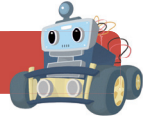SMART ROBOT CAR V4.0 WITH CAMERA

Assembly Tutorial
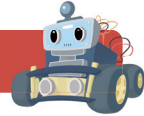
Thank you for your support and purchasing ELEGOO products.

If you have any questions regarding our products please feel free to contact us at
service@elegoo.com(North America area) or
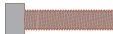suservice@elegoo.com(Europe and Asia area)

MATERIAL LIST

M3*10 Hexagon Socket Screw*24PCS

M3*12 Hexagon Socket Screw*2PCS

M3*14 Hexagon Socket Screw*8PCS

M3*30 Hexagon Socket Screw*9PCS

M1.6*8 Cross Screw*3PCS

M1.6*16 Cross Screw*3PCS

M2*10 Cross Screw*3PCS

M2*25 Self-tapping Screw*5PCS

M1.6 Nut*6PCS

M2 Nut*3PCS

M3 Nut*21PCS

M2*6 Copper Pillar*5PCS

M3*11 Copper Pillar*1PC

M3*40 Double-pass Copper Cylinder*7 PCS
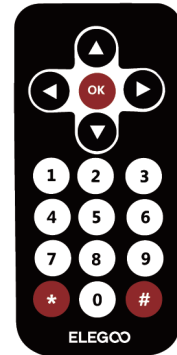
Phillips Screwdriver*3PCS

4P Cables*2PCS

M3*5 Countersunk Screw*3PCS

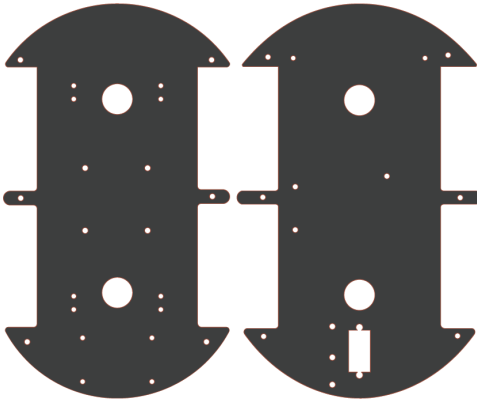M2*4 Phillips Screw*5PCS

Separation Pillar*8PCS
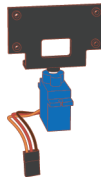
Remote Control*1PC

5P Cables*1PC

1

MATERIAL LIST

Bottom Plate*1PC

Top Plate*1PC

USB Cable - Type Micro *1PC

USB Cable - Type B *1PC

UNO*1PC

Dead Plate*1PC

Insulated Rubber Tape*1PC

Line-tracking Module*1PC

Ultrasonic Sensor Module*1PC

Aluminium Block*4PCS

Cell Box(Lithium Battery inside)*1PC

Ultrasonic Sensor Module Holder and SG90*1PC

GY-521 Module*1PC

Motor*4PCS
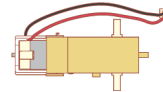
IO Expansion Board *1PC

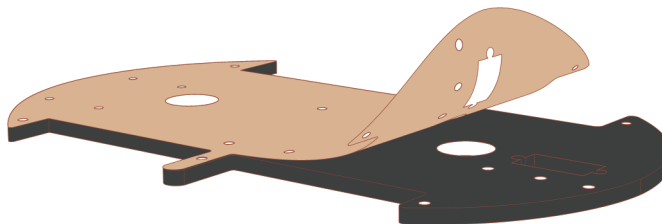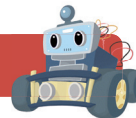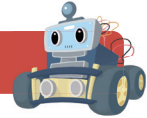Camera Module*1PC

Camera Bracket*1PC

Tire*4PCS

2

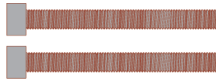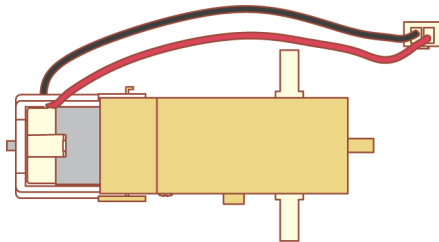**Attention: Remove the protective film before assembling**
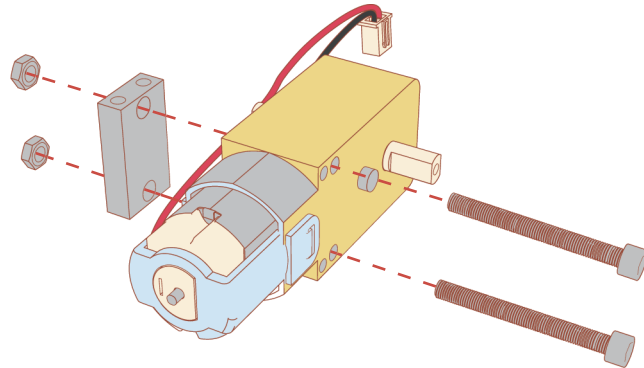
①M3 Nut*2PCS

②M3*30 Hexagon Socket Screw*2PCS

③Aluminium Block*1PC

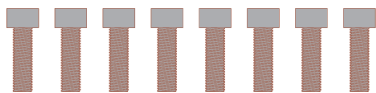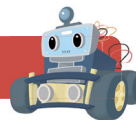④ Motor*1PC

Take ①②③ out from the bag marked "FOR MOTOR"

4

ASSEMBLE THE MOTOR

①M3*10 Hexagon Socket Screw*8PCS
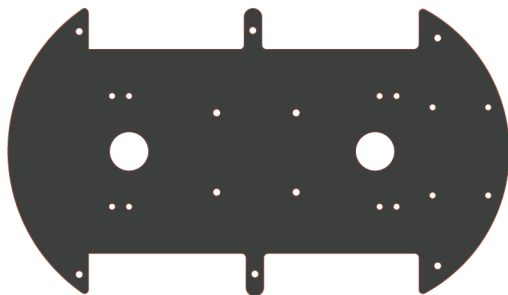
②Bottom Plate*1PC
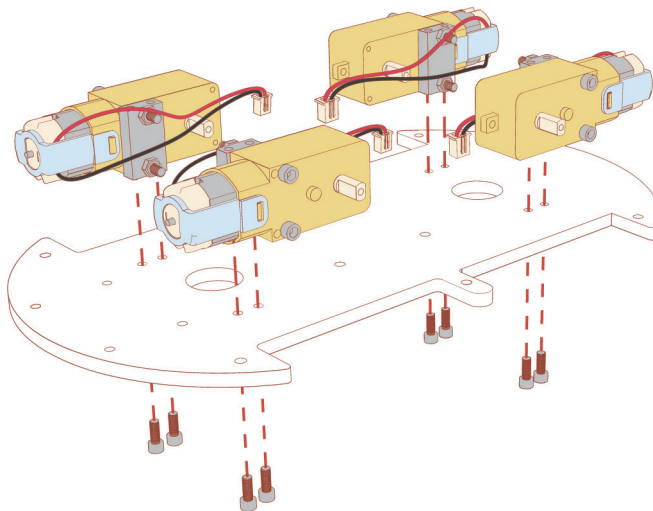
5 **Take ① out from the bag marked "FOR MOTOR"**

ASSEMBLE THE LINE-TRACKING MODULE
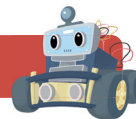
① M3 Nut*4PCS

② Separation Pillar*4PCS
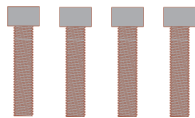
③ M3*14 Hexagon Socket Screw*4PCS
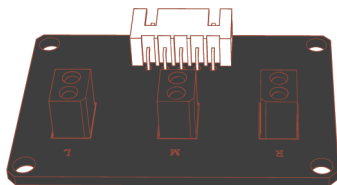
④ Line-tracking Module*1PC

Take ①②③ out from the bag marked "FOR UNO, LINE TRACKING"
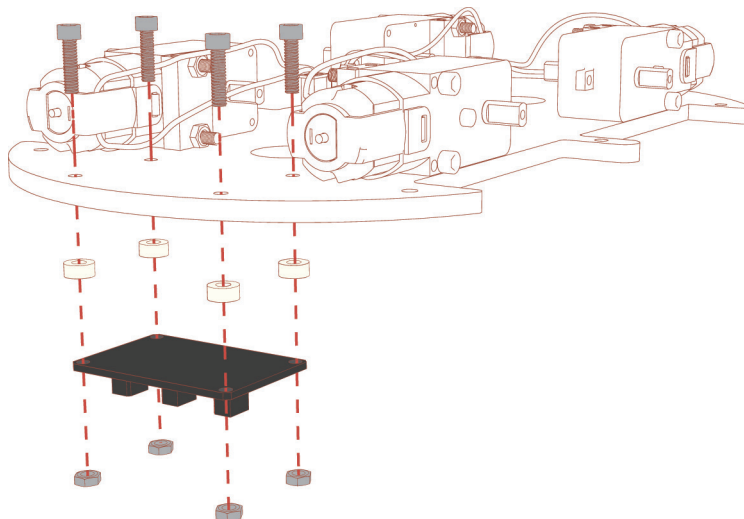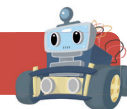
① M3*5 Countersunk Screw*2PCS

② M3*11 Copper Pillar*1PC
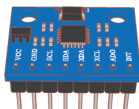
③ GY-521 Module*1PC
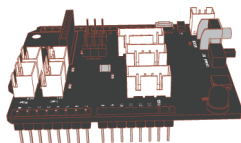
④ IO Expansion Board *1PC
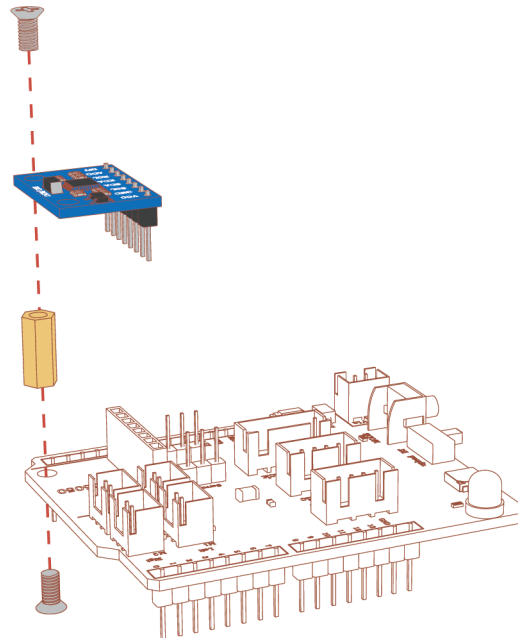
Take ①② out from the bag marked "FOR CELL BOX, TIRES, GY-521"

7

①M3 Nut*3PCS

②Separation Pillar*3PCS
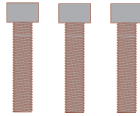
③M3*14 Hexagon Socket Screw*3PCS
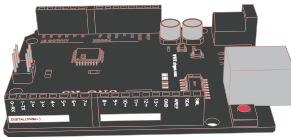
④UNO*1PC
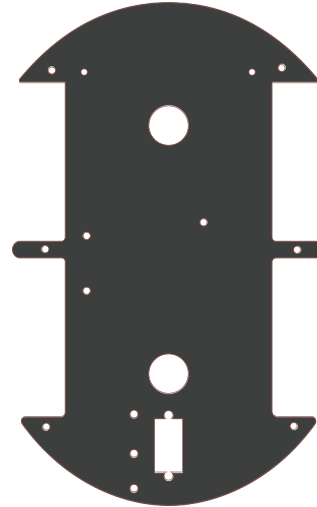
⑤Top Plate*1PC

Take ①②③ out from the bag marked "FOR UNO, LINE TRACKING"

A

B
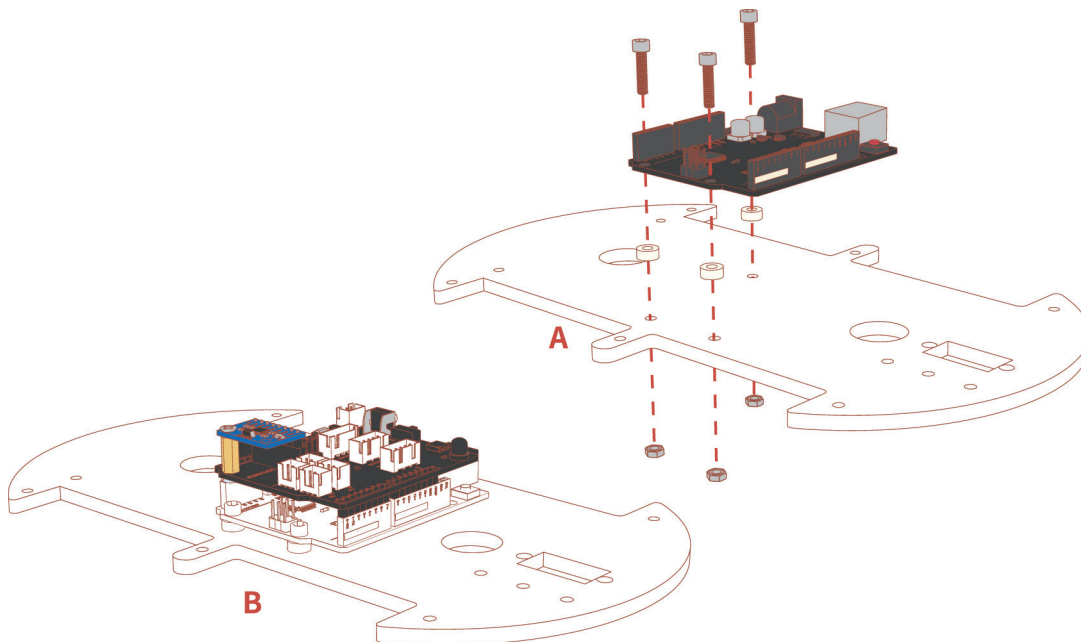
ASSEMBLE THE BATTERY BOX
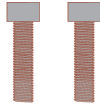
① M3*12 Hexagon Socket Screw*2PCS

② M3 Nut*2PCS
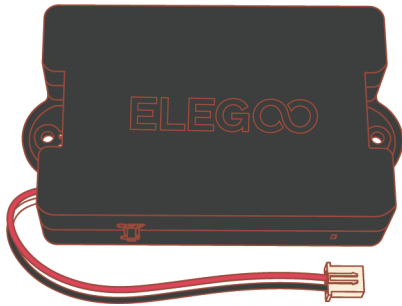
③ Cell Box(Lithium Battery inside)*1PC

Take ①② out from the bag marked "FOR CELL BOX,TIRES"

10

Power Switch

USB Charging Port

OFF
ON

Status Indicator Light (The light is green when charging and will be turned off once fully charged.)
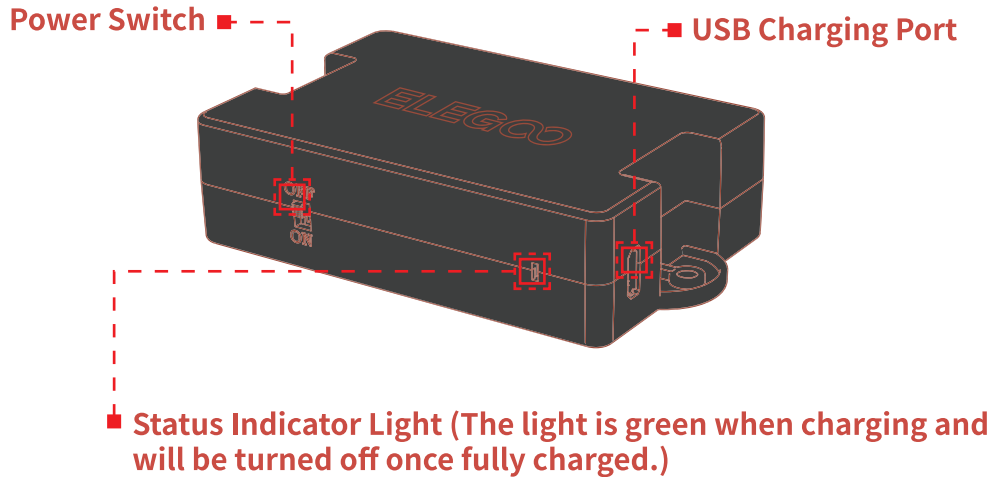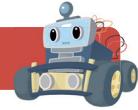
■ **Please fully charge the battery before using it.**

ASSEMBLE THE CAMERA MODULE

①M2*4 Phillips Screw*4PCS

②M2*6 Copper Pillar*2PCS
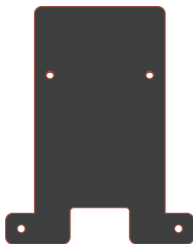
④Camera Module*1PC
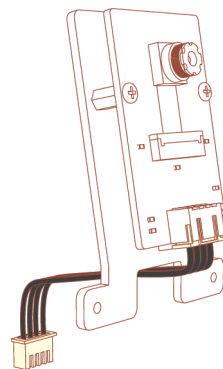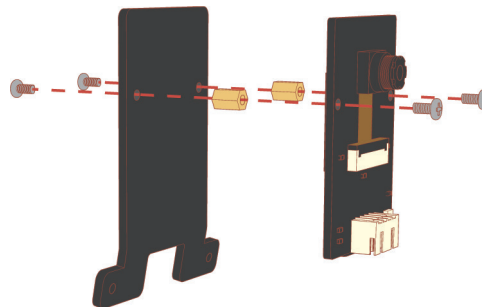
③Camera Bracket*1PC

⑤4P Cables*1PC

Take ①② out from the bag marked "FOR CAMERA"

12
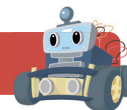
①M2 Nut*2PCS

②M2*10 Cross Screw*2PCS
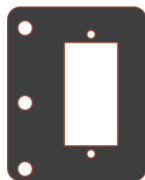
③Dead Plate*1PC
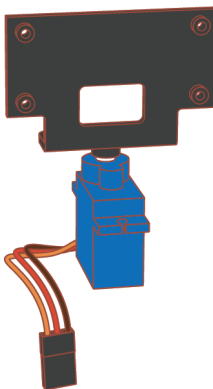
④Ultrasonic Sensor Module Holder and SG90*1PC

Take ①② out from the bag marked "FOR ULTRASONIC"
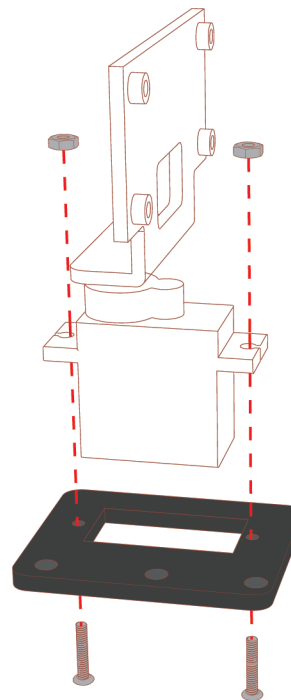
ASSEMBLE THE ULTRASONIC SENSOR MODULE

① M1.6 Nut*2PCS

② M1.6*8 Cross Screw*2PCS
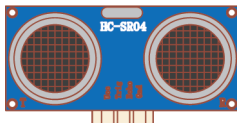
③ Ultrasonic Sensor Module*1PC

Take ①② out form the bag marked "FOR ULTRASONIC"

14
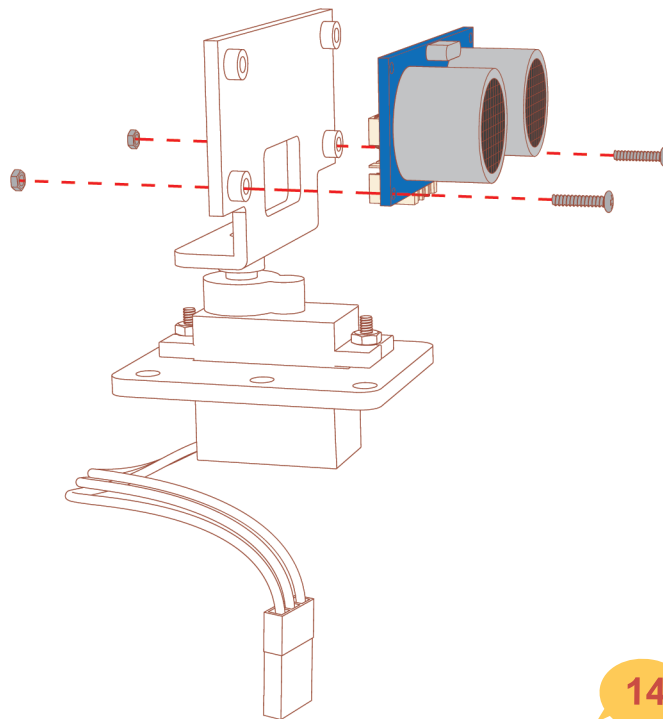
ASSEMBLE THE ULTRASONIC SENSOR MODULE
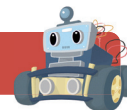
① M1.6 Nut*2PCS

② M2*6 Copper Pillar*2PCS
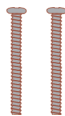
③ M1.6*16 Cross Screw*2PCS

Take ①②③ out from the bag marked "FOR CAMERA"

15
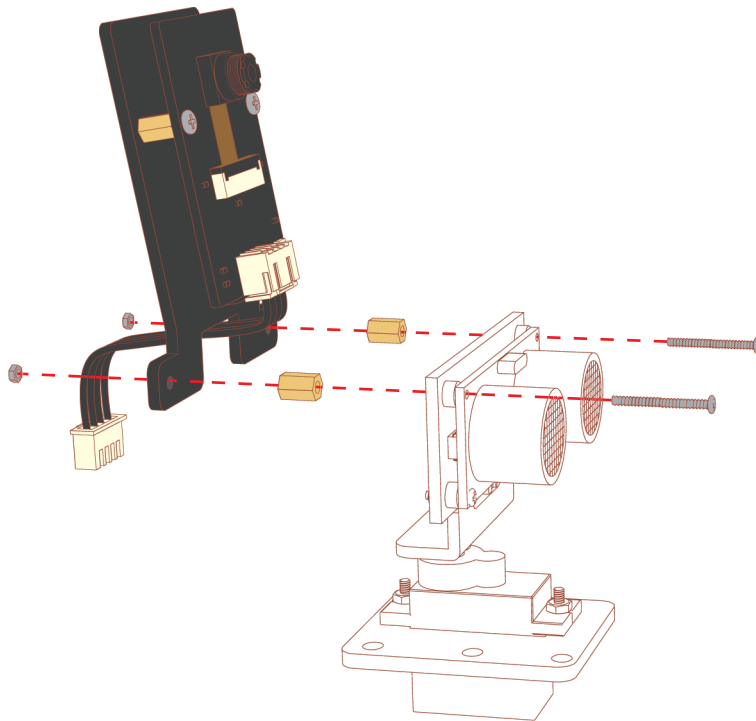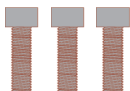
① M3 Nut*3PCS   ② M3*10 Hexagon Socket Screw*3PCS

Take ①② out from the bag "FOR ULTRASONIC"

16

WIRING DIAGRAM

Camera Module

Ultrasonic Sensor Module

SG90 Servo (Connect to port servo1)

Left Front Motor (Connect to port M1)

Right Front Motor (Connect to port M2)

Left Rear Motor (Connect to port M4)

Right Rear Motor (Connect to port M3)

Line-tracking Module

Cell Box(Lithium Battery inside)
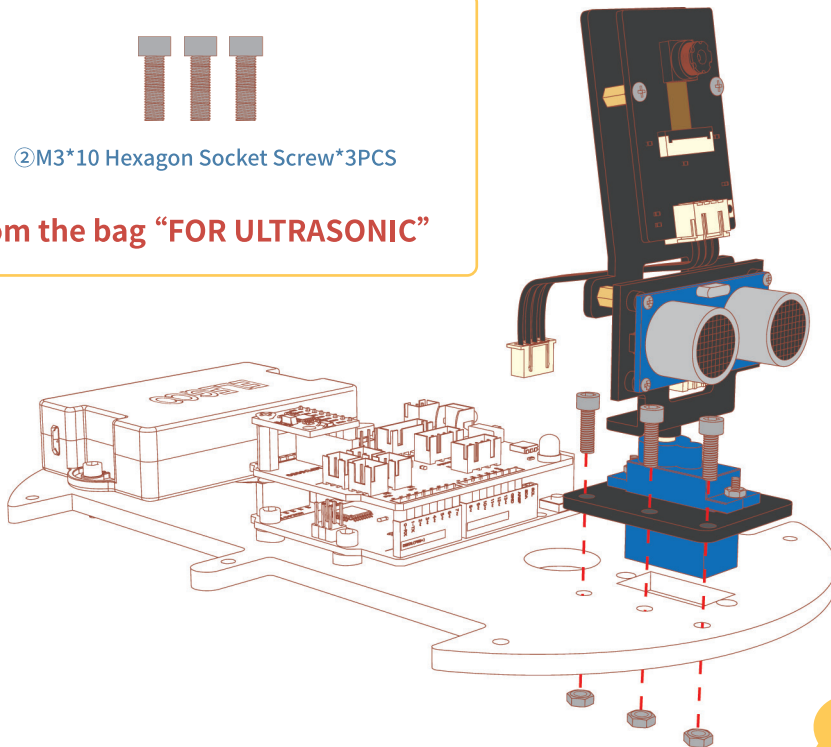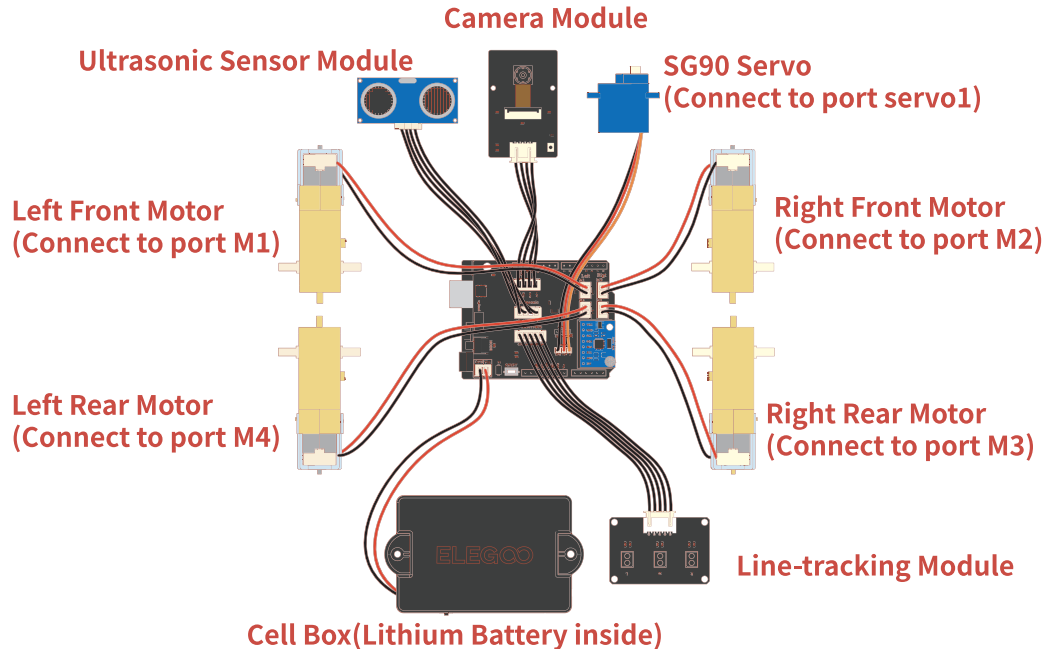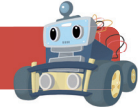
This illustration is to give you an idea of the parts corresponding to each port on the control board for later installation. You are not required to plug all the parts to the corresponding port as shown in the picture at present.

WIRING

4P Cables*1PC

Pay attention to the direction of the servo wiring

18
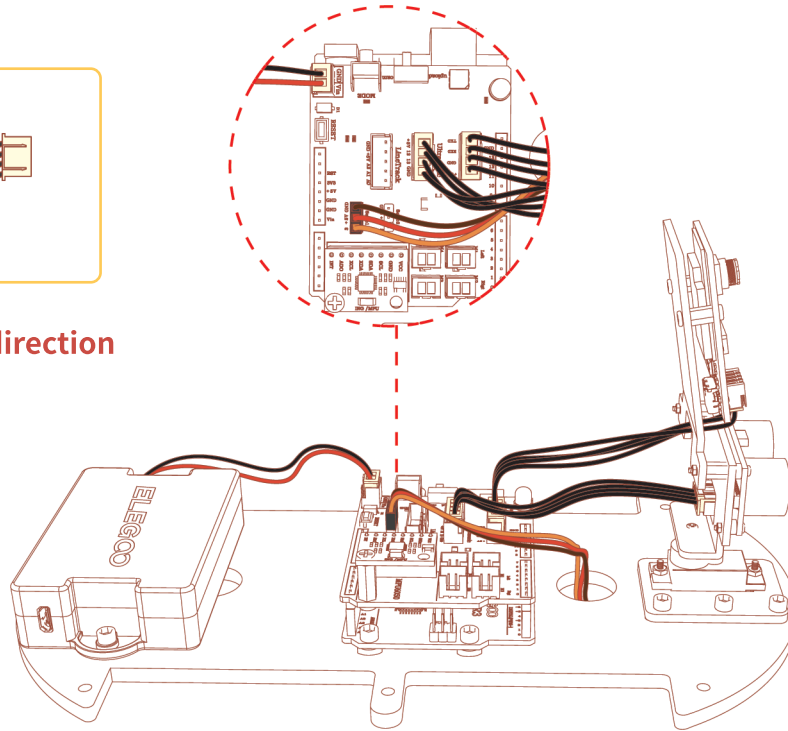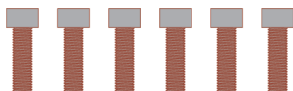
①M3*10 Hexagon Socket Screw*6PCS
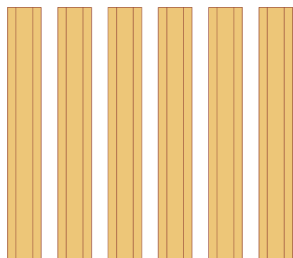
②M3*40 Double-pass Copper Cylinder*6 PCS

Take ①② out from the bag marked "FOR ACRYLIC BASEPLATE"

19

Left M1 Rigt M2

M4 M3

VCC
GND
SCL
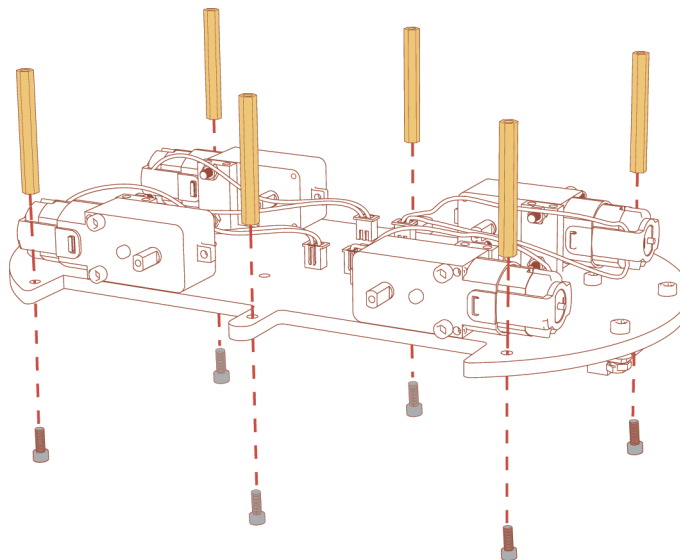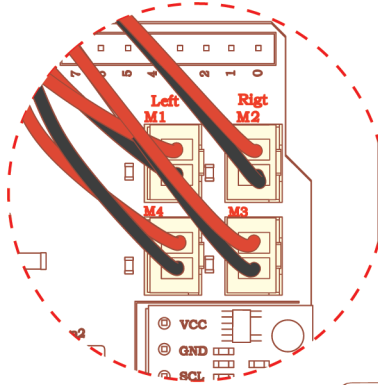
Please pay attention to the corresponding wiring ports of each of the four motors and do not plug in the wrong one.

20
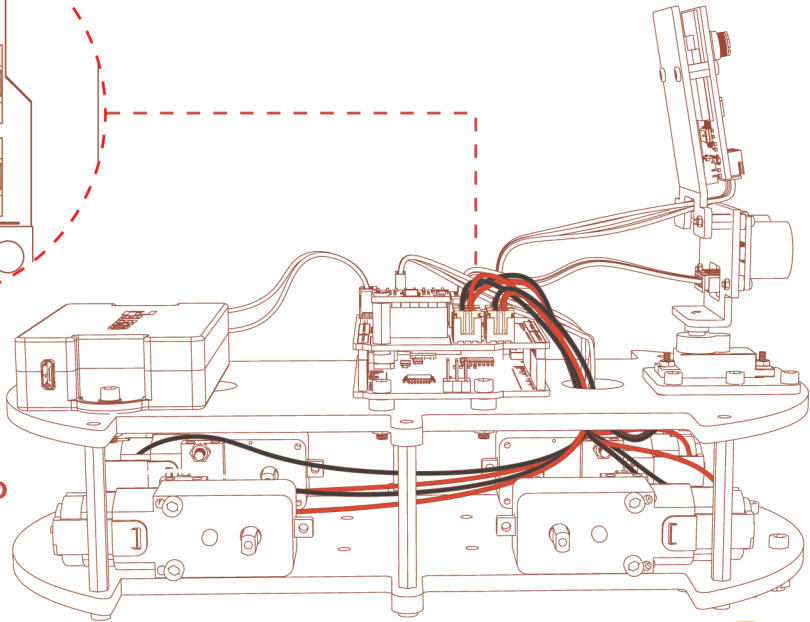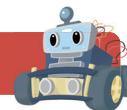
WIRING

5P Cables*1PC
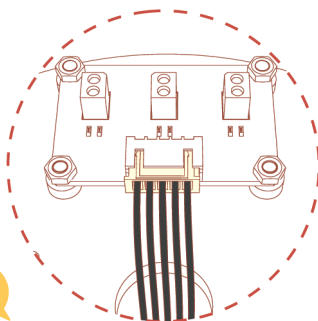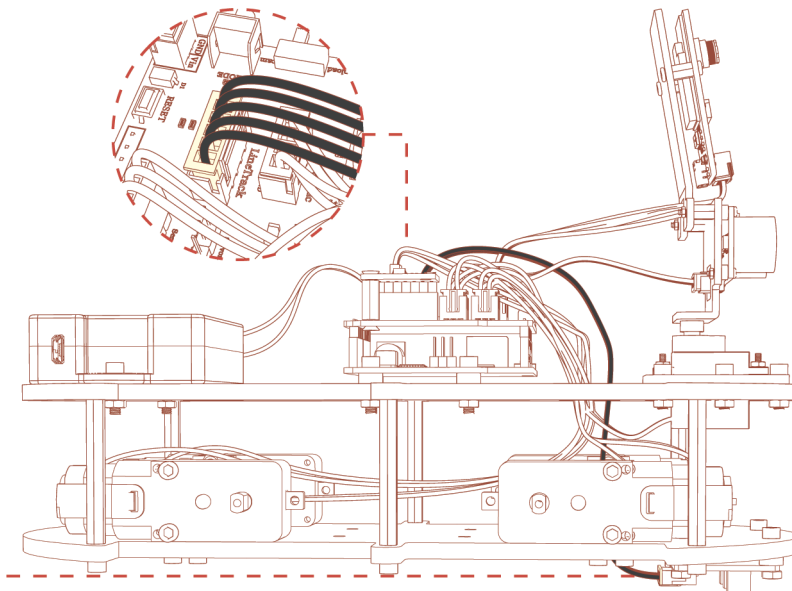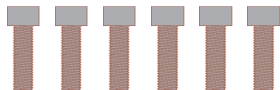
① M3*10 Hexagon Socket Screw*6PCS

Take ① out from the bag marked "FOR ACRYLIC BASEPLATE"

22
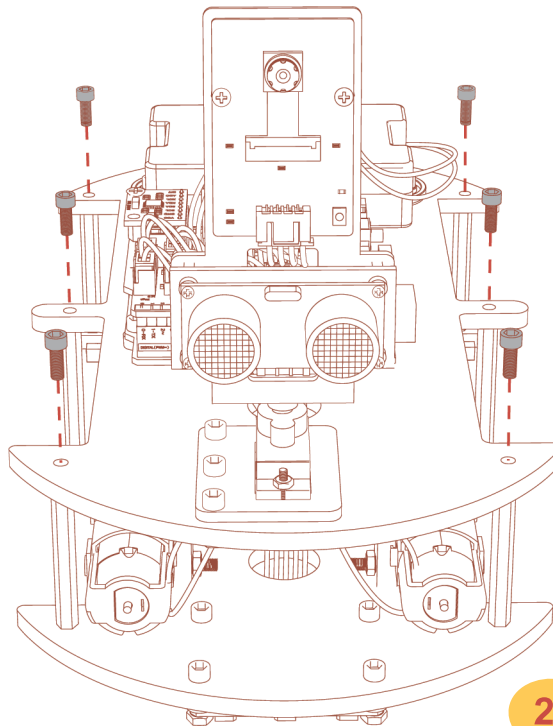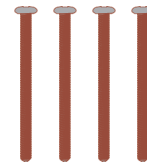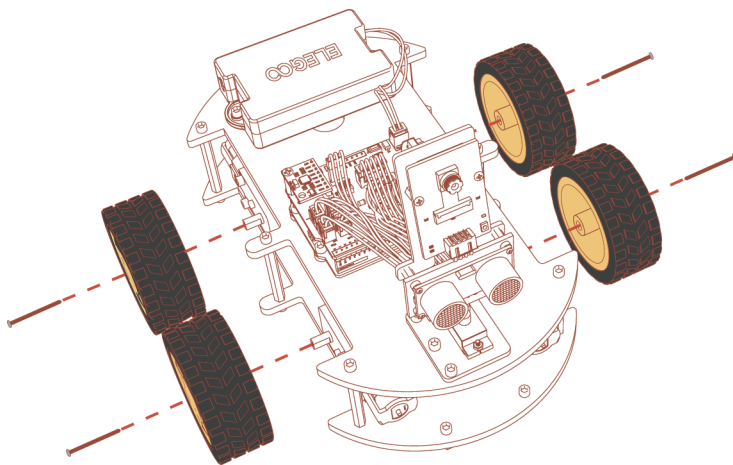
①M2*25 Self-tapping Screw*4PCS

②Tire*4PCS

23

Take ① out from the bag marked "FOR CELL BOX,TIRES,GY-521"

The Finished Product Image

DEFINITION OF BUTTON

Status Indicator Light
The light is red when the battery is low.

Reset

MODE
Press this button to switch between the following four modes: Line-tracking Mode, Obstacle-avoidance Mode, Auto-follow Mode, and Standby Mode.

Infrared Receiver
Receive the coded signal from the IR remote control.

Upload-cam Switching Button
Please toggle the button to "Upload" when uploading the program and toggle to "Cam" when using the APP.

USB Port
Upload the program.

CONTROL THE SMART ROBOT CAR USING THE IR REMOTE CONTROL

Upload program

Since the program has been uploaded to the Smart Robot Car before the factory, you can just skip this step and no need to upload it repeatedly. If you have modified the codes of Smart Robot Car, you will need to upload the program again. Please refer to the tutorial from http://www.elegoo.com/download/.

Control the Smart Robot Car using the IR remote control.

Forward
Turn Left
Backward
Turn Right

Line-tracking Mode
Stop
Obstacle-avoidance Mode
Auto-follow Mode
Key "4": increase the threshold value
Key "5": restore the initial default value
Key "6": reduce the threshold value
Key "7": increase the speed
Key "8": restore the initial default speed
Key "9": reduce the speed
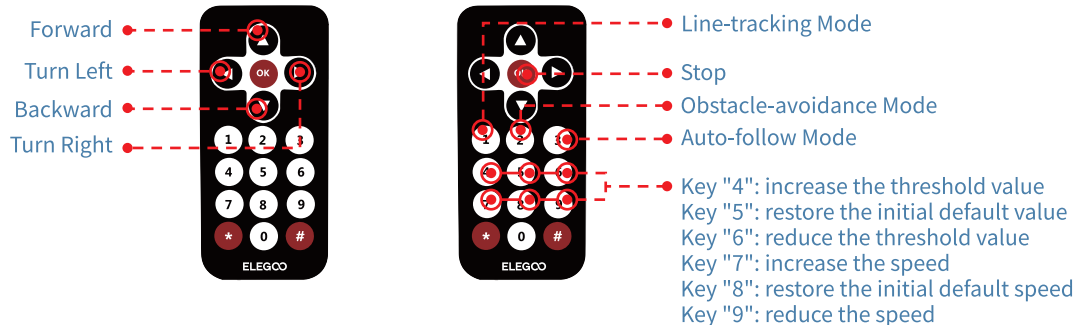
Please remove transparent plastic insulation from the rear of the remote control before using it.

Since the sensors on the line-tracking module are greatly affected by the environment, if the car does not work well under the line-tracking module, you can use the IR remote control to adjust the sensor thresholds so that it can enable the car to operate at its optimum level.

CONTROL THE SMART ROBOT CAR USING THE IR REMOTE CONTROL

Line-tracking Mode

Affix the tape on the ground to make a line track and then put the car on the track.
When pressing key 1 of the remote control, the car will enter the line-tracking mode and the status indicator light will always on green. The car will move along the runway under this mode.

Obstacle-avoidance Mode

The car will enter the obstacle-avoidance mode and the status indicator light is always on yellow when pressing key 2 of the remote control. The car will move forward automatically until encountering obstacles. And it will automatically turn to the direction without obstacles to continue moving forwards.

Auto-follow Mode

The car will enter the auto-follow mode and the status indicator is always on blue when pressing key 3 of the remote control. If there are obstacles in the 20 CM ahead of the Ultrasonic Sensor Module, the car will automatically move following the obstacle.

27
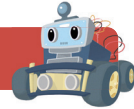
Control the car with APP

STEP1: Application Installation

You can download the latest version of the " ElegooKit " app on App Store and Google Play.

ElegooKit
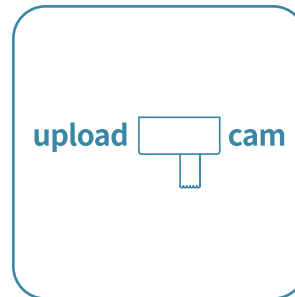
upload [ ] cam

STEP2: Application Settings

Firstly, please toggle the upload-cam switching button of the IO Expansion Board to "cam".

28

Turn on the WIFI in the phone settings and connect to "ELEGOO-123". (The number "123" is the physical address of the camera module, and the physical address of each camera module is different.)

After the WIFI connection is successful, open the "ElegooKit" APP and click device "Smart Robot Car Kit V4.0".

Go to the project selection page and click on the WIFI disconnected icon " **" on the top right corner, and it will display "Device connected successfully!".**

Choose the language by clicking the setting icon " **" on the top right corner.**

CONTROL THE CAR WITH APP
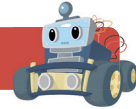
Click "Remote control" to enter the control page.

Click on this icon " Mode **" can hide or display the icons of those four modes.**

Obstacle-avoidance Mode

Select Resolution

Line-tracking Mode

Standby Mode

Auto-follow Mode
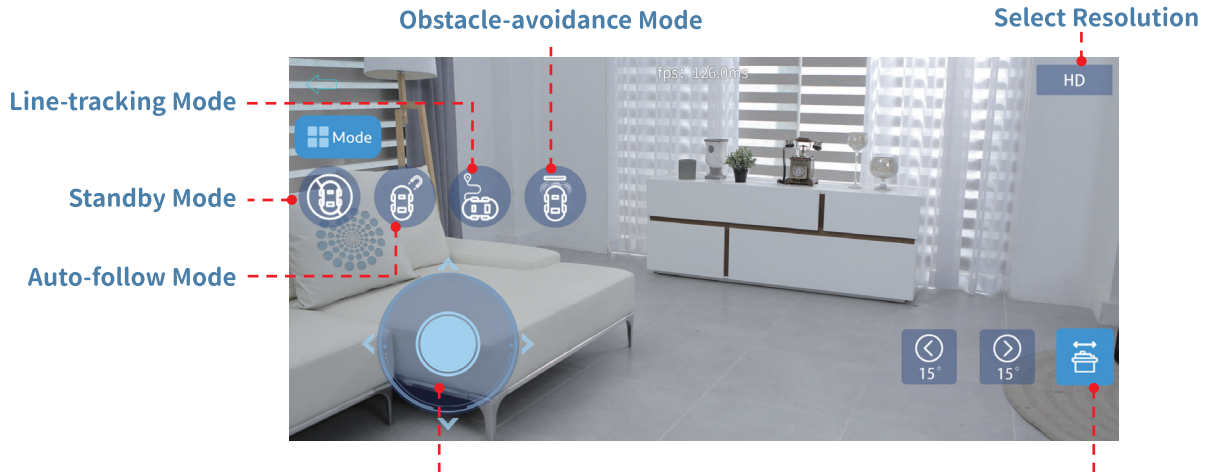
Rocker Control：Click on the left blank area can enable the rocker control panel, it can control the movement of the Smart Robot Car and there is 8 direction in total.

Control camera rotation：Horizontal control range, 0-180°.

CONTROL THE CAR WITH APP

Programming

The entry of the program, only the program module that is connected to this graphics module will be executed after the play button is clicked.

The current project name

New Project

when ▶ clicked

Click to save the project you edited.

List Button, click to show all saved items.

Play Button, click to start executing the program.

Pause Button, click to pause the program.

- **Motion:** Graphic modules for controlling the movement of the car.
- **Show:** Graphic modules for controlling the sound and light.
- **Controls:** Graphic modules for controlling program flow.
- **Sensing:** Graphic modules for sensor type electronic components.
- **Math:** Graphic modules for mathematical operations.
- **Variables:** Graphic modules for variable operation.

CONTROL THE CAR WITH APP
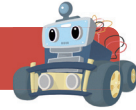
DIY control

When you want to freely write the car's function program to debug, you can use the DIY function custom command to debug and control it.

Click "DIY" to enter the DIY control page.

Click to save the project you edited.
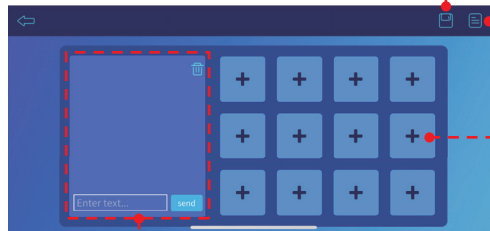
List Button, click to show all saved items.

Custom button: Long press this button will pop up the button editor, you can fill in the button name and message you want to send.

Command debugging window: Display the sent commands and received commands, the input field can freely input commands and send tests.

CONTROL THE CAR WITH APP
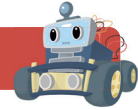
Other project selections

Smart Robot Car Kit V4.0

Build

DIY

Manual

Video

Build: view the assembly steps

Manual: view the digital user manual

Video: view the assembly and usage video tutorial

PRECAUTIONS

Precautions:

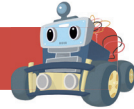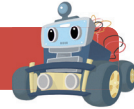■ When the power switch is turned on, the Smart Robot Car must be placed steadily, so as to avoid the inaccurate initial calibration value of GY-521 module, resulting in poor straight-line performance of the Smart Robot Car.

■ The battery should be fully charged before using. The status indicator light will flash red when the battery is low. You can charge the battery through the USB cable.

■ Do not forcibly rotate the servo by external force to prevent damage to the servo when the power is on.

■ When the battery is too low or the phone is more than 10 meters away from the car, the WIFI may be automatically disconnected, or the display may freeze.

■ The physical address of each camera module is different.

■ If the WIFI is disconnected, please try to restart the car power and APP.

SMART ROBOT CAR V4.0 WITH CAMERA

Tutorial download link: https://www.elegoo.com/pages/arduino-kits-support-files
Video link: https://www.youtube.com/elegooofficial/.

If you have any questions during assembling or testing, please feel free to contact us at service@elegoo.com (North American customers) or euservice@elegoo.com(European, Australian and Asian customers)

ELEGOO Team

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