Play with Robot-Assemble The Car

(The Four-wheels car)
Preface

Our Company

Established in 2011, Elegoo Inc. is a professional manufacturer and exporter that is concerned with the design, development production and marketing of arduino, 3d printers, raspberry pi and STM32. We are located in Shenzhen which is known as Chinese Silicon Valley. All of our products comply with international quality standards and are greatly appreciated in a variety of different markets throughout the world.

Our official website is: Http://www.elegoo.com
Our USA amazon shop is: Http://www.amazon.com/shops/A2WWHQ25ENKVJ

Our Tutorial

The tutorial is for beginners. In the tutorial, you can learn how to use arduino controller board, sensors and components. You can also learn the basic knowledge of all the parts. But if you want to study arduino systematically, we recommend you to buy the book “Arduino Cookbook” which is written by Michael Margolis.

This Tutorial

This tutorial will show you how to assemble the car and offer you the basic program to make all the function come true.

If you want to learn more than the tutorial, you can search the Google.

Our after-sales

If you have any question or suggestion about our company, product or tutorial. Please send us a email. Our email address is service@elegoo.com

We will very appreciate and improve ourselves so that we can offer you a better service.
1. Assembly

This part will teach you to assemble every component step by step.

1.1. Assemble The Motor

Motor, screws, nuts and fixed parts needed

- 304 M3 screw 3*30mm
- 304 M3 hexagonal nut
- Metal brackets
- 304 M3 screw 3*10mm
- DC speed motor

The assembly drawing
1. Fix the screw into the DC motor.

2. Attach the mental bracket to motor.

3. Twist the nut.

4. Attach the motor to the chassis like this.
Please notice the direction of the black and red cables.
2.2. Assemble The L298 Motor Driving Board

The motor driven board, screws and nuts needed

- M3 hexagonal nut
- 3\*10 screw
- L298N motor driving board

The assembly drawing

1. Put the motor driven board on the chassis. Then lock them together.

2.
2.3. Assemble The Line Tracking Module

The tracking module, hex spacer, screws and nuts needed

- 3*7 screw
- M3 hexagonal nut
- 3*4+6 copper hex spacer
- Line tracking module

The assembly drawing
Put the hexagonal isolated double-screw bolt on the infrared tracing module

Screw on the nuts

Put the tracing module assembled on the acrylic board
Screw on the screws

The rest of two modules are the same
2.4. Assemble The UNO Controller Board

UNO controller board, screws, nuts and acrylic plate needed

The assembly drawing

Put the UNO key board on the acrylic board and put the screws to the corresponding holes

Screw on the nuts
2.5. Assemble the V5.0 Expansion Board

UNO controller board and V5 expansion board assembly together
2.6. Assemble The IR Receiving module

The infrared receiving module, screws and nuts needed

- 2*10 screw
- M2 nut
- Infrared receiver module

The assembly drawing

Put the screws to the corresponding holes and screw up the nuts

Put the infrared receiver module on the corresponding location of the acrylic board
2.7. The assembly of battery box

The battery box, DC Connector and etc.  

(TIPS: Here the screws is phillips screws)

The assembly drawing

Put the battery holder on the acrylic board

Twisting the screws and nuts
Connect the black and red lines to the DC connector.

Insert the DC connector into the UNO board.
2.8. The assembly of ultrasonic wave pan-tilt

The ultrasonic module, sg90 servo, holder, screws and nuts needed
The assembly drawing

Connect the permanent seat to SG90

Put the holder on the permanent seat and twist the self-tapping screw
The ultrasonic wave module

1.6*8 screws  M1.6 nut

Put the ultrasonic sensor module on the holder and twist the screws
Assemble the unit to the acrylic plate
Assemble with M2*10 screws and M2 nuts

3*10 screws

M3 hexagonal nut
Put the 3*10 screws in the corresponding holes on the acrylic board and twist the screws.
2.9. Connect The Motors to L298N Board
Connect the servos to the L298N driving board

Connect the power line of all four motors to the driving board.
2.10. Connect The SG90 to V5 board

Connect the controlling lines of the steering engine to the driving board
2.11. Connect The Battery Box to The L298 Board

Connect the power lines of the battery box to the output of the driving board
2.12. Connect the L298N Board to V5 Board

Connect six DuPont lines to the control site of the driving board.

Connect the other end of the DuPont line to the expansion board.
2.13. Connect The Line Tracking Modules to V5 Board
Connect the line tracking module to v5 expansion board.
Connect The IR Module to V5 Board

Connect the infrared receiver module to the expansion board with the DuPont lines.
2.15. Connect The Ultrasonic Sensor Module to V5 Board
2.16 Assembly The Car

3*10 screw

M3*40+6 copper hex spacer

3*10 screw

Put the 3*40 hex spacer on the acrylic plate

Twist the screws
Twist the screws
2.17  Assemble The Tires

Being loaded up four tires
3、Summary

Our company is trying to make the car more easily assembling, so if you find any problem or have any suggestion for the tutorial or the robot, please email us at service@elegoo.com.

After assembling and connecting all the units, we need to debug the car by some basic program. We will learn in the next lesson.