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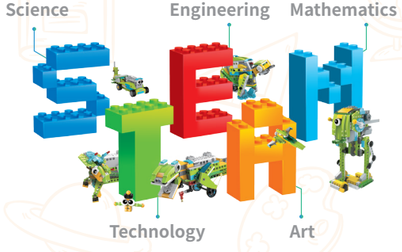
CODING CUBE MANUAL

STEAM

What is STEAM?

STEAM stands for science, technology, engineering, mathematics and art. STEAM Education aims at cultivating children's comprehensive scientific thinking and abilities and emphasizing the interdisciplinary integration. It is very popular in the United States, Germany, the United Kingdom, Finland and other countries.



PBL (Project-based Learning) The Main Teaching Mode of STEAM

Project-based learning is a teaching and learning method that takes children as the center to design and implement projects, thereby promoting children's learning effects. Within a certain period of time, the child chooses, plans, proposes a project idea, and solves practical problems through various forms such as display.

Compared with traditional learning methods, project-based learning can effectively improve children's practical thinking and problem-solving abilities. The goal of project-based learning is to enable children to master subject knowledge more efficiently through practical methods that combine with reality, and to cultivate children's social and emotional skills in the process.

Makerzoid Robot Lab

As the leader of STEAM education, Makerzoid adopts interesting PBL guidance, so that children can enjoy valuable STEAM courses at home to learn while playing.

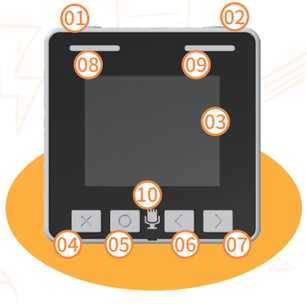
CONTENT

Chapter 1 Component Introductions

1.1 Coding Cube Introduction

1.1.1 Button Introduction

Front



01. Power
02. Reset
03. Color LCD Screen
04. Back Button
05. Confirm Button
06. Left Navigation Button
07. Right Navigation Button
08. Light and IR Remote Control Receptio
09. Light and IR Remote Control Transmit
10.Ambient Light Sensor /Microphone

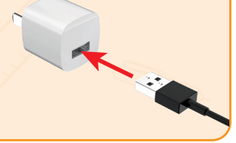
Side

11.Standard Brick Pin
12.USB Interface
13.Servo Interface
14.Speaker

15.Motor Output Interface
16.Digital I/O Output Interface
17.Analog Input Interface
18.Digital Expansion Interface
19.TF Card Expansion Interface

Charging Introduction

Charging Voltage:5V/0.5A



Insert the Type-C end of the data cable (the smaller end) into the charging port of the main control. The blue light on the side will remain on while charging.

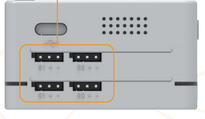
1.1.2 Coding Cube Function Introduction

Infrared emission and reception decoding: Can simulate and control home appliance infrared remotes to operate devices such as televisions, fans, etc.

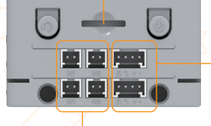
Color display screen: Can display content through programming, such as text, numerical values, or simulated dot matrix patterns.

Ambient light sensor: Can measure the current light intensity of the environment.

Servo interface: The Coding Cube has 4 servo interfaces, allowing control of servo motor movement.

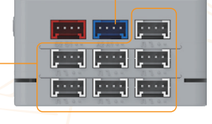


TF card expansion: Supports up to a 32GB TF card for memory expansion.



Analog input interface (blue): The Coding Cube has 1 analog input interface with two ADC input channels, allowing connection to general modules and reading their voltage

Digital interface (white): The Coding Cube has 9 digital device interfaces, allowing connection to external devices such as encoders, color sensors, digital grayscale sensors, and other accessories.



DC motor interface: The Coding Cube has 4 DC motor interfaces, allowing control of DC motor movement.

Digital IO output port (red): The Coding Cube has 1 digital input interface with two controllable IO channel outputs, allowing connection to general modules and output through the IO ports.

Attitude sensor: The attitude sensor is a device that measures the orientation and motion status of an object. It consists of three accelerometers, three gyroscopes, and three magnetometers(this version doesn't include), allowing it to simultaneously measure the object's acceleration, angular velocity, and magnetic field strength. These data can be used to determine the object's direction, rotation angle, and position.

Voice recognition (Feature Not Enabled): Voice recognition is a technology that converts the vocabulary in human speech into input that can be understood by a computer. Through graphical programming, users can edit voice commands to control the smart control board devices or programs.

Wi-Fi & Bluetooth: Supports Wi-Fi communication and Bluetooth communication.

Cloud Link & Cloud Service (Feature Not Enabled): Future support via OTA.

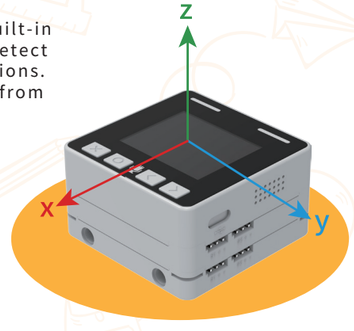
Power Supply Capacity: 5V 5A (MAX).

Battery Capacity: 1000mAh rated battery.

FLASH Storage Size: 16MB + 8M.

1.1.3 Six-axis Gyroscope Introduction

The Coding Cube has a built-in six-axis gyroscope that can detect the tilt angles in three directions. The angle detection range is from -180° to 180°.



Tilt along the X-axis

Tilt along the Y-axis

Tilt along the Z-axis

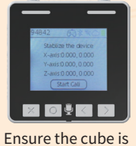
Gyroscope Calibration Method:

1. 
Enter Debug Mode

2. 
Press and hold the right button to activate [More]

3. 
Press “IMU”

4. 
Press “Gyro Cali”

5. 
Ensure the cube is placed flat and stable, then press to start calibration.

6. 
Keep the coding cube flat and still during calibration.

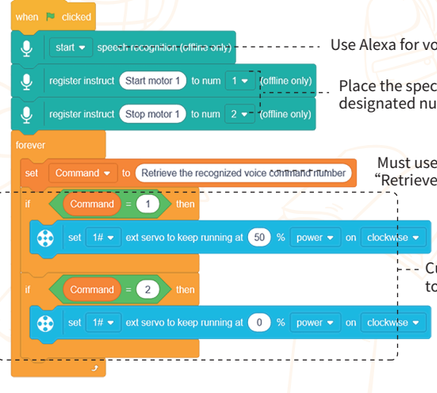
7. 
Do not move the cube until the calibration is complete.

1.1.4 Voice Recognition(Feature Not Enabled)

Voice recognition is the study of speech, where speech signal processing and pattern recognition enable machines to automatically recognize and understand human-spoken language. Voice recognition technology allows machines to convert speech signals into corresponding text or commands through a process of recognition and understanding.

(1) Coding Cube Voice

1. Connect a servo motor to the coding cube.
2. Connect the coding cube to a mobile device app.
3. Write the following program:



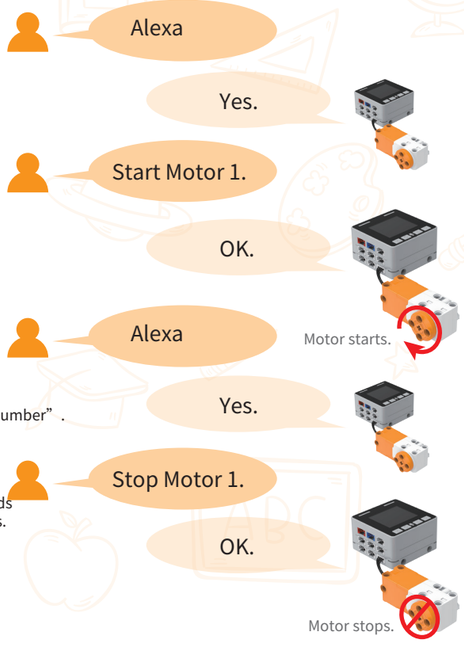
Use Alexa for voice wake-up.

Place the specified voice command at the designated number.

Must use a variable to store “Retrieve the recognized voice command number”.

Customize different voice commands to correspond to different functions.

4. Upload the program. Voice recognition must be performed in an offline environment.
5. Use voice recognition.

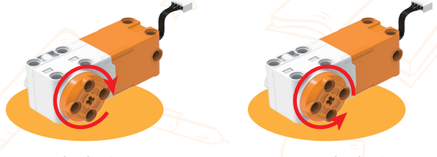


1.2 Servo Motor Introduction (Premium Version Component)

The servo motor has very powerful functionality. It is both a motor and a sensor. As a motor, it uses the principle of converting electrical energy into kinetic energy to provide power for the robot, making it move. At the same time, as an advanced sensor, it can precisely read the motor's real-time angle and current speed during motion.

You can connect to any port.

Principle: The servo motor operates with closed-loop control. It has a built-in advanced chip that can directly sample and calculate feedback signals from the motor encoder. It consists of a position loop and a speed loop, enabling the motor to achieve precise movement.



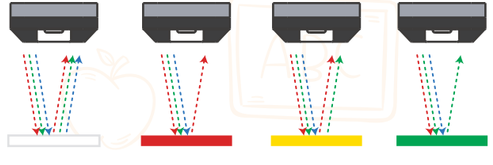
Clockwise Counterclockwise

1.3 Color Sensor Introduction (Premium Version Component)

This sensor is highly capable, with modes for color detection, reflected light, ambient light, and RGB. It provides the robot with ample external optical information. The optimal measurement distance for this color sensor is 8mm. If the distance is too far or too close, it may lead to inaccurate color measurements.

You can connect to any port.

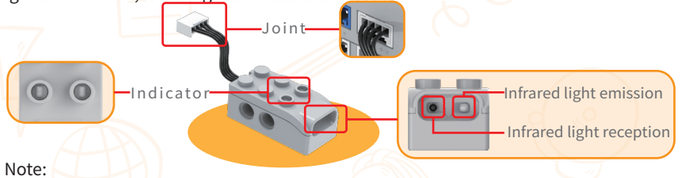
The color sensor is a type of "photoelectric sensor." It emits specific light through an emitter, and the receiver detects the amount of red, green, and blue light in the reflected light. By comparing these values, it determines the color of the target object.



1.4 Grayscale Sensor Introduction (Premium Version Component)

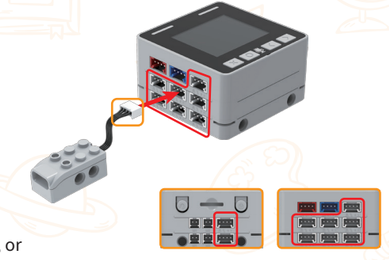
Grayscale Sensor Introduction

The digital grayscale sensor uses the principle of infrared light reflection to determine the distance and grayscale of an object. This sensor employs digital technology to filter out general infrared light interference, ensuring more accurate measurements.



Note:
1.The sensor wires are made of silicone material. Please avoid pulling, squeezing with bricks, or pressing with gears, as these actions may cause the wires to break.
2.When removing the sensor connector, use a tool to detach it. Do not pull on the wires.

Connect To The Coding Cube

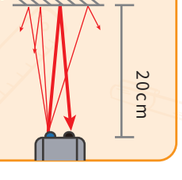


You can connect to any port.

How To Use The Sensor

Distance measurement

It can measure objects up to approximately 20 cm away.



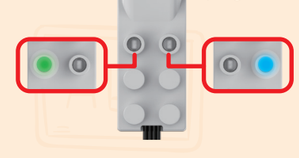
Color depth measurement

At a fixed distance, the infrared reflectance can detect the grayscale or certain colors of different objects.
The darker the color, the weaker the reflected light, resulting in a higher feedback value. The lighter the color, the stronger the reflected light, resulting in a lower feedback value.

Indicator Introduction

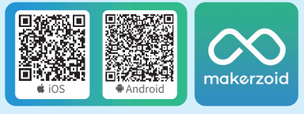
Green Light
Object detected

Blue Light
Data transmission in progress



Chapter 2 APP Introduction

2.1 APP Download



APP Download　APP icon

①Scan the QR Code

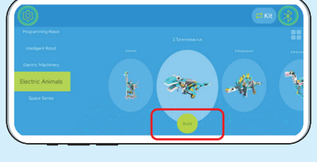
②APP store-search “makerzoid” IOS

②APP store-search “makerzoid” Android

1 APP Download

The APP includes different robot kits, you can choose the kit you have purchased

2 Choose the Robot Kit



It teaches you how to build a robot

3 Build a robot

Please scan the QR code to enter our website: www.makerzoid.com

2.2 Connection of Coding Cube and Mobile Device

1.Set the coding cube to enter debug mode.

1 Short press the power button to enter the main interface.

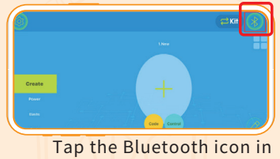
2 Select “Code” and press the confirm button “O” to enter.

3 Pay attention to the coding cube number [94842].

2.Connect to the mobile device.

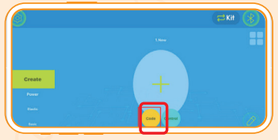
1 Enter APP, select “Kit”

2 Find the catagory of “Coding Cube”

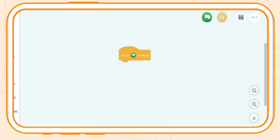


3 Tap the Bluetooth icon in the top right corner (ensure Bluetooth is enabled on the phone first).

4 Select the device you want to connect to.
Once the connection is successful, return to the main interface.



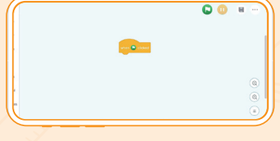
5 Tap Code.



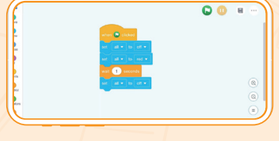
6 Enter the code interface.

2.3 Run the program

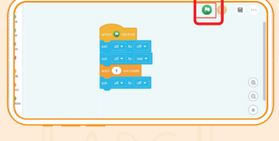
1.Run the program online



1 Ensure that the cube is connected to the mobile device.

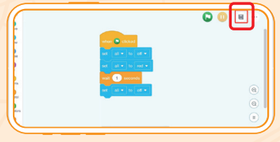


2 Write a program to turn on the cube's LED for 1 second, then turn it off.



3 Tap Run the program.

2.Save the program

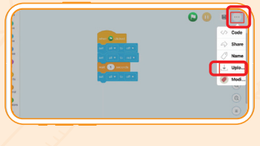


1 Tap the Save icon

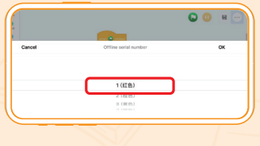
2 Set the program cover.

3 After naming, tap OK to save successfully.

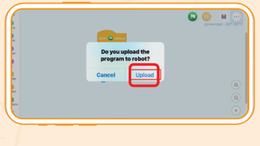
3.Upload the program (Note: During the upload process, please do not turn off or restart the device)



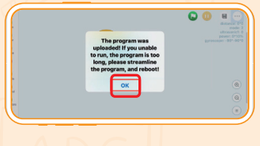
1 Tap the Upload icon



2 Select Red.



3 Tap Upload.



4 Tap OK.

4.Run the uploaded program(Note: Before performing this operation, the cube must have a stored program)

Multiple programs can be saved. When downloading, they are marked as follows:

Red ①, Orange ②, Yellow ③, Green ④, Cyan ⑤, Blue ⑥, and Purple ⑦.

① Short press the power button to exit run mode.

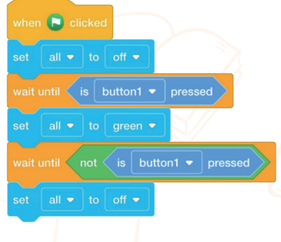
② Select “File”

③ Select “flash”

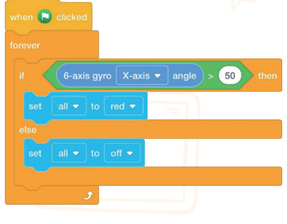
④ Select Program 1.

1-4 Program example:

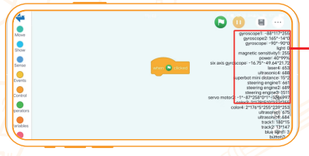
Example 1:
Press and hold Button 1 to turn on the green light. Release Button 2 to turn off the light.



Example 2:
Rotate the cube along the x-axis. When the x-angle exceeds 50 degrees, the red light turns on. Otherwise, the light remains off.



Chapter 3 View Parameters and Set Numbers



Data Area

gyroscope1:
gyroscope2:
gyroscope:
light:
power:
six-axis gyroscope:
...
...

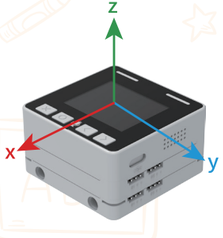
3.1 Coding Cube Data Interpretation

Power: Indicates the current remaining power level.

power: 90%
six-axis gyroscope:
light:
analog sensor:
button:
board1:
board2:

Six-axis gyroscope: Indicates the current tilt angles of the x, y, and z axes.
x-axis angle detection range (-180-180)
y-axis angle detection range (-180-180)
z-axis angle detection range (-180-180)

power:
six-axis gyroscope: 0.37.65*039.46*020.94
light:
analog sensor:
button:
board1:
board2:



Light sensor: The stronger the light, the larger the value.

power:
six-axis gyroscope:
light: 50
analog sensor:
button:
board1:
board2:

Buttons: Pressing different buttons will display different values.
Pressing button ① reads the value 1.
Pressing button ② reads the value 2.
Pressing button ③ reads the value 4.
Pressing button ④ reads the value 8.

power:
six-axis gyroscope:
light:
analog sensor:
button: 1
board1:
board2:

Analog sensor value: Can be connected to a general module to read its voltage.

power:
six-axis gyroscope:
light:
analog sensor: 15*3
button:
board1:
board2:

Board 1 and Board 2: Represent the current voltage values, respectively.

power:
six-axis gyroscope:
light:
analog sensor:
button:
board1: 0*0*3771*0
board2:

Example:

board1: 0*0*3771*0

- Indicates the current voltage value: 3771 → 3.771V.

3.2 View and Configure Servo Motor Parameters

3.2.1 View Servo Motor Parameters

1. Connect a color sensor to the coding cube.
2. Connect the coding cube to the mobile device app.
3. Find the data area: color sensor.

power: 40*90%
six-axis gyroscope:
-21.38*-13.32*-74.19
light: 0
analog sensor: 17*1
board1: 339*408*4052*2
board2: 0*0*4057*2
servo motor1: 0*0*204*0*1*0

Example:
servo motor1: 0*0*204*0*1*0

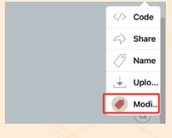
- Current servo motor power.
- Current servo motor speed.
- Current absolute angle of the servo motor.
- Current relative angle of the servo motor.
- When the motor is stalled for more than 3 seconds, display 1. When the motor is running smoothly, display 0.
- Whether the motor has completed the command, display 1 if completed, 0 if not completed.

3.2.2 Configure Servo Motor Parameters

In the factory default state, all motors are numbered as motor 1. When multiple devices are connected, it is not possible to control any single motor individually. We need to configure the motor settings for proper control.

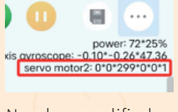
1. First, set the connected devices to be controlled as a single unit, then connect the cube to the mobile device app.

2. Modify the motor number.

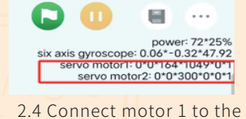


2.1 Tap ... ,select Modify

2.2 Select the servo motor and change the value to 2, then press confirm.



2.3 Number modified successfully.



2.4 Connect motor 1 to the cube, and it will display the values of both motors.

3.3 View and Configure Color Sensor Parameters

3.3.1 View Color Sensor

1. Connect a color sensor to the coding cube.
2. Connect the coding cube to the mobile device app.
3. Find the data area: color sensor.

power: 37*25%
six-axis gyroscope: -0.49*0.41*-9.49
light: 0
analog sensor: 17*2
board1: 289*602*3702*0
board2: 0*0*3702*0
color1: 99*6*8*8*2*2

Example:
color1：99*6*8*8*2*2

- Current detected color value.
  Color codes: 0 - Black 1 - Purple 3 - Blue
  4 - Cyan 5 - Green 7 - Yellow
  9 - Red 10 - White 99 - No color
- Current detected R value, range (0, 255).
- Current detected G value, range (0, 255).
- Current detected B value, range (0, 255).
- Current ambient light intensity, range (0, 100).
- Current reflected light intensity, range (0, 100).

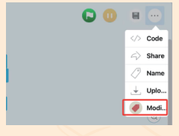
Note: The RGB color model is an industry-standard color system. It creates various colors by adjusting the values of the three color channels: Red (R), Green (G), and Blue (B), and combining them. Each color can be represented by a specific set of RGB values.

3.3.2 Configure Color Sensor Parameters

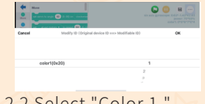
In the factory default state, all color sensors are numbered as sensor 1. When multiple devices are connected, it is not possible to control any single color sensor individually. We need to assign unique numbers to each color sensor.

1. First, limit the connected devices to just one, and connect the coding cube to the mobile device app.

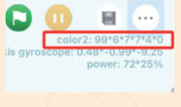
2. Modify the color sensor's number.
(Note: Once the color sensor's number is changed, it remains permanent, even when connected to a different coding cube.)



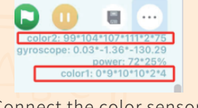
2.1 Tap ... ,select Modify



2.2 Select "Color 1," change the value to 2, and press OK.



2.3 Number modified successfully.



2.4 Connect the color sensor No. 1, and it will display the values of both sensors.

3.4 View and Configure Grayscale Sensor

3.4.1 View Grayscale Sensor

1. Connect a grayscale sensor to the coding cube.
2. Connect the coding cube to the mobile device app.
3. Find the data area: grayscale sensor.

power: 37*25%
six-axis gyroscope: -0.32*0.37*-41.14
grayscale sensor1: 51*0
light: 0
analog sensor: 15*3
board1: 298*488*3776*0
board2: 0*0*3767*0

grayscale sensor： 025

When the object is closer, the reading will be smaller.

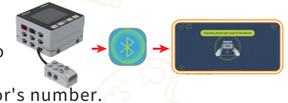
grayscale sensor： 071

When the object is farther away, the reading will be larger.

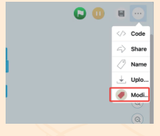
3.4.2 Configure Grayscale Sensor

In the factory default state, all grayscale sensors are numbered as sensor 1. When multiple devices are connected, it is not possible to control any single grayscale sensor individually. We need to assign unique numbers to each grayscale sensor.

1. First, limit the connected devices to just one, and connect the coding cube to the mobile device app.

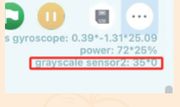


2. Modify the grayscale sensor's number.
(Note: Once the grayscale sensor's number is changed, it remains permanent, even when connected to a different main control board.)

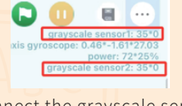


2.1 Tap ... ,select Modify

2.2 Select the grayscale sensor, change the value to 2, and press OK.



2.3 Number modified successfully.



2.4 Connect the grayscale sensor No. 1, and it will display the values of both sensors.

Chapter 4 Programming Instruction

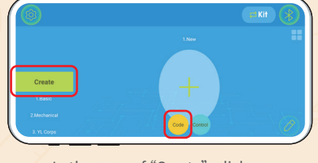
4.1. APP Coding

What is Makerzoid Graphic Programming?

In order to let people learn robot programming better, Makerzoid developed a a graphical programming tool with the combination of Scratch 3.0, a programming tool by MIT.
It changes the programming language into building block program modules. It does not need to write code but to drag the relevant building block program modules and stack them according to your ideas, so that the robot can perform the corresponding tasks according to your ideas.

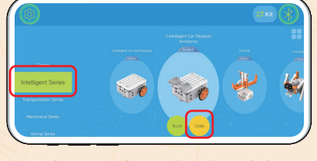
How to enter the programming page

Method 1: Enter the APP, connect the APP to the host controller by bluetooth, click on “Create” or select the robot that needs to be programmed, click on the “Code” in the page to enter the programming page.
Method 2: Some robots contain official programming tutorial. You can choose official programming or my creation to make a program for your robot.



In the page of “Create”, click on “Code” and then enter the programming interface.

1 My Creation



In this page, choose the robot, click on “Code” and then enter the programming interface.

2 Building Page

Some robots have official program, you can choose official program or write your own program for the robot.

3 Start Programming

4.1.1 Introduction to the Programming Area

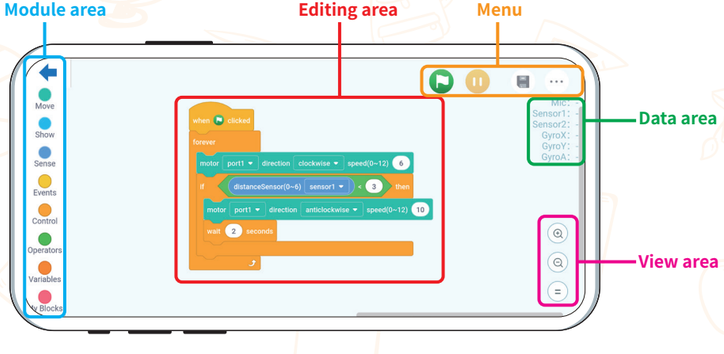
In the programming page, there are Module area, Editing area, Menu, Data area and View area.

Module area:
Provide modules of different function to choose and use.

Editing area:
Drag the modules you need here to make a executable script according to your ideas.

Menu:

- Start button
- Pause button
- Save button
- Function button (code, share and upload)
  - Code — View the code of the program
  - Share — Share your program or ask for other’ s program
  - Upload — Upload the program to the host controller



Data area:
Display the value of the sensor

Mic: -	Microphone value
Sensor1: - / Sensor2: -	Sensor value
GyroX: - / GyroY: - / GyroZ: -	Gyro value

View area:

- Enlarge the programming area
- Reduce the programming area
- Programming area in the middle

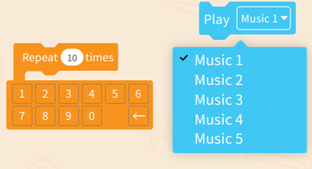
4.1.2 Programming Tutorials

Choose the module and drag it to the module “when it is clicked”.

1 Drag the module

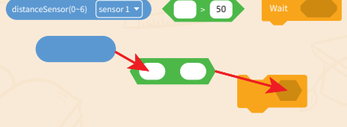
Drag the module not needed to the code area.

2 Delete the module



Some modules can be selected and some modules can be entered.

3 Enter/Select

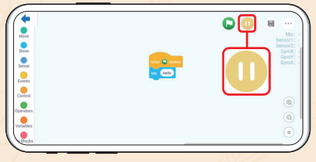


Different shapes in the modules deliver different content and can be inserted to different slots.

4 Insert the module

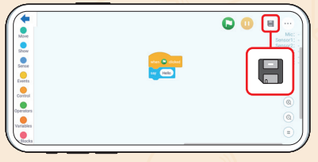
Click on the rt button, then the program starts.

5 Start the program



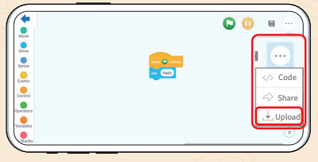
Click on the use button then the program is stopped.

6 Stop the program



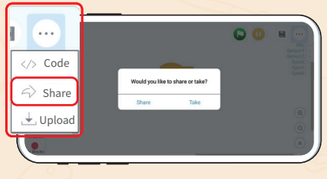
Click on the save button then the program is saved.

7 Save the program



Connected to the host controller and click on the save button, then the program is uploaded to the host controller, thus offline mode is available.

8 Upload the program

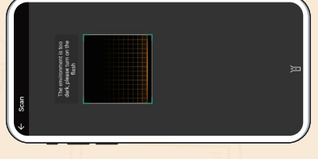


Click on the share button, you can share your program or ask for other's program.

9-1 Share/Ask for

Choose “share” then there is a QR code, your friend can get your program by scanning the code.

9-2 Share the program

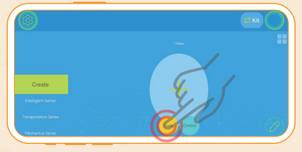


Choose “ask for” and then scan the code from your friends.

9-3 Ask for the program

4.4.3 Programming Case Study

Play music

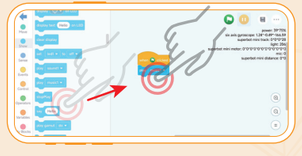


Click on the "Code" and enter the program.

1 Enter the program

Find the "Play" module in the module area "Show".

2 Choose the module



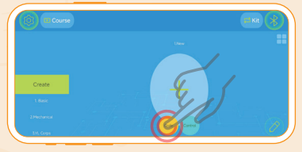
Long press the "Play" and drag it to the editing area.

3 Drag the module

Click on the start button to start the program.

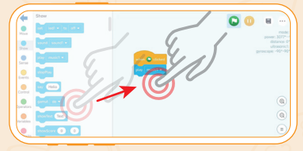
4 Start the program

Switch music



Click on the "Code" and enter the program.

1 Enter the program



Long press the "Play" and drag it to the editing area.

2 Choose the module

Click the "Play" module to switch different music.

3 Module placement

Click on the start button to start the programming program.

4 Start the program

4.2. PC Coding

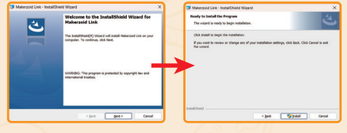
1. Software Download

Enter the URL:
https://software.makerzoid.com/makerzoidlab/index.html

1 Open The Webpage

Download “Makerzoid Link” based on the different systems.

2 Download The Plugin



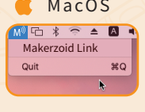
Open the downloaded file and proceed with the installation.

3 Install The Plugin

Double-click the “Makerzoid Link” icon to open the plugin.

4 Open The Plugin

After startup, the icon of Makerzoid Link will appear in the Windows system tray.



After startup, its icon will appear in the top menu bar of the screen.

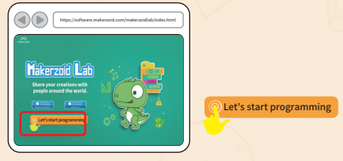
5 Display of Plugin

2. How to program

2.1 Connect to the coding cube

Enter the URL:
https://software.makerzoid.com/makerzoidlab/index.html

1 Open The Webpage

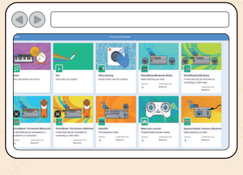


Click "Let's start programming" to enter the programming interface.

2 Enter programming

After entering the programming interface, click on the icon in the bottom left corner to access the

3 Interface Introduction



In the devices selection interface, choose the corresponding devices.

4 Select Devices

Press the coding cube switch to initiate pairing.
The computer must have Bluetooth functionality.

5-1 Bluetooth Connection

Insert the Type-C connector into the charging port of the main control, and plug the other end into the USB port of the computer.

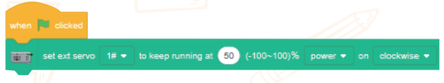
5-2 How to Connect

3.Application Cases

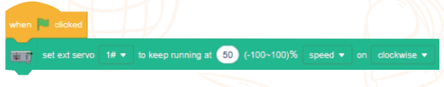
3-1 Servo Motor Application

1.Get the Motor Moving:

(1)Power Mode: Keep the motor outputting a constant force.



(2)Speed Mode: Keep the motor running at a constant speed output.



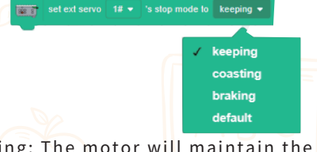
2.Rotate the motor 180 degrees clockwise:
Note: Rotate the motor by a certain relative angle, with a relative accuracy of 3°.

3.Rotate the motor to a specific absolute angle.

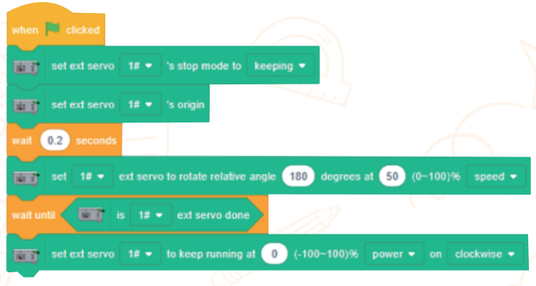
Note: The absolute angle refers to the physical position of the motor disk, with a range of (0, 359) and an accuracy of 1°, equivalent to one motor unit. When the program runs, the motor will rotate to the 180-degree position, not rotate by a 180° distance.

4.Motor stop status when coding:

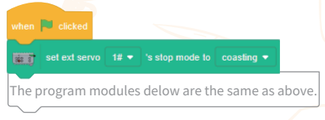
Note: Rotate the motor by a certain relative angle, with a relative accuracy of 3°.



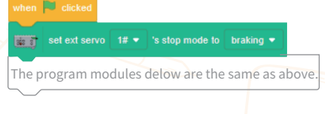
(1)Keeping: The motor will maintain the position after rotation and will be locked in that position. It cannot be rotated manually.



(2)Coasting: After the motor completes its rotation, it remains in a relaxed state and glides with inertia. It can be manually rotated, and the internal motor is in neutral.

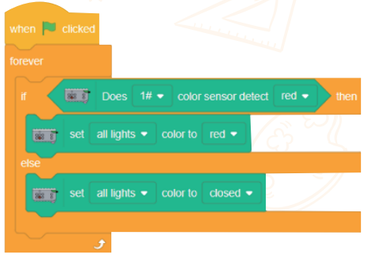


(3)Braking: After the motor finishes its rota tion, it immediately stops and applies -

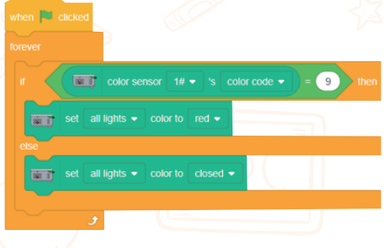


3-2 Color Sensor Application Cases

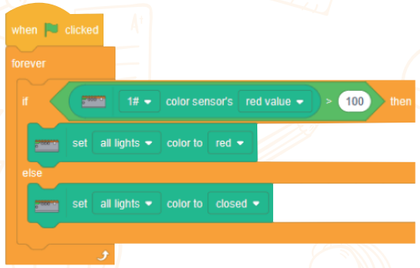
1.Use the color sensor to control the LED light:
(1)Color Mode: When red is detected, the red light will turn on. Otherwise, the light will remain off.



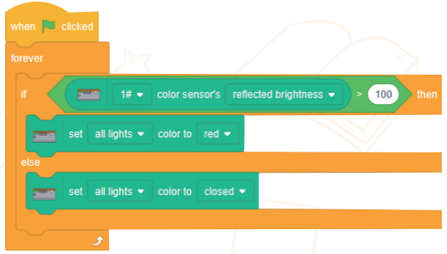
Or



(2)R/G/B mode: Taking the R value as an example, when the R value is greater than 100, the red light will turn on. Otherwise, the red light will not turn on.



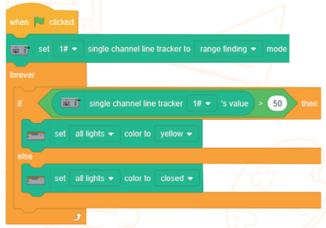
(3)Reflected light/ambient light: Taking reflected light as an example, when the reflected light is greater than 50, the red light will turn on. Otherwise, the red light will not turn on.



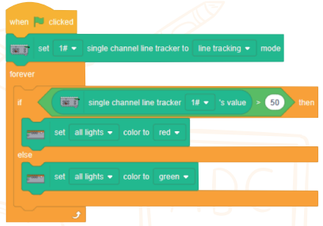
3-3. Grayscale Sensor Application Cases

1.Use grayscale to control an LED light:

(1) Range Finding Mode: This mode has a longer sensing range and is mostly used for distance detection.



(2)Line Tracking Mode: This mode has a shorter sensing range and is primarily used for detecting black, white, and grayscale. The deeper the black color, the larger the value.



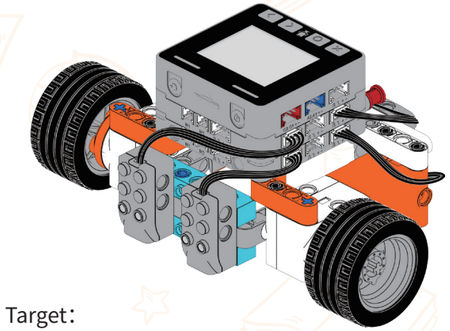
Note: When the sensor is short-circuited, it may cause other sensors/motors to enter a protective state and stop functioning. No readings will be displayed on the interface. You can identify which sensor is faulty by connecting them one at a time.

Line-tracking Car (BRICKS NOT INCLUDED)

★ ★ ☆ ☆ ☆

Build:

Kids, please follow the steps below to build your intelligent car! Make sure to pay attention to the orientation of the parts during the building process!



Target:

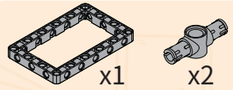
1.Build the car to understand the framework principle.

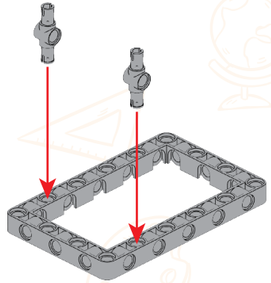
2.Use the programming software to change the device number.

3.Learn the programming modules and master the car' s forward and backward movement.

4.Apply the knowledge learned to make the car drive on the black line.

01





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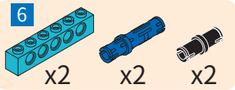

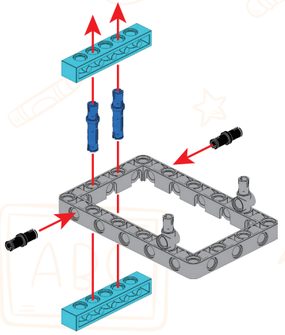

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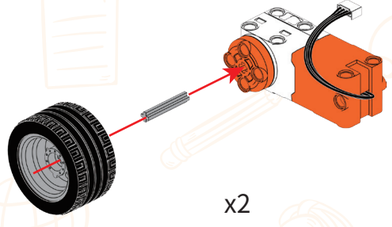

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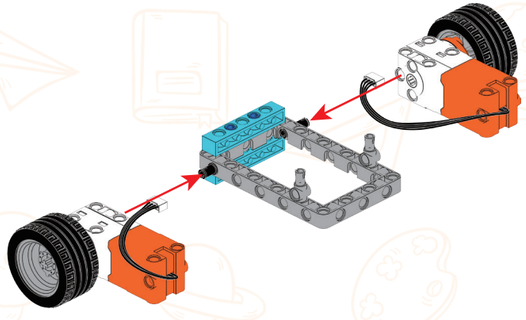

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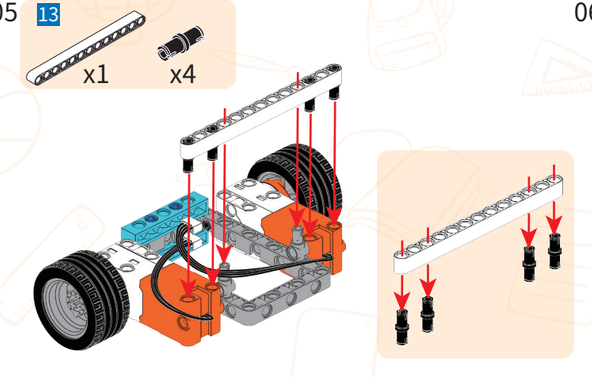

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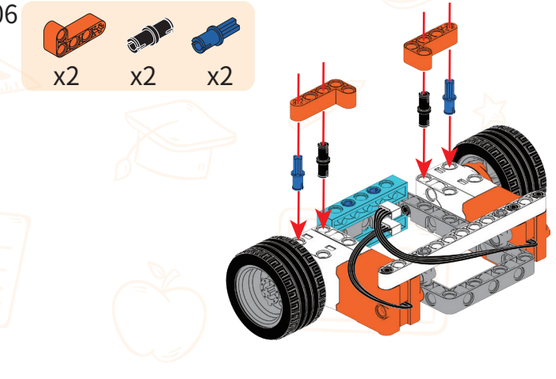

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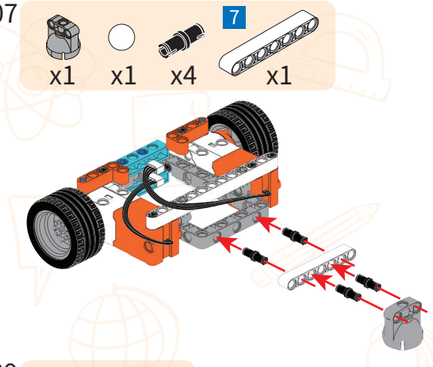

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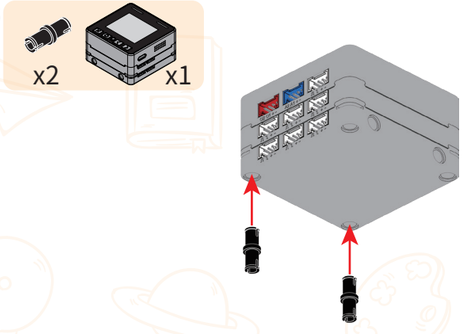

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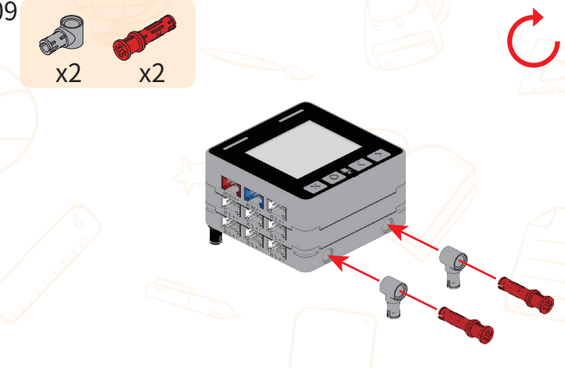

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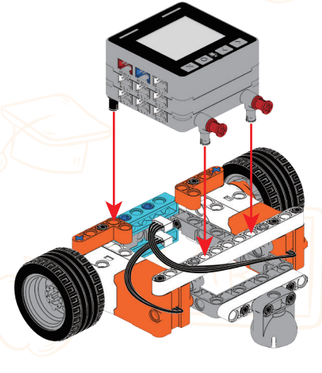

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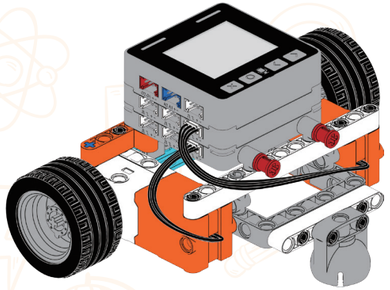

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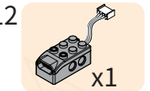

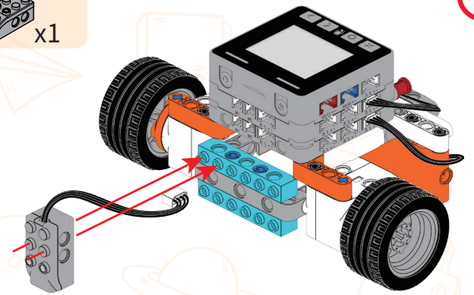

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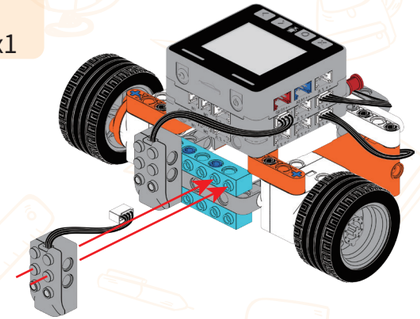

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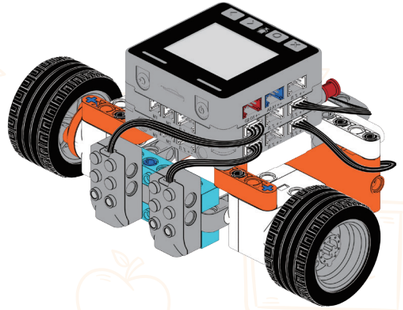

Product Information

Product Name: Makerzoid Coding Cube
Product No.: MKZ-CCB
Suitable Age: 6+
Made In China

Transformer:

1.Regularly inspect the transformer's wires, plugs, casing, and other components for any damage. If damage is found, usage should be stopped until it is repaired.
2.Toys should not be connected to more than one power source (5V).
3.The toy is not intended for use by children under 3 years old.
4.Only use the recommended transformer (Recommended specifications: DC5V500mA).
5.The transformer is not a toy.
6.Before cleaning, disconnect the toy from the transformer. The toy can be cleaned with a liquid cleaning agent.

Warning! Do not aim at the eyes or face.
Warning! Do not use projectiles not provided by the manufacturer.
Warning! This product contains small accessories, it is not for children under 3 years old.
Warning! This product contains small balls, which may cause a choking hazard and is not suitable for children under three years of age.

- The user manual contains important information, please keep it for future use.
- Rechargeable batteries should be charged under the supervision of an adult.
- Maintenance: This product shall not be used in water or a humid environment.
- Remove surface strains with a dry cloth before use.
- Do not mix old and new batteries.
- Do not mix alkaline batteries, standard(carbon-zinc) or rechargeable batteries.