

1 Material List

Wheel Hub * 4PCS

Expression Panel * 1PC

Ultrasonic Sensor * 1PC

T Aluminum * 1PC

Control Board * 1PC

Line-tracking Module * 1PC

LED Dot Matrix Module * 1PC

Motor Supporter * 2PCS

6 Holes and Three Rows of Aluminum * 2PCS

Car Body * 1PC

Cell Box (lithium battery inside) * 1PC

Universal Wheel * 1PC

Track * 40PCS

Mental Round Bar * 40PCS

USB Cable * 1PC

6 Holes and Double Rows of Aluminum * 2PCS

M4*18 Phillips Screw * 2PCS

M3*5 Phillips Screw * 4PCS

M4 Nuts * 4PCS

4*5 Separation Pillar * 8PCS

Motor * 2PCS

Track * 40PCS

M3*8 Phillips Screw * 2PCS

M3 Nuts * 2PCS

3*7 Separation Pillar * 2PCS

Phillips Screwdriver * 1PC

M4*12 Phillips Screw * 21PCS (1 for spare)

M2.5*6 Phillips Screw * 2PCS

M4*10+6 Single-pass Copper Cylinder * 4PCS

4*15 Separation Pillar * 2PCS

M4*30 Phillips Screw * 2PCS

M3*28 Phillips Screw * 2PCS

M4*20 Double-pass Copper Cylinder * 2PCS

M3*23+6 Single-pass Copper Cylinder * 2PCS

2 Installation of 6 Holes and Double Rows of Aluminum

① M4*18 Phillips Screw * 2PCS

② 4*5 Separation Pillar * 2PCS

③ 6 Holes and Double Rows of Aluminum * 1PC

④ Car Body * 1PC

Take ①, ② out from bag No.1.

3 Installation of Motor Supporter

① M4*12 Phillips Screw * 8PCS

② Motor Supporter * 2PCS

Take ① out from bag No.2.

4 Installation of Motor

① M3*5 Phillips Screw * 4PCS

② Motor * 2PCS

Take ① out from bag No.3.

5 Installation of 6 Holes and Double Rows of Aluminum

① M4*30 Phillips Screw * 2PCS

② 4*15 Separation Pillar * 2PCS

③ 6 Holes and Double Rows of Aluminum * 1PC

④ Car Body * 1PC

Take ①, ② out from bag No.1.

6 Installation of 6 Holes and Three Rows of Aluminum

① M4*16 Phillips Screw * 4PCS

② 4*5 Separation Pillar * 4PCS

③ 6 Holes and Three Rows of Aluminum * 2PCS

Take ①, ② out from bag No.1.

7 Installation of LED Dot Matrix Module

RJ25 Cable * 2PCS

LED Dot Matrix Module * 1PC

Notice: Pass the two RJ25 cables through the hole on the car head first, and then install the LED dot matrix module.

8 Installation of Ultrasonic Sensor

① M4*12 Phillips Screw * 2PCS

② M4 Nuts * 2PCS

③ Ultrasonic Sensor * 1PC

Take ①, ② out from bag No.2.

Notice: Connect the other one RJ25 cable to the ultrasonic sensor.

Notice: The ultrasonic sensor is installed behind the expression panel.

9 Installation of Line-Tracking Module

① M4*12 Phillips Screw * 4PCS

② M4*20 Double-pass Copper Cylinder * 2PCS

③ Line-tracking Module * 1PC

Take ① out from bag No.3.

Take ② out from bag No.4.

10 Wiring

a. Left Motor Line

b. Tracking Module Line

c. Ultrasonic Sensor Line

d. Right Motor Line

e. LED Dot Matrix Module Line

Pass all the wires through the corresponding holes as shown in the picture.

11 Installation of the Battery Box

① M3*8 Phillips Screw * 2PCS

② Cell Box (lithium battery inside) * 1PC

③ M3*23+6 Single-pass Copper Cylinder * 2PCS

Take ①, ② out from bag No.4.

Thread the battery box wires through the appropriate holes first, then lock the screws.

No other connecting lines are drawn in this step.

12 Installation of Wheel Hub

① M2.5*6 Phillips Screw * 2PCS

② Wheel Hub * 2PCS

Take ① out from bag No.5.

Front wheel installation

Rear wheel installation

13 Installation of Copper Cylinder

① M4*10+6 Single-pass Copper Cylinder * 4PCS

Take ① out from bag No.4.

No other connecting lines are drawn in this step.

14 Wiring Diagram

Left Motor

Tracking Module
Connect Tracking Module to Interface 1.

Ultrasonic Sensor
Ultrasonic Sensor can be connected to any one of the Interface 1-4.

Right Motor

LED Dot Matrix Module
Connect LED Dot Matrix Module to Interface 3.

Battery Box

15 Installation of the Main Control Board

① M4*12 Phillips Screw * 4PCS

② Control Board * 1PC

Take ① out from bag No.2.

Connect the wire of each module to the main control board first, then lock the screw.

16 Installation of the Universal Wheel

① M4*16 Phillips Screw * 4PCS

② 4*5 Separation Pillar * 2PCS

③ T Aluminum * 1PC

④ Universal Wheel * 1PC

Take ①, ② out from bag No.1.

Take ③ out from bag No.2.

17 Installation of Track

① Track * 40PCS

② Mental Round Bar * 40PCS

Notice: A complete track requires 20 sections of track.

After the track is installed, the 6 holes and three rows of aluminum parts will slightly tilt forward, which is normal and will not affect the functionality.

18 Button Description

Reset: Reset Button

Bluetooth and Upload Programs Switch Button ("B" means Bluetooth and "U" means uploading program. When connecting to Bluetooth, dial the button to "B"; when uploading the program, dial to "U")

USB Charging Interface (Notice: It must be charged through the USB interface on the battery case.)

OFF ON: Power Switch

Battery Interface

Mode: Mode Switching Button

Interface 1: Connect to tracking module

Interface 2: Connect to ultrasonic sensor

Interface 3: Connect to LED dot matrix module

Interface 4: For reserve expansion

Building block point: Building blocks can be built here to expand a variety of shapes. (Not equipped with building blocks)

M1 Interface: Connect to the left motor

S1 Interface: Connect to servo (Not equipped with servo)

M2 Interface: Connect to the right motor

S2 Interface: Connect to servo (Not equipped with servo)

USB Interface: For uploading program

1. Power Switch
Notice: There is no need to turn off the power switch on the battery case after turning it on. When using the OwlBot tank car, the power supply is controlled by the power switch on the control panel.

2. Status Indicator Light
(The light is green when charging and will be turned off once fully charged.)

3. USB Charging Port
(Use the USB interface to charge.)

19 Tutorial

Notice: We have uploaded some necessary programs before, thus you can skip uploading the programs. However, if you have changed the codes, you will need to reupload them. First of all, please go to our website below to download the OwlBot Tank Kit tutorials: <http://www.elegoo.com/download/>. And then select the correct tutorial files based on the computer system you use. For window system, please refer to "For Windows Lesson 1 Setting up development environment.pdf". For OS system, please refer to "For Mac Lesson 1 Setting up development environment.pdf".

Function Introduction

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

After the power switch is turned on, 5 RGB flash out the effect of a running light and ring out start-up music.

Line-tracking Mode

The first time you press the mode switch button, the RGB green light is always on, and the expression panel shows an expression indicating that it has entered the tracking mode and OwlBot will follow along the black track. When the sensor on the tracking mode senses the black line, the expression panel displays another expression. When OwlBot is picked up under tracking mode, the wheel stops turning.

Obstacle-avoidance Mode

The second time the mode switch button is pressed, the RGB yellow light is normally on, the expression panel displays an expression, the OwlBot goes straight. And when there are obstacles within 25cm, the expression panel will display the other expression, and the OwlBot will automatically avoid obstacles ahead, and look for an obstacle-free route to continue moving forward.

Standby Mode

Press the mode switch button for the third time to switch to the standby mode and the 8 default expressions will be automatically switched.

Mobile Control

STEP1: Install the application. You can download the latest version of the "ELEGOO Owl Robot" app on the App Store as well as Google Play.

STEP2: Application Settings.

First of all, switch the "B/U" button on the Control Board to "B".

Open the "ELEGOO Owl Robot" App. (Please turn on the mobile GPS when using the app).

Click on "OwlBot".

Tap the " " icon to enter the Bluetooth searching interface.

Put your phone near to the OwlBot (within 10cm), the app will connect to the OwlBot automatically.

You can also open the Bluetooth device list by tapping the menu icon " " in the upper left corner and select "ELEGOO BT16" to connect the OwlBot manually.

After the OwlBot is successfully connected, the Bluetooth status icon changes from red to brown.

Click on "Rocket Control" to enter the control interface.

Rocket Control

Control OwlBot to move in 8 directions.

We can also control the car's movement when it is placed vertically on the ground.

Please refer to the previous "Function Introduction" for the specific performance of the obstacle-avoidance mode, the line-tracking mode and the standby mode.

Expression Control Mode

The left side is the default expression that has been set, or the various patterns that can be DIY. Click OK to display the corresponding pattern on the expression panel.

Line Control Mode

First click the start icon " ", then click a point on the screen and click another point to make them connected into a line, then the car will follow the direction of the line. (When you operate this function, Turn the OwlBot's head to the right, keeping it parallel to your phone.)

Tracking Sensor Threshold

Because the sensor is greatly affected by the environment, when using the line-tracking mode, you should slightly adjust the threshold of the sensor to make it perform correctly if the OwlBot run out of the runway or perform incorrectly. (The default factory threshold is 700.)

Sound Control Mode

You can make the car sound of basic syllables just like playing the piano.

Light Control Mode

Select a color in the color ring, both the upper-left corner of the pop-up window and the RGB on the OwlBot can display the currently selected color, " " and " " adjust the brightness of the light.

20 Graphical 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, click on it to modify.

List Button, click to show all saved items.

Click to save the project you edited. Description of all graphics modules.

Pause Button, click to pause the program.

Play Button, click to start executing the program.

► Motion: Graphic module for controlling the movement of the car.

► Voice & Light: Graphic module for controlling the sound and light.

► Sensing: Graphic module for calling sensor type electronic components.

► Variable: Program variable operation.

► Math: Graphic module for Mathematic operations.

► Control: Graphic module for controlling program flow.

21 Precautions

- The battery should be fully charged before using. 3 RGB will flash red when the battery is low. Use the USB cable to charge the battery through the USB port on the battery box.
- OwlBot cannot be used in areas where sunlight or light is strong. Infrared ray has an effect on the sensors on tracking module.
- Under OwlBot obstacle-avoidance mode, the lighter the color of obstacles, the better the effect of obstacle avoidance.
- After the OwlBot has been moving for half an hour, the motor will get hot which is normal. Be careful not to burn your hands.

If you feel it is difficult to assemble the OwlBot, please check the assembling tutorial video from www.elegoo.com.

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

ELEGOO Team

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that

interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment