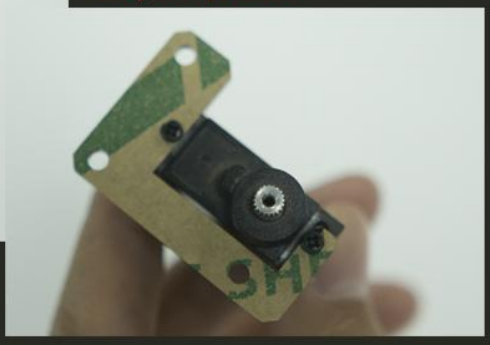


Use the M2*8 screw and the M2 nut to fix the servo.

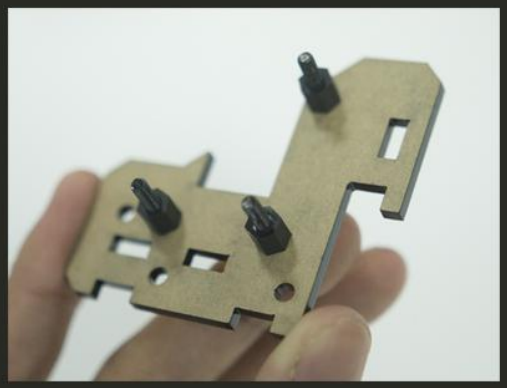
M2*8 Screw	x 2
M2 Nut	x 2

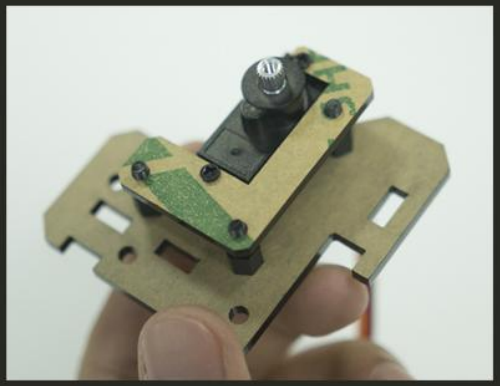


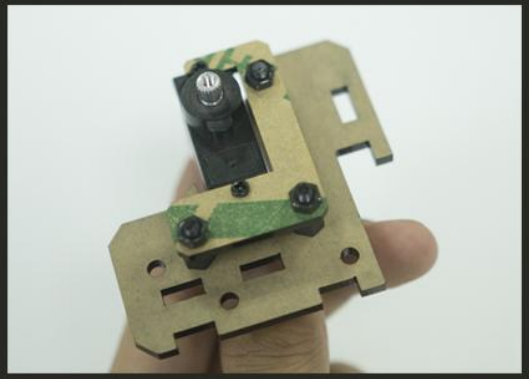
Pay attention to the position of servo and acrylic plate



Fix the acrylic plate and the M3*6 nylon standoff with M3*16 screws, then fix the servo on the nylon standoff with M3 nut.

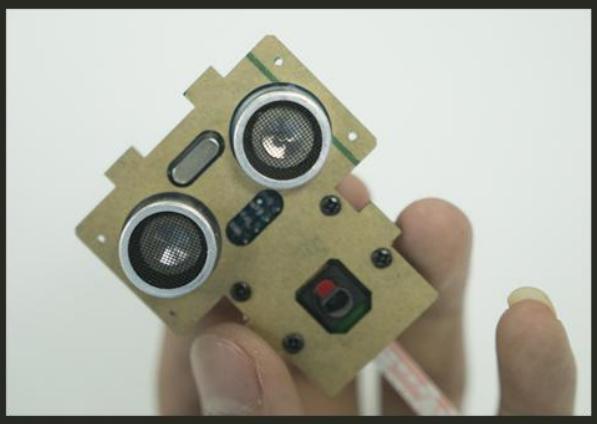




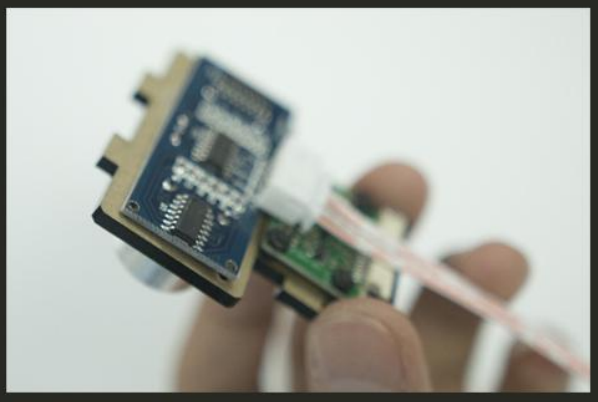


Tighten nuts

Place the ultrasonic module on the acrylic plate, no need to fix with screws.

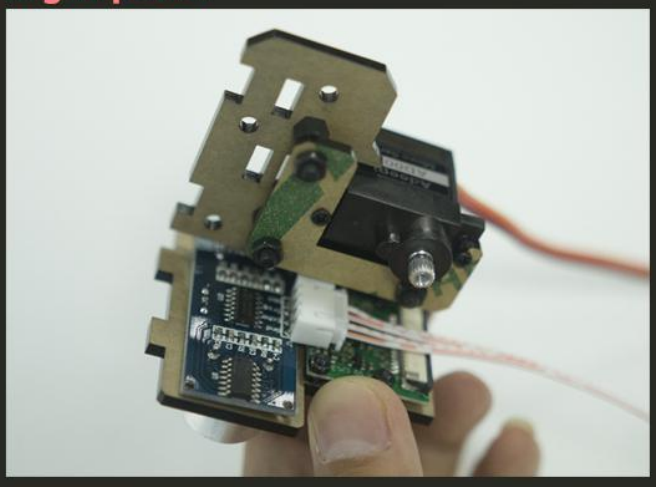


Connect the 4Pin wire of ultrasonic

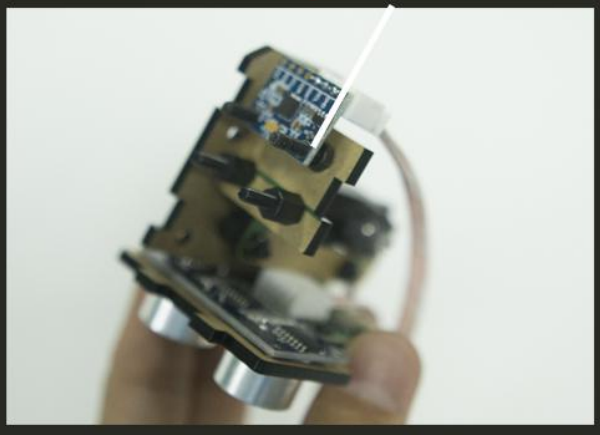


Assemble the right panel, mpu6050,left panel and upper panel in turn

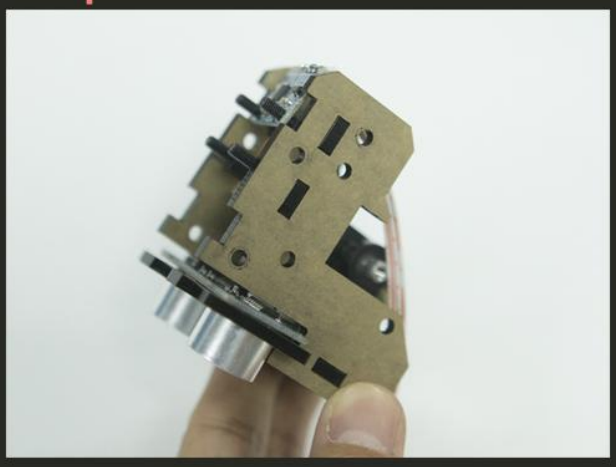
Right panel



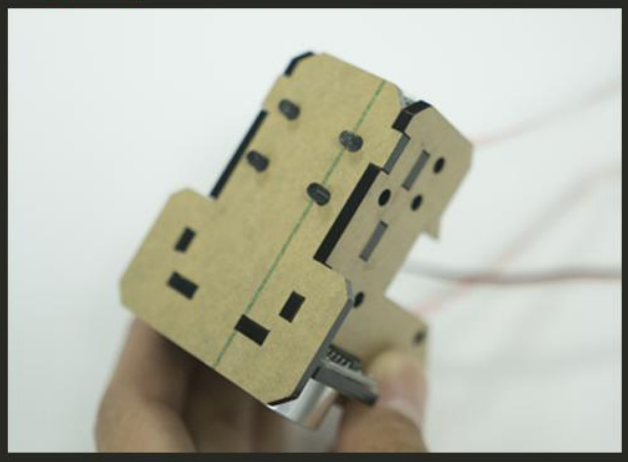
MPU6050 can be put into the screw



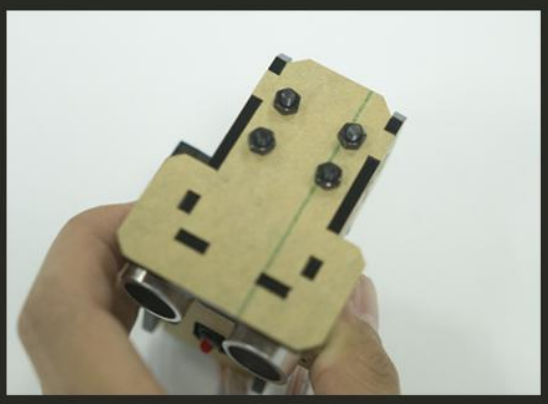
Left panel



Upper panel

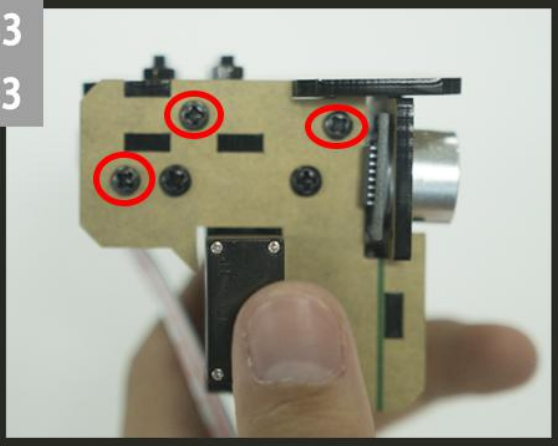


Fix with M3 nut

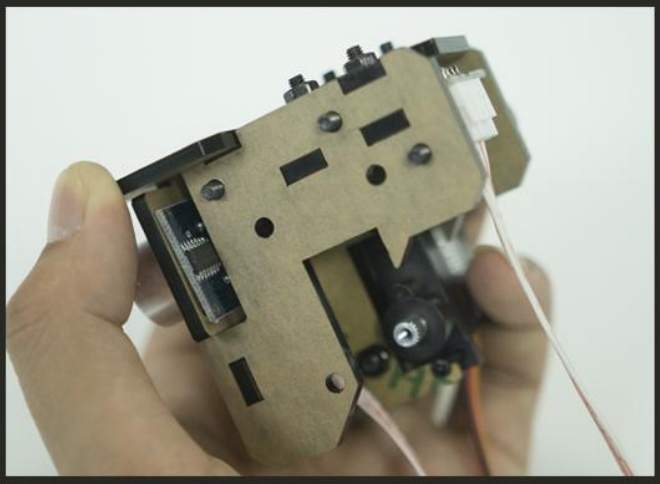


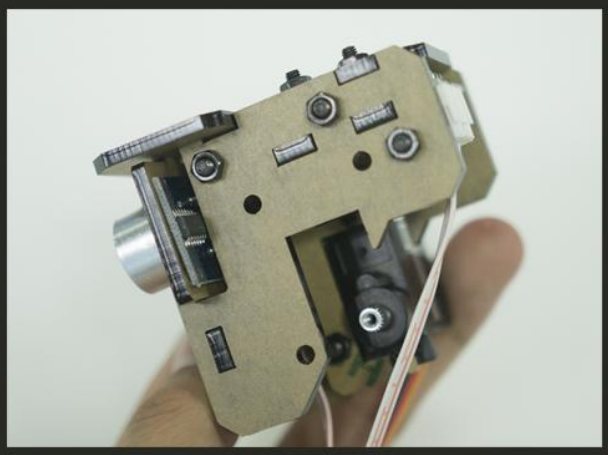
Fix the acrylic plate with M3*35 screw and M3 nut.

M3*35 Screw x 3
M3 Nut x 3

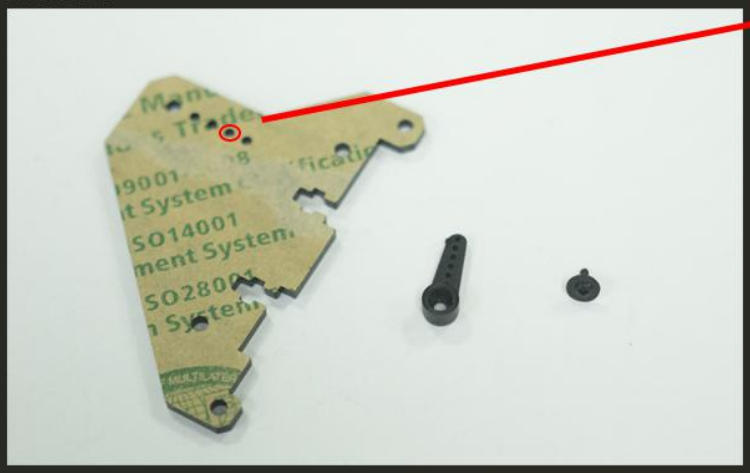


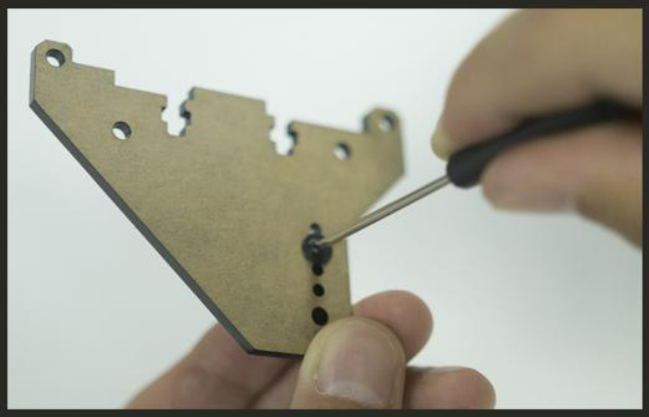
Fix with M3 nut



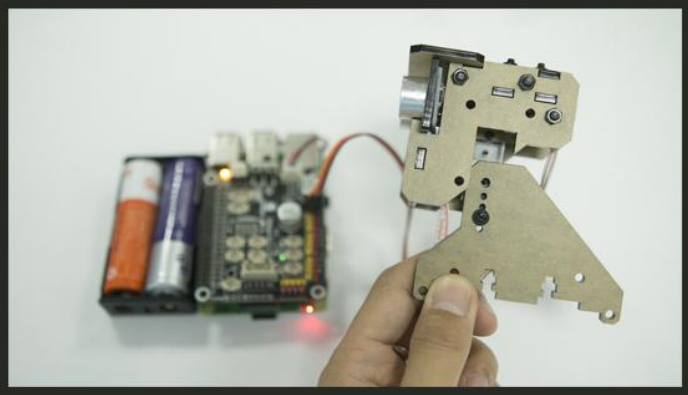


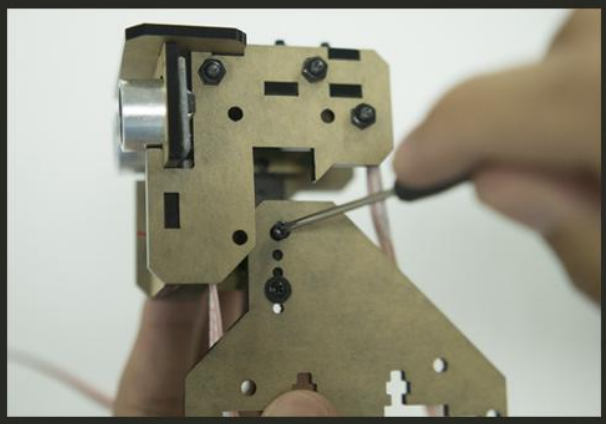
Install the rocker arm of the servo on the acrylic plate with M1.7*6*6 self-tapping screw.

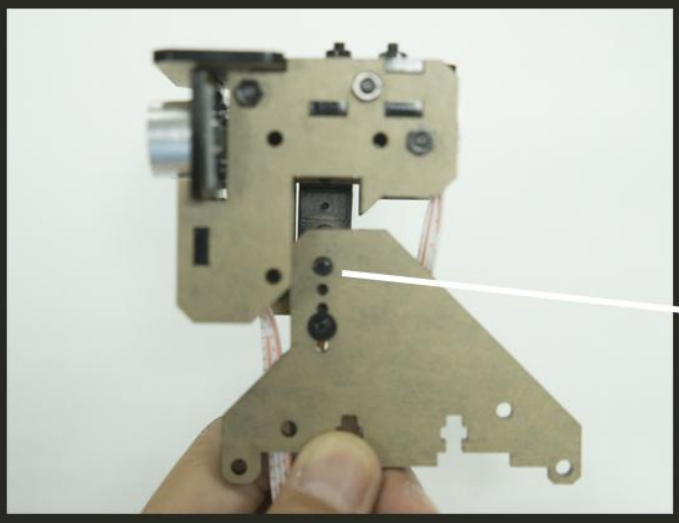




Fix the rocker arm and servo with M2.5*8 screw(the servo need to be installed into the driver board and rotated to the middle).





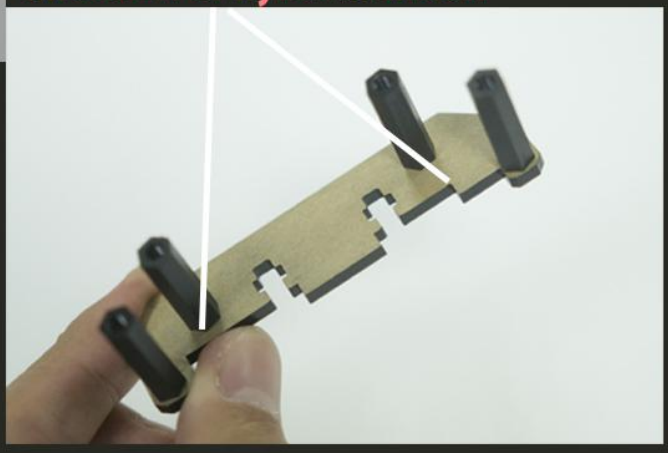


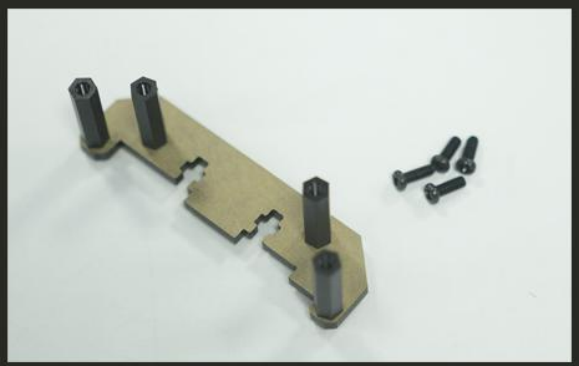
M2.5*8 screw

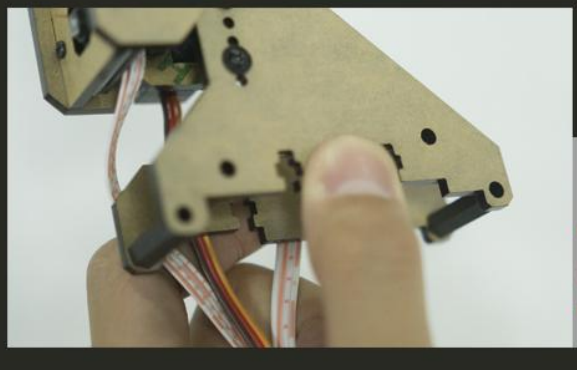
Fix the nylon standoff with M3*8 screw on the acrylic plate.

M3*20 nylon standoff x 4
M3*8 Screw x 4

Pay attention to the installation direction of nylon standoff

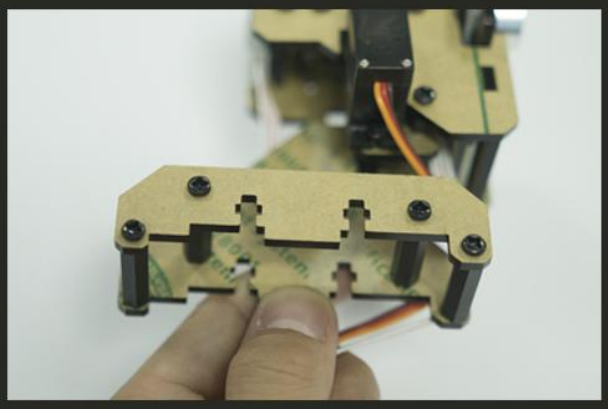


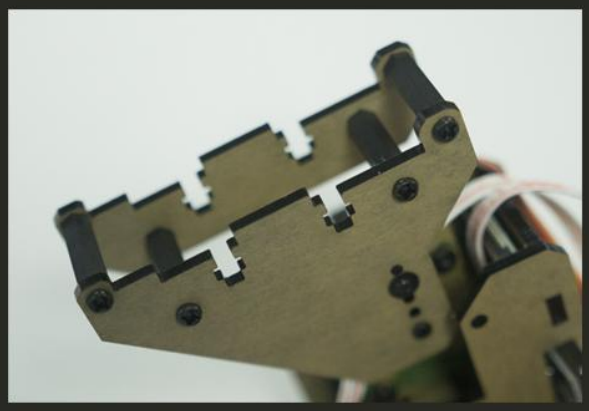




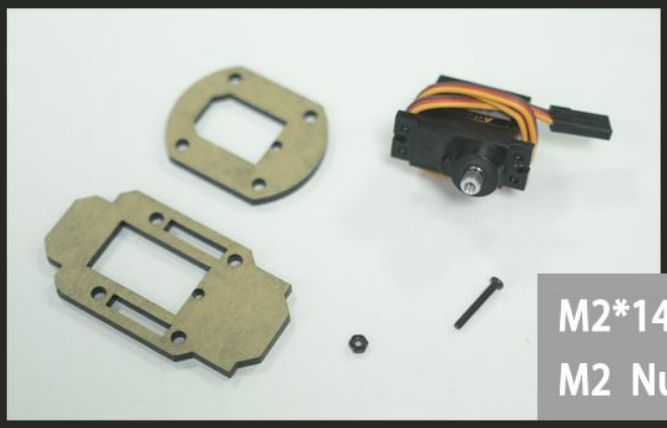
Fix acrylic plate and M3*20 nylon standoff M3*8 with screws

Effect diagram after assembling

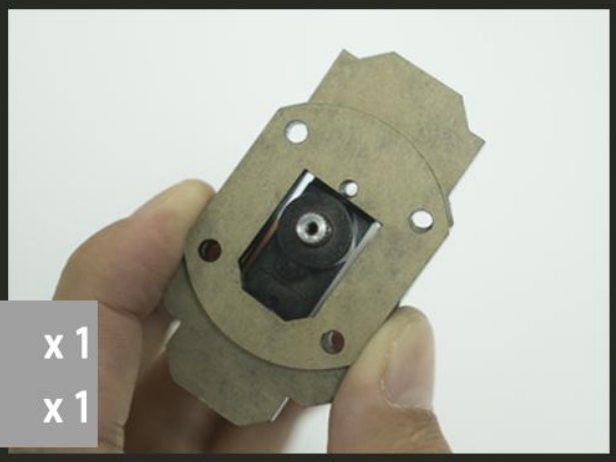


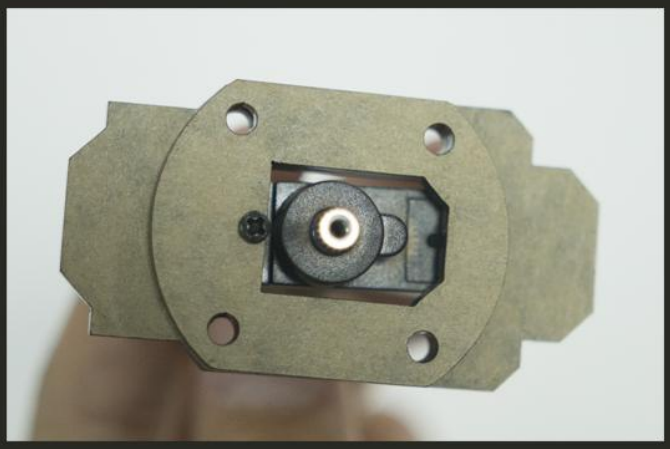


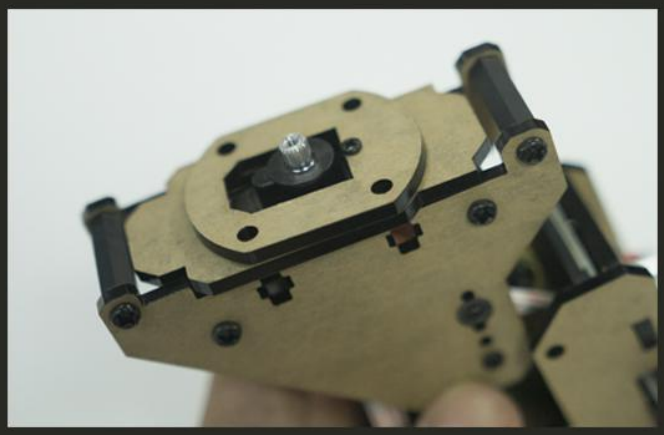
Fix the servo with M2*14 screw and M2 nut.

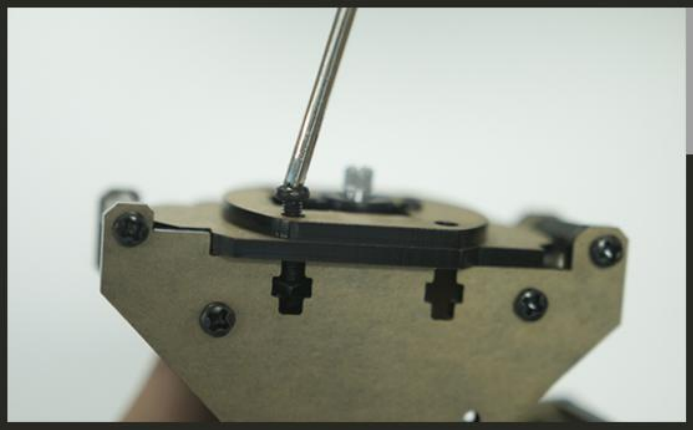


M2*14 Screw	x 1
M2 Nut	x 1





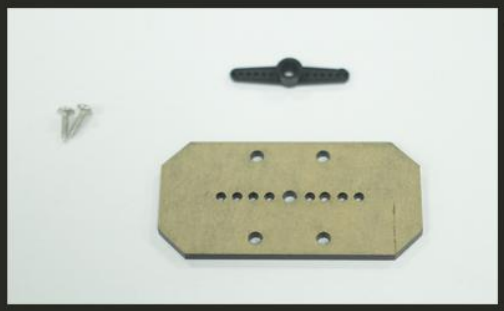


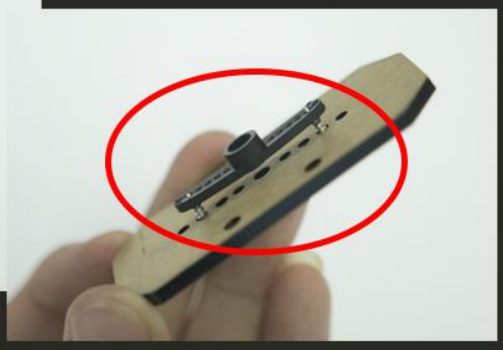


M3*12 Screw	x 4
M3 Nut	x 4

Pay attention to the installation of these two positions

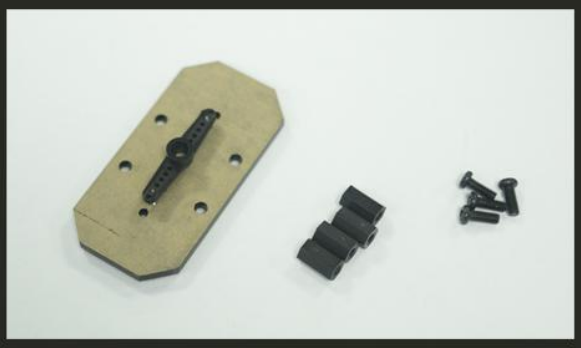
Fix the rocker arm plate with screw in bag.

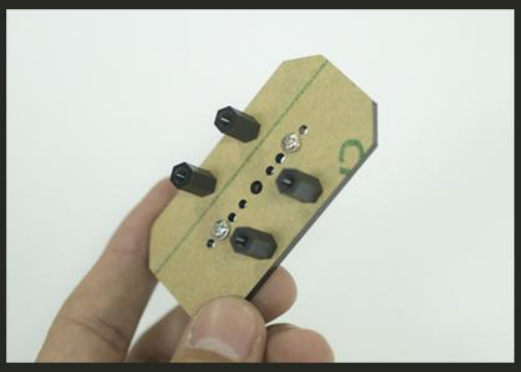




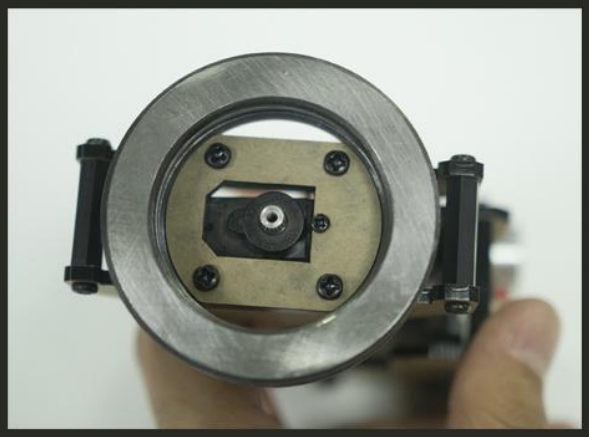
The screw should just pass through the rocker arm, and the gap between the rocker arm and the acrylic plate should be maintained

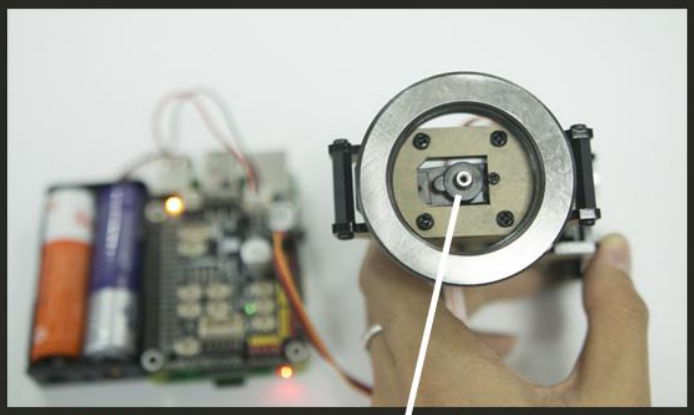
Fix the M3*10 nylon standoff plate with the rocker arm plate with M3*8 screw.



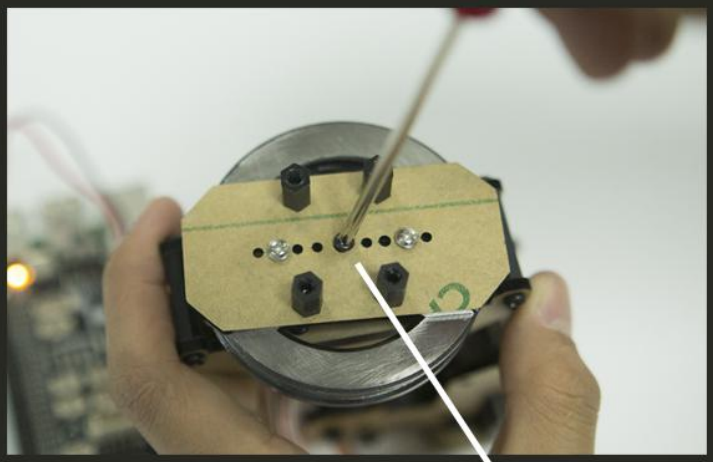


Place the bearing, fix the rocker arm and servo with M2.5*10 screw

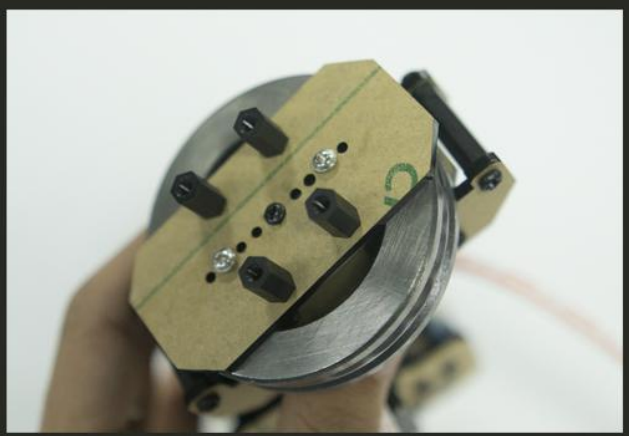




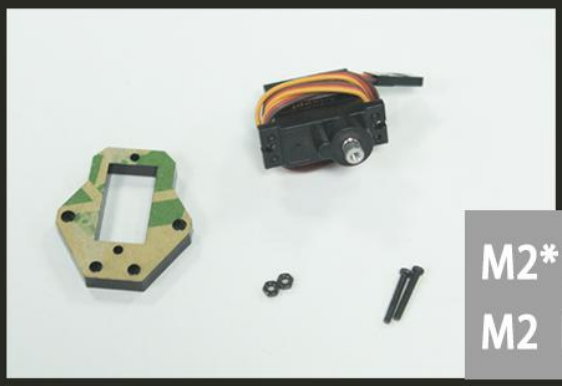
Make sure the servo is electrified to the middle position



M2.5*10 Screw

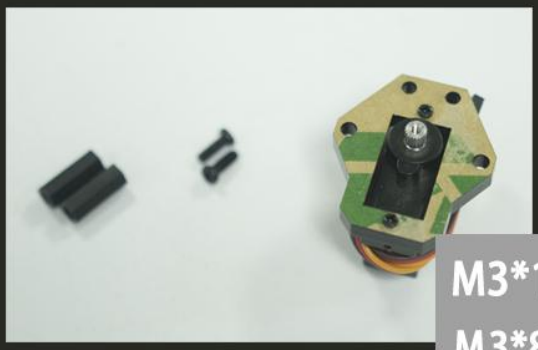


Fix the servo



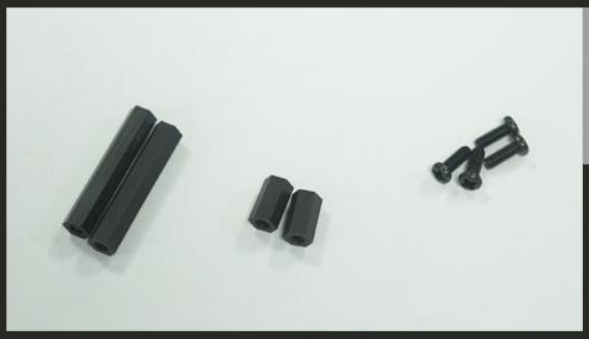
M2*14 Screw x 2
M2 Nut x 2

Fix the M3*15 nylon standoff on the servo plate with M3*8 screw.



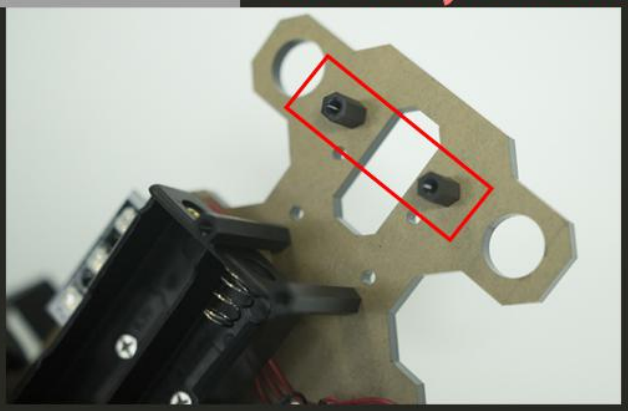
M3*15 nylon standoff x 2
M3*8 Screw x 2

Fix the M3*10 nylon standoff and M3*30 nylon standoffon the main plate with M3*8 screw.

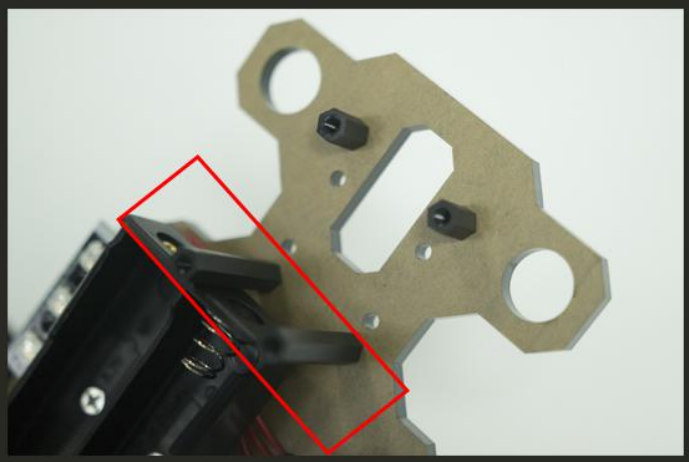


M3*10 nylon standoff x 2
M3*8 Screw x 4
M3*30 nylon standoff x 2

M3*10 nylon standoff

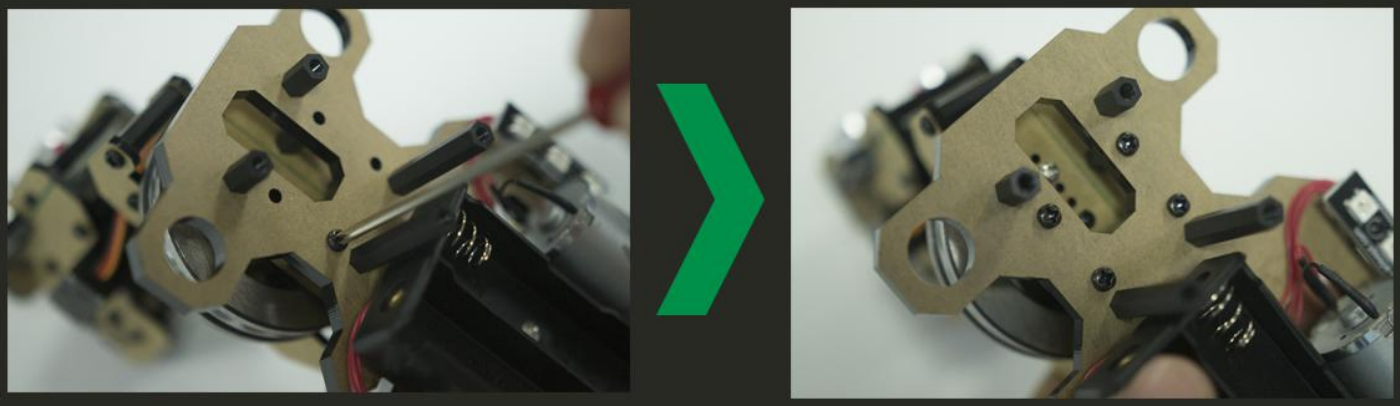


M3*30 nylon standoff

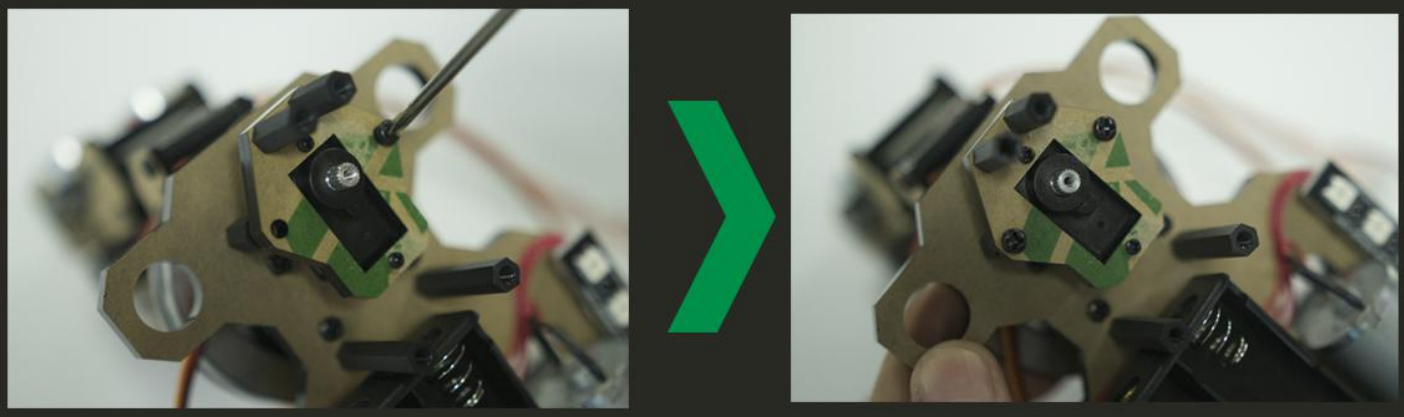


Assembled cloud platform

Fix the cloud platform with M3*8 Screws.

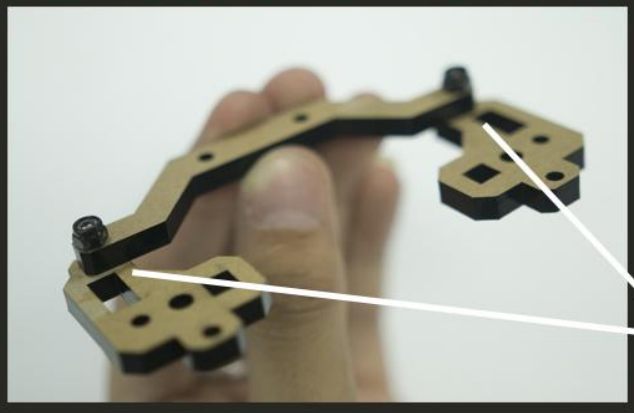


Fix the servo with M3*8 Screws.



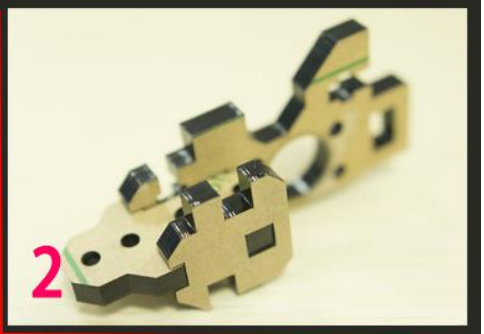
Fix the two acrylics with M3*14 Countersunk Head Screw and M3 lock nut

(the lock nut should not be tightened
and flexible rotation between the two acrylics must be guaranteed).



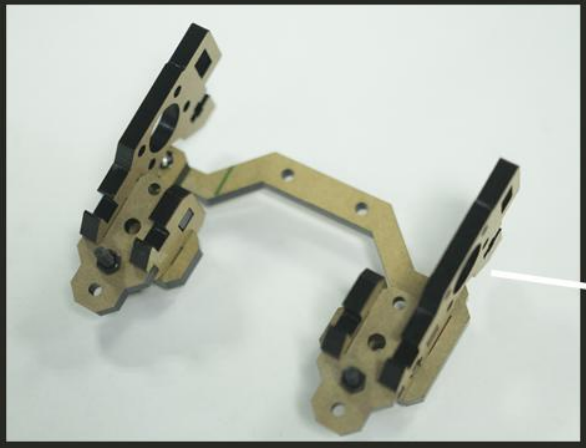
Pay attention to the relationship
between the top and the bottom
of the board

Take out the other three acrylic plates and assemble them together using the following method.



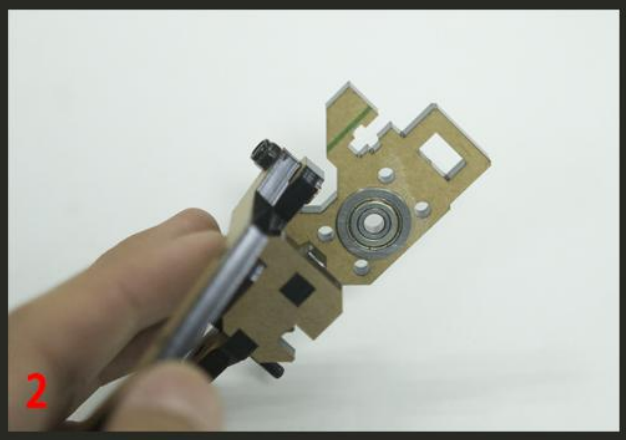
Fix them with M3*25 screws and M3 nuts.

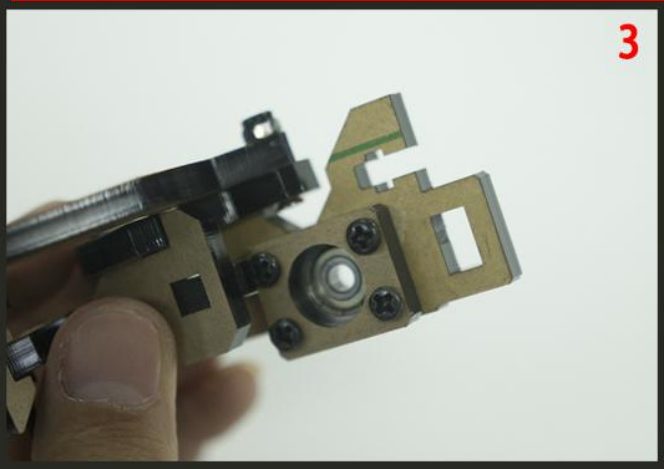
Effect diagram after assembling

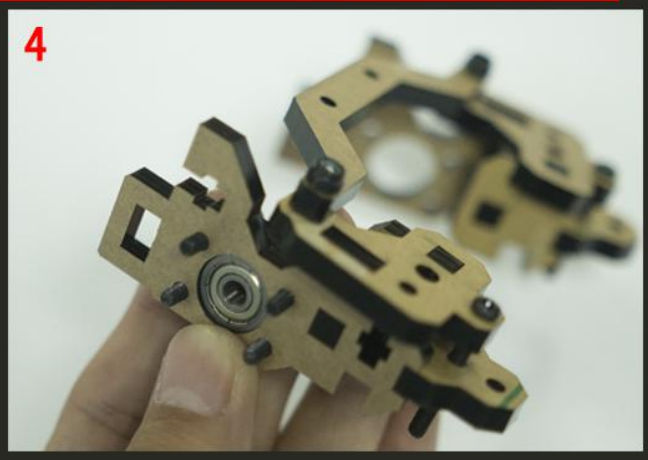


The other side follows the above assembly procedure

Fix the bearing between the two acrylic plates with M3*16 screws and M3 nuts

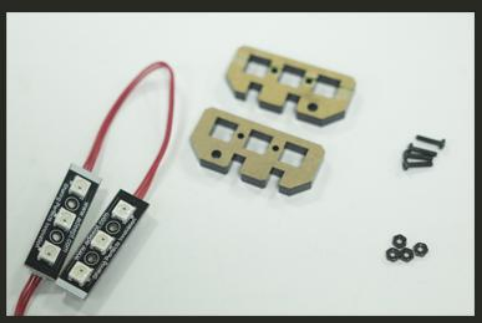


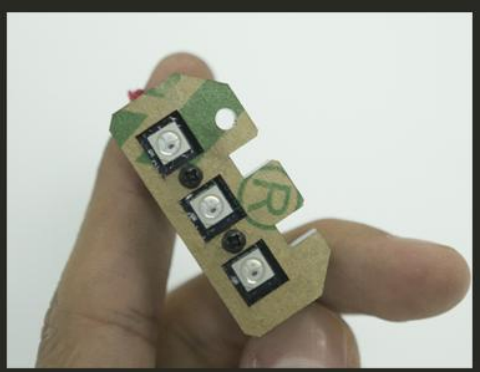


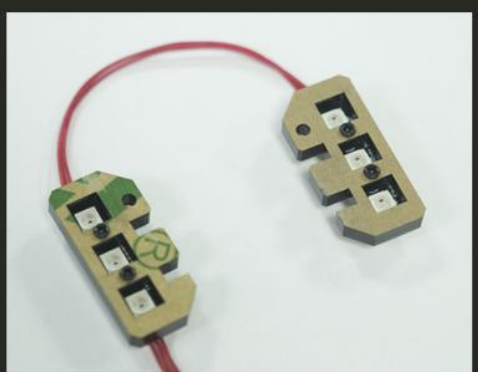


Effect diagram after assembling

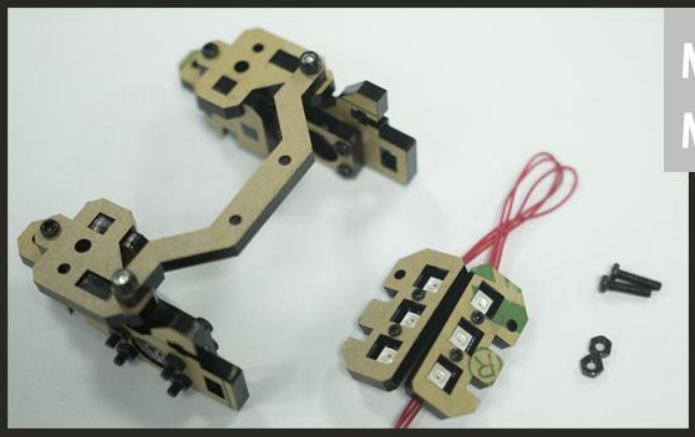
Mount the LED bar on the acrylic plate with M2*8 screws and M2 Nuts.



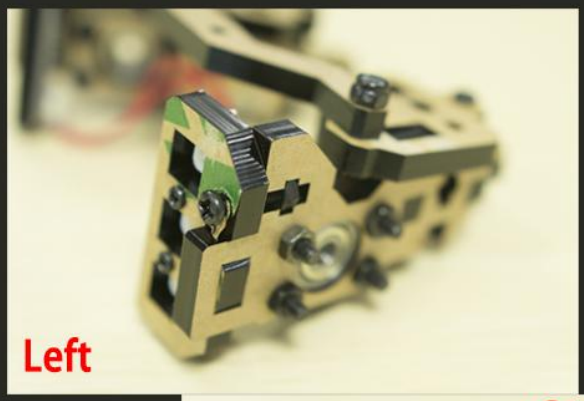




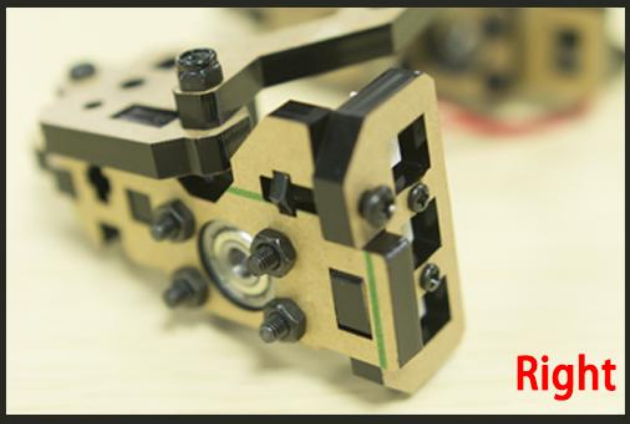
Fix the LED bar with M3*12 screws and M3 nuts.

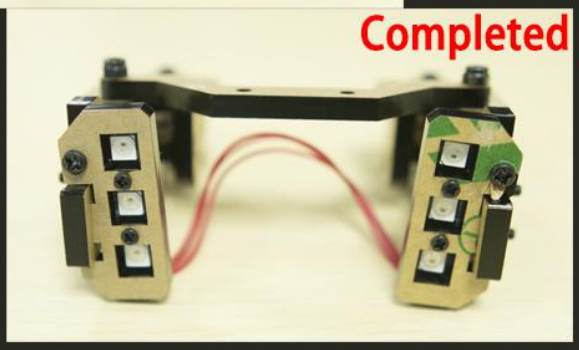


M3*12 Screw	x 2
M3 Nut	X 2



Effect diagram after assembling



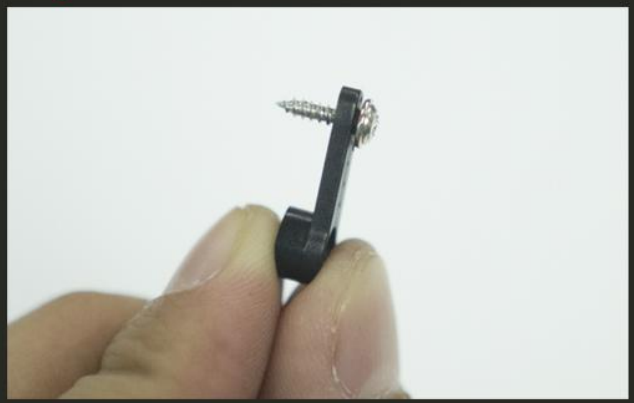


Pass the bearing with M4*45 screw, and then place the M4*8*1 metal spacer and M4*14*3 rubber spacer.

The M4*8*1 metal spacer is placed between the bearing and M4*14*3 rubber spacer

Fix the rocker arm on the acrylic plate with self-tapping screw

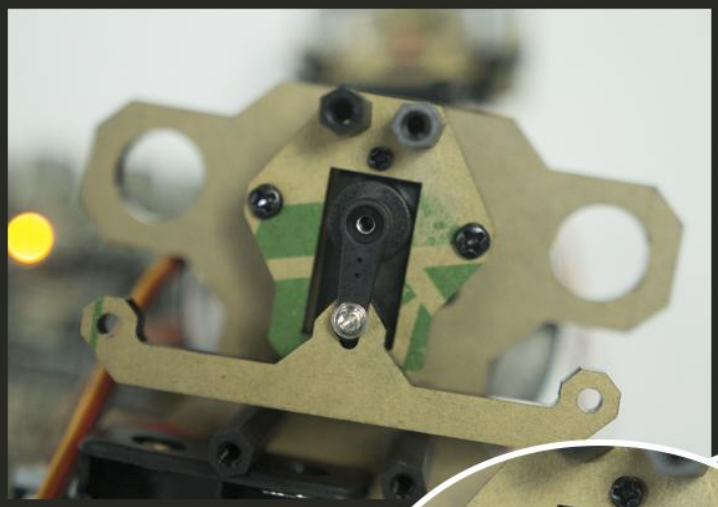
Tighten screw

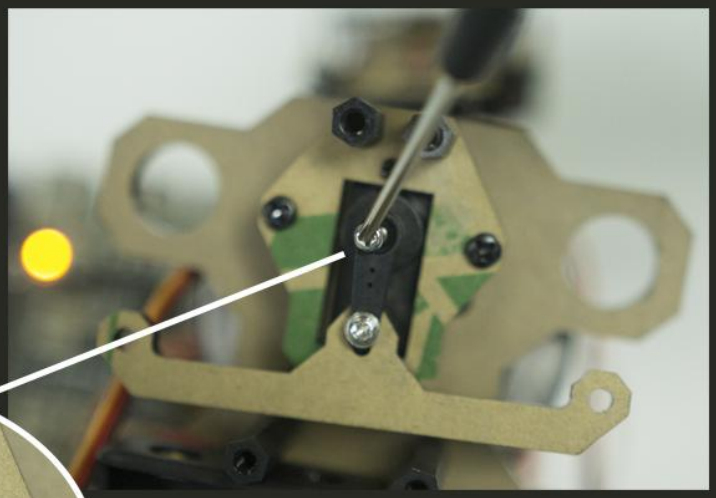


Effect diagram after assembling

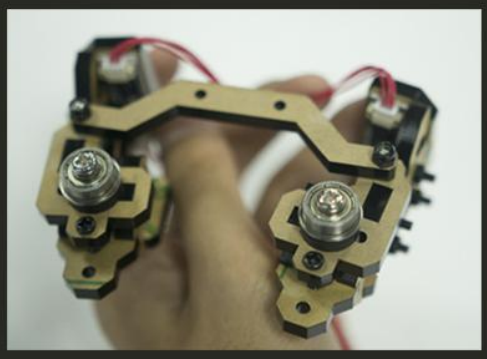
Just hang the screw on the acrylic plate

Fix the rocker arm and servo with M2.5*8 screw(the servo need to be installed into the driver board and rotated to the middle).

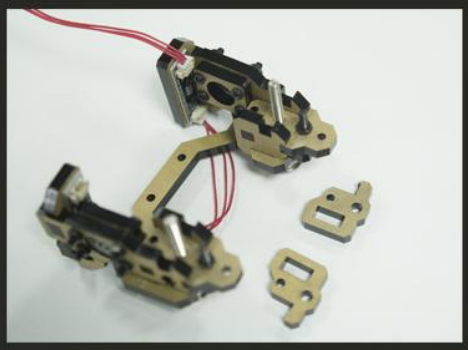




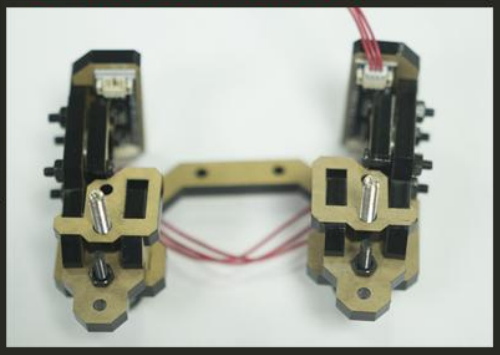
Pass the M4*45 screw through the acrylic plate.



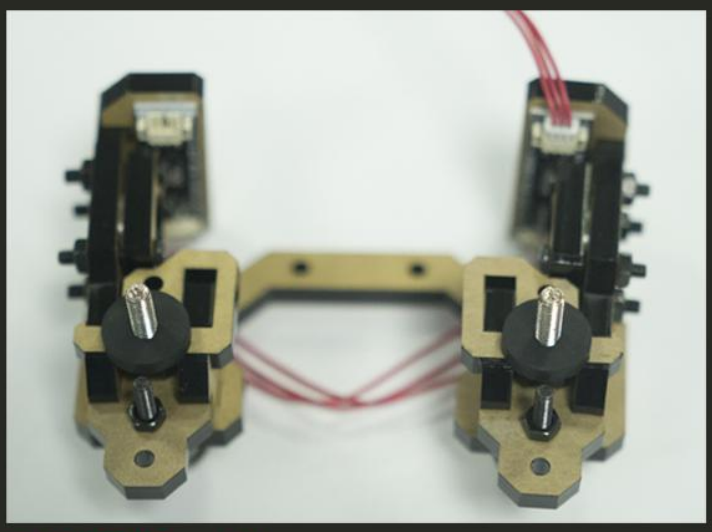
Back



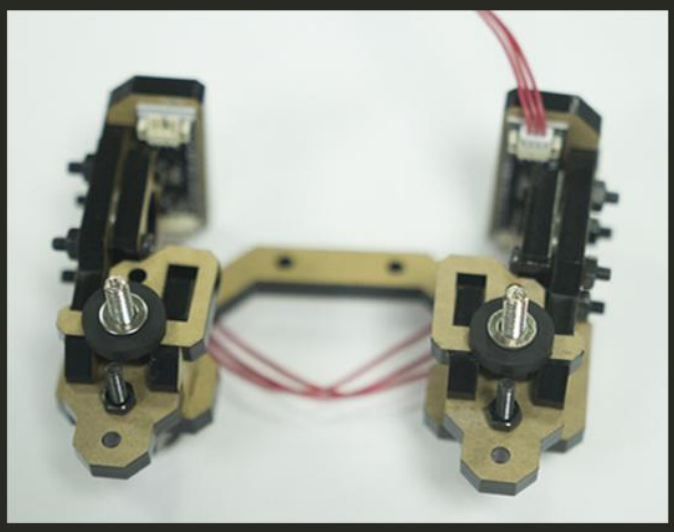
Pay attention to the installation position of the two boards



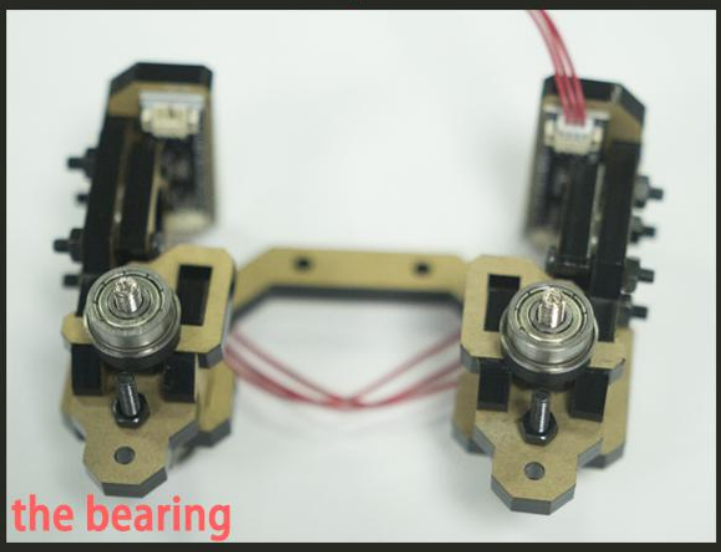
Place the M4*14*3 rubber spacer, M4*8*1 metal spacer and the bearing in order on the M4*45 screw .



M4*14*3 rubber spacer



M4*8*1 metal spacer

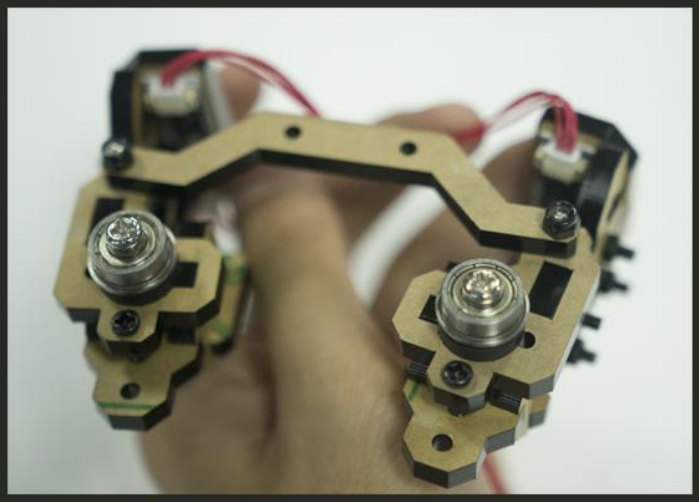


the bearing

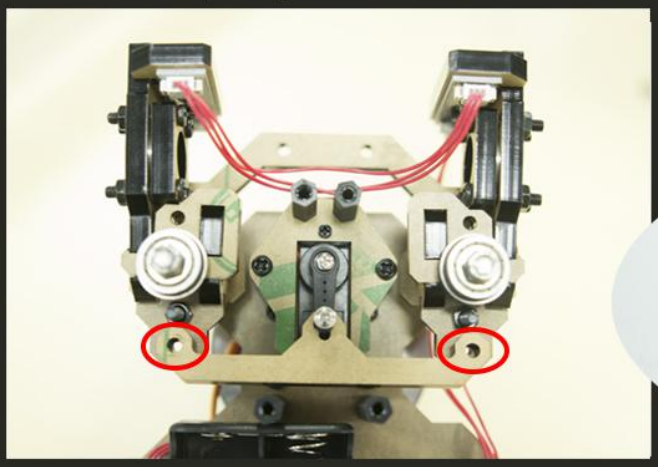
Fix with M4 Lock nut

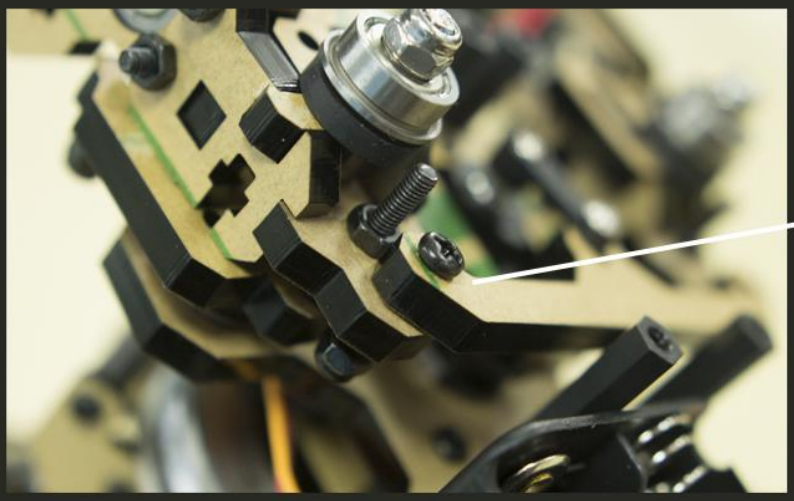
Do not tighten the locknut too tightly

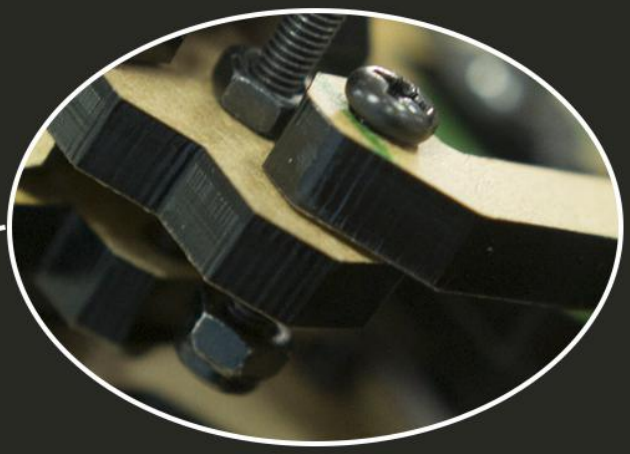
Effect diagram after assembling

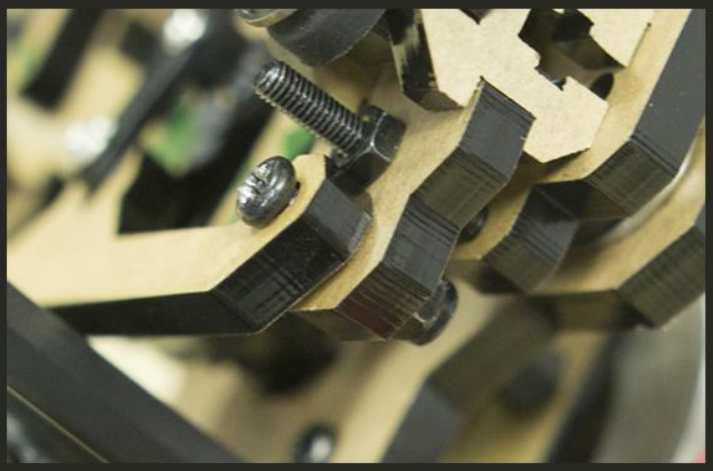


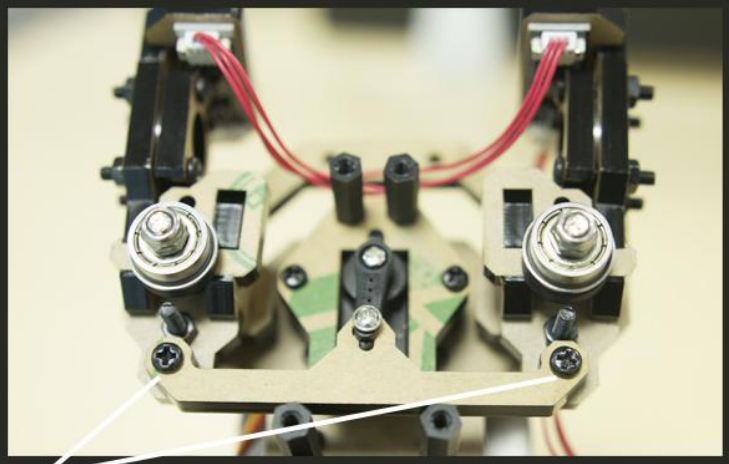
Fix the acrylic plates with two M3*16 screws and M3 lock nut









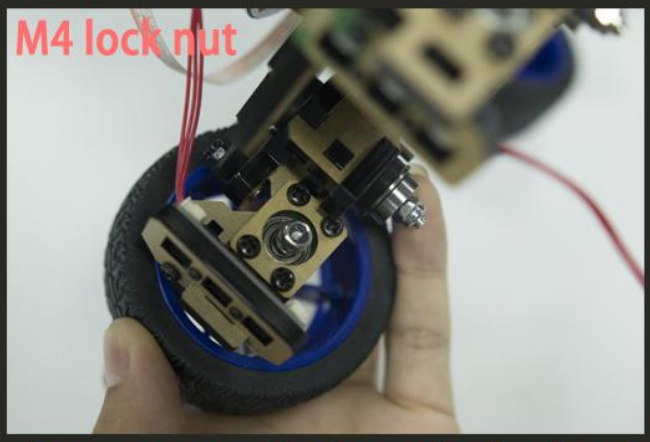


The lock nut should not be tightenedand flexible rotation between the two acrylics must be guaranteed

Place the M4*8*1 spacer, wheel, M4*8*1 spacer and nylon isolation column in order and fix with M4*40 screw and M4 lock nut.

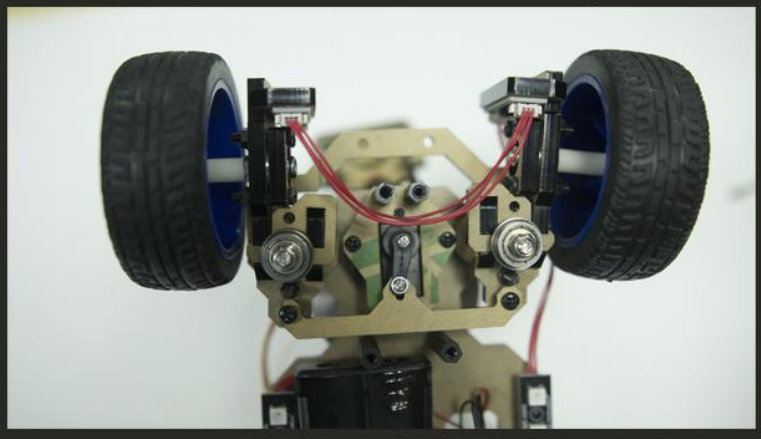
Place the M4*8*1 spacer and nylon isolation column in order and fix with M4*40 screw and M4 lock nut.

Pass the acrylic plate and fix with M4 lock nut.

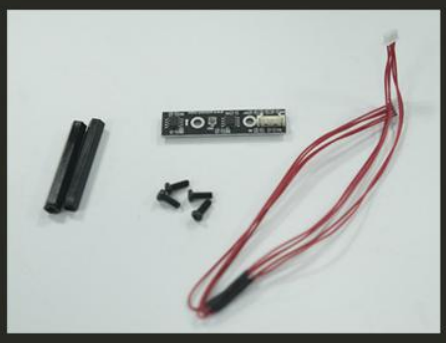


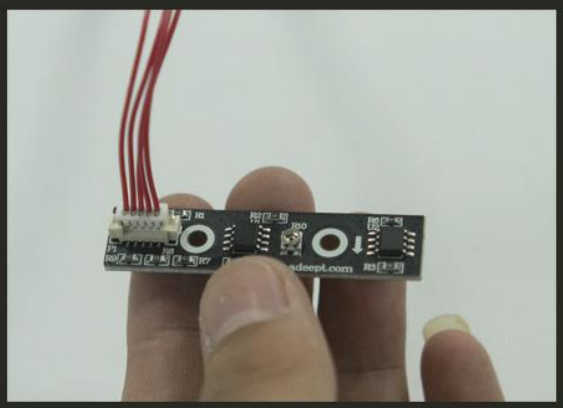
Do not over tighten the locknut

Effect diagram after assembling

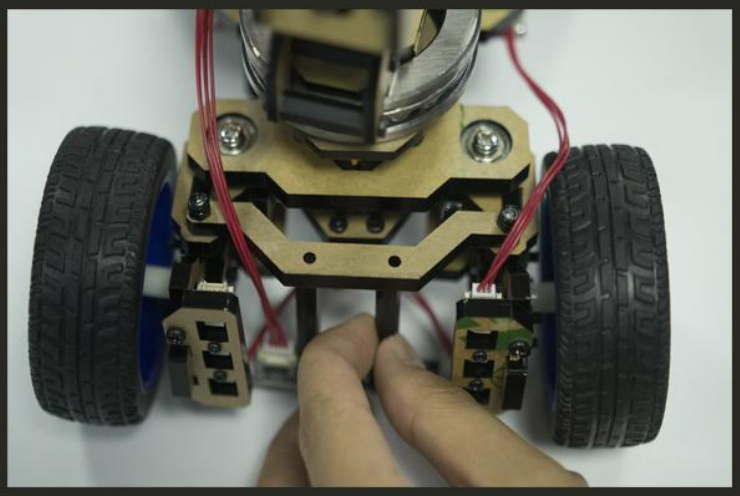


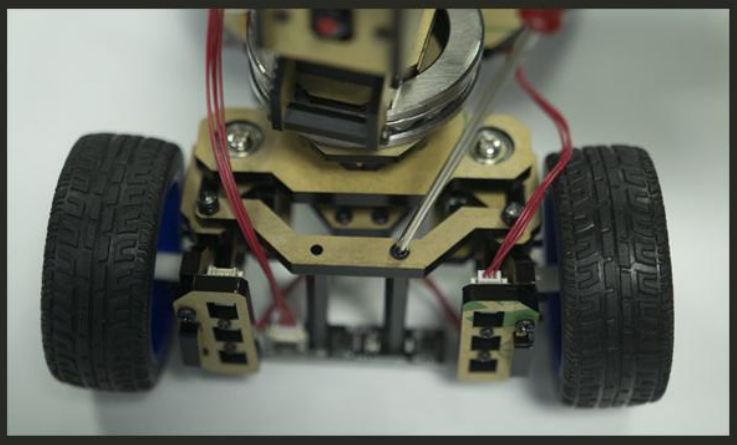
Fix the M3*40 nylon standoff on tracking module with M3*8 screw.



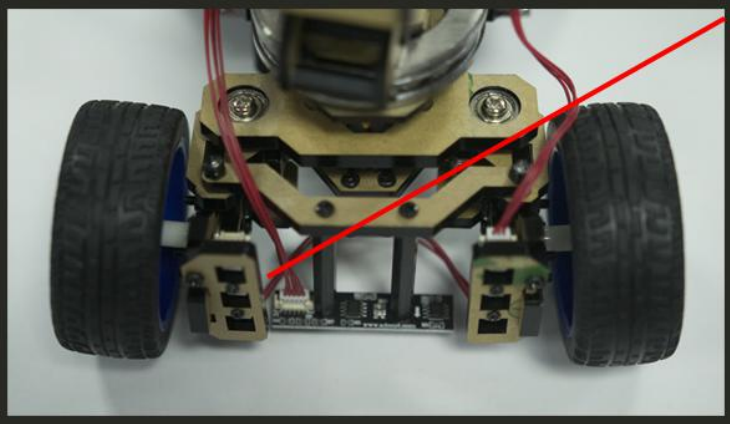


Fix the tracking module here on the car with M3*8 screw.



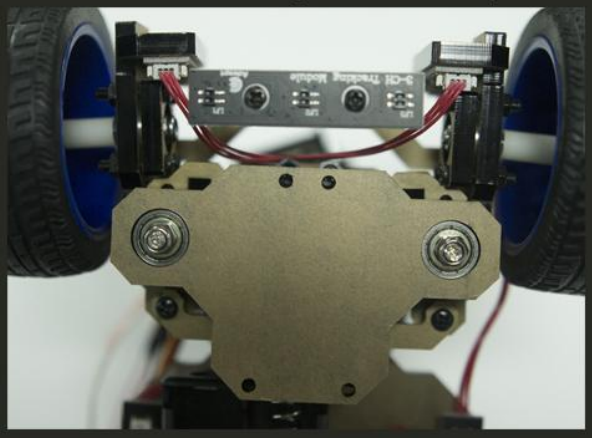


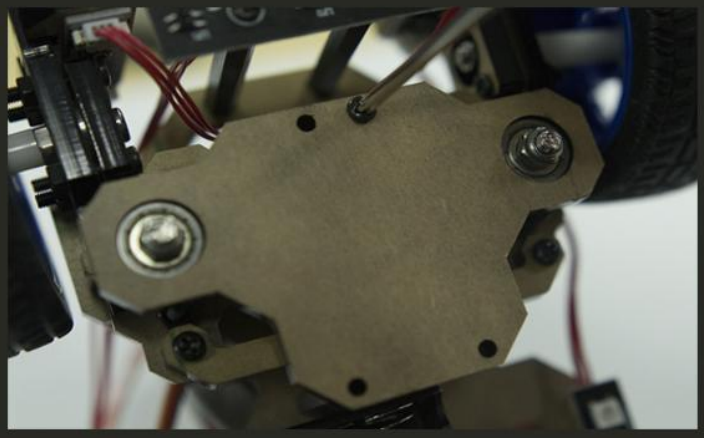
Effect diagram after assembling

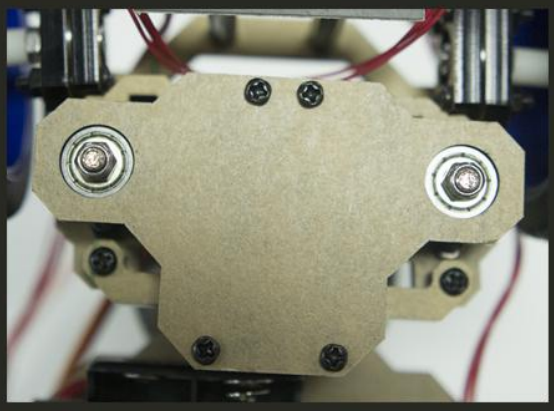


The tracking module must be installed in this way, and the connecting wire is on the right side of the car

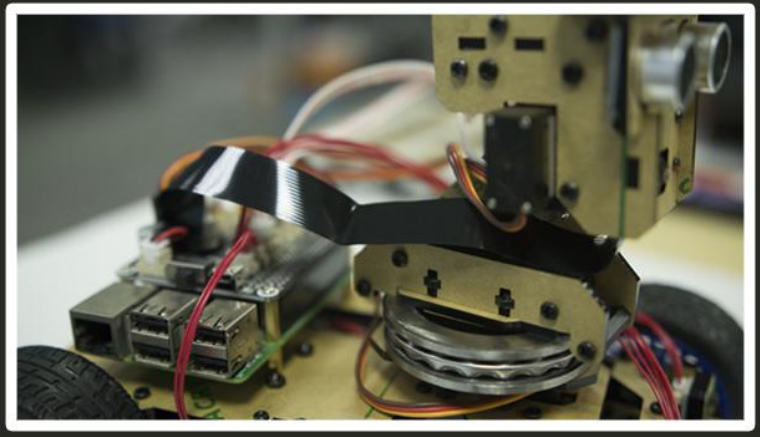
Fix the bottom plate on nylon standoff with M3*8 screw.





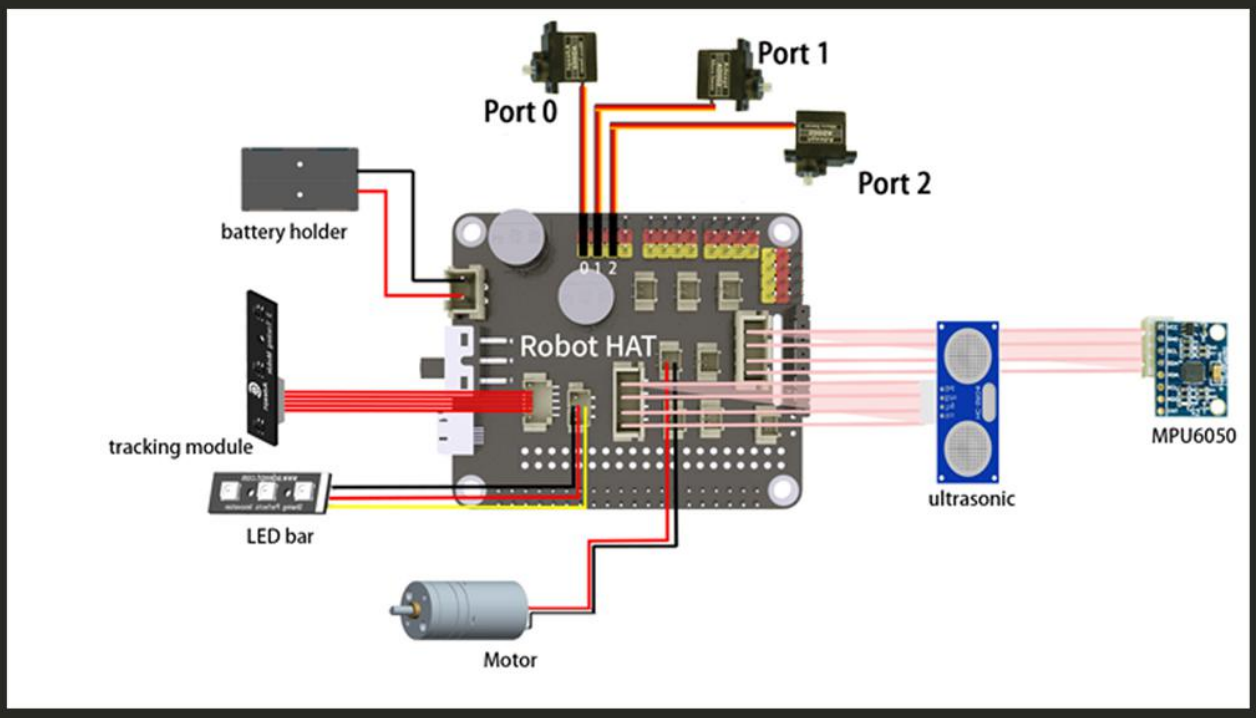


insert the camera cable below the PTZ



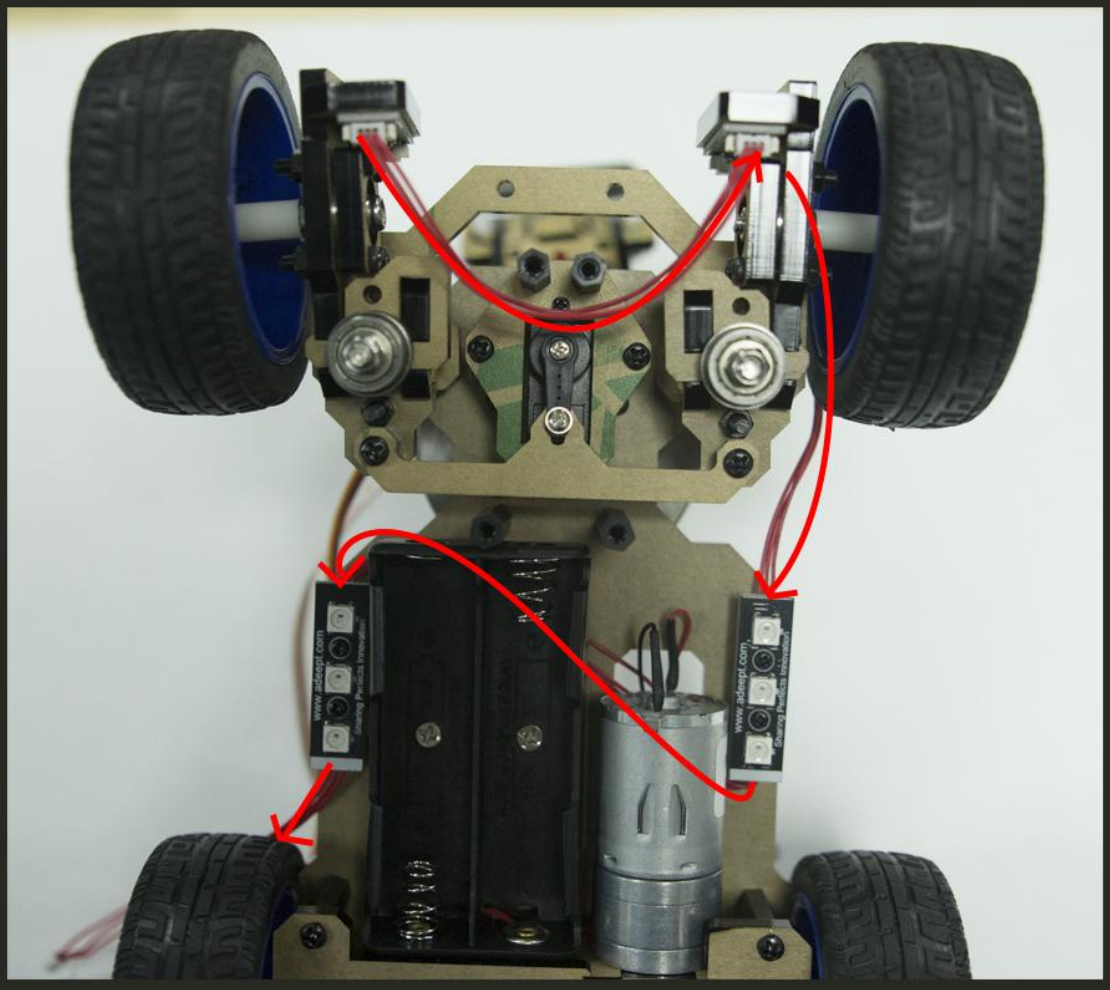
Wire connection

After the lower plate is installed, connect the 5pin cable with the tracking module and the tracking interface on the driver board; connect the 4pin cable with the ultrasonic module and the ultrasonic interface on the driver board; then connect the wire of the battery holder to Motor A on the driver board (If there appears a reverse movement, for example, control to go forward but it goes backward, then connect to Motor B); connect the 3pin cable to the LED bar and the WS2812 on the driver board. 【connect the 3pin cable to the WS2812 through the white end of the LED bar; pass the 3pin cable from the white end of one LED bar to the end without the white of the other LED bar.】 The camera cable is inserted into the camera,Insert the bottom-most servo into the port 0; insert the middle bearing servo into the port 1; and insert the uppermost pan/tilt servo into port 2 (When inserting the servo into the driver board, pay attention to that black side to black side, and red side to red side).

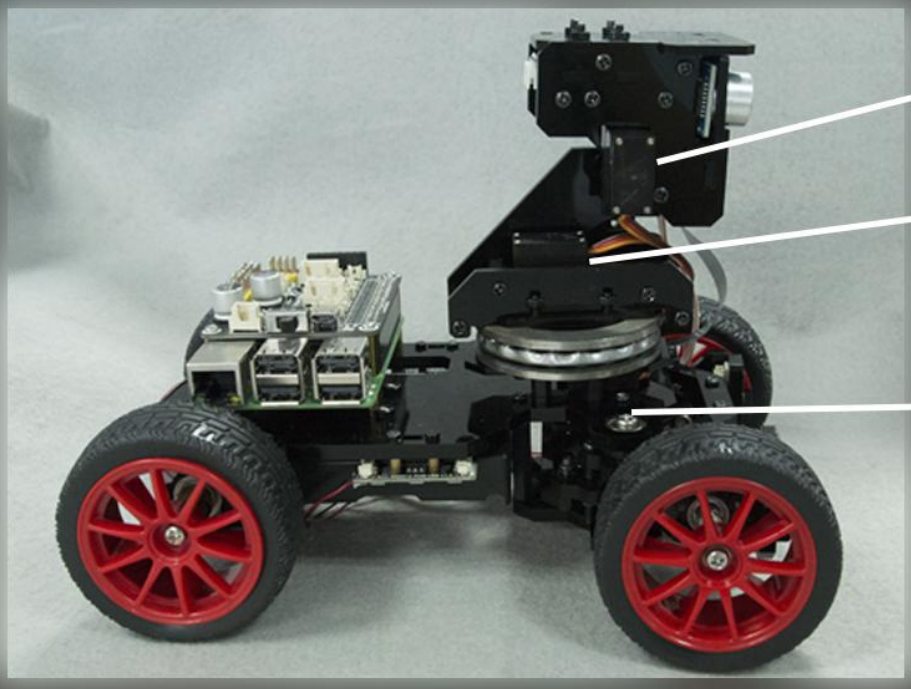


Special introduction

Upward



【connect the 3pin cable to the WS2812 through the white end of the LED bar; pass the 3pin cable from the white end of one LED bar to the end without the white of the other LED bar.】



Afterword

Thanks for purchasing our product and reading the manual! If you spot any errors or have any ideas or questions for the product and this guide, welcome to contact us! We will correct them if any as quickly as possible.

After completing all projects in the guide, you should have some knowledge of the Raspberry Pi and Robot, thus you can try to change the robot into other projects by adding more Adeept modules or changing the code for extended functions.

For more information about Arduino, Raspberry Pi, Smart car robot, or robotics, etc., please follow our website www.adeept.com. We will introduce more cost-effective, innovative and intriguing products!

Thanks again for choosing Adeept product and service!

AIoT 201 XRover Robot Car

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