PINGPONG ROBOT
EDU SERIES

E

CONTACT INFORMATION

*IF YOU HAVE ANY QUESTIONS, PLEASE CONTACT QNA@ROBORISEN.COM

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www.roborisen.com

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PINGPONG ROBOT
EDU SERIES

E

3D PRINTING · Scratch 3.0

TINY & SMART
REAL IoT ROBOT

PINGPONG ROBOT EDU SERIES

Product Composition

1. Cube only
2. Edu basic
3. Lesson kit A/B/C/D

User's Manual

1. Product Introduction
2. PingPong Robot (Cube)
3. Operation of Button
4. Matters Related to Charging
5. Connection to Smartphone
6. Connection to Scratch

PINGPONG ROBOT EDU SERIES

E

Robot operation, App functions
Assembly flowchart

AUTO CAR
WORM BOT
ROLLING CAR

BATTLE BOT
DRAWING BOT
HUMAN BOT
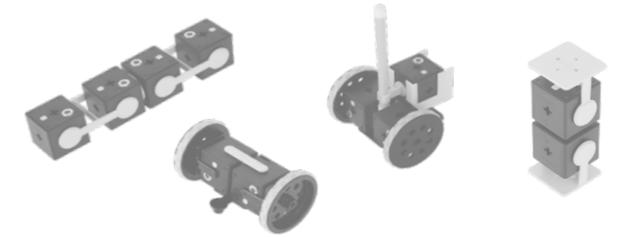ANT BOT

CRAWLING BOT
ROBOT ARM
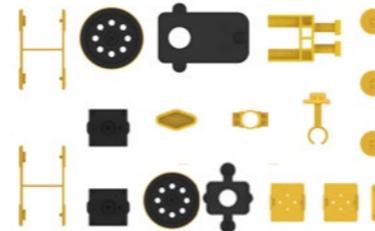
COMPOSITION: CUBE ONLY

CUBE

CUBE BOX

BAT & BT LED
Power Button
Charging Connector
Origin Detect Sensor
Stepper Motor
BLE 5.0

Proximity Sensor
Piezo Buzzer
LED indicator
Link Holes
IMU Sensor
Extension Port

COMPOSITION: EDU BASIC

Edu Basic Box

Links

Cube 2 EA

Charging Cable

USB Dongle

COMPOSITION: LESSON KIT A

Lesson kit A Box

4 Sensors
(Light, Sound, Dot Matrix & RC Servo)

Cube 1 EA

Charging Cable

USB Dongle

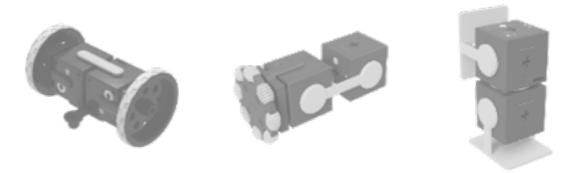# COMPOSITION: LESSON KIT B

Lesson kit B Box

Links

Cube 1 EA

COMPOSITION: LESSON KIT C

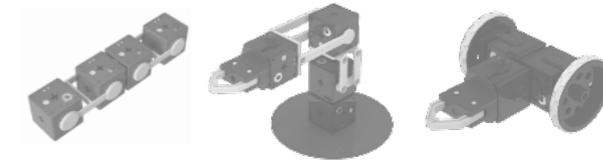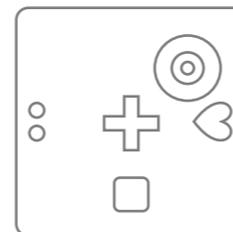Lesson kit C Box

Links

Cube 1 EA

COMPOSITION: LESSON KIT D

Lesson kit D Box

Links

Cube 1 EA

PINGPONG ROBOT EDU SERIES
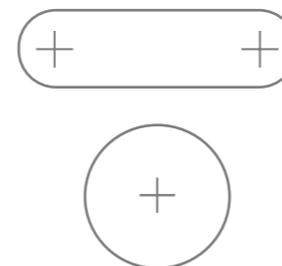
User's Manual

1

PINGPONG ROBOT (CUBE)

This is the basic module of PingPong robot, which is called "Cube". The button, various sensors and 4-pin expansion port are built in Cube.
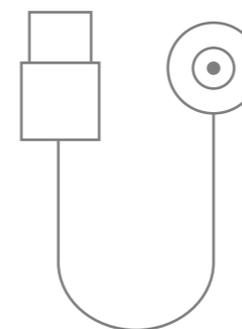
2

LINK

It is the framework that connects Cube and Cube, which can make various shapes of Robots using a variety of Links. The Links for the basic model are included in G2, G3 and G4 boxes.
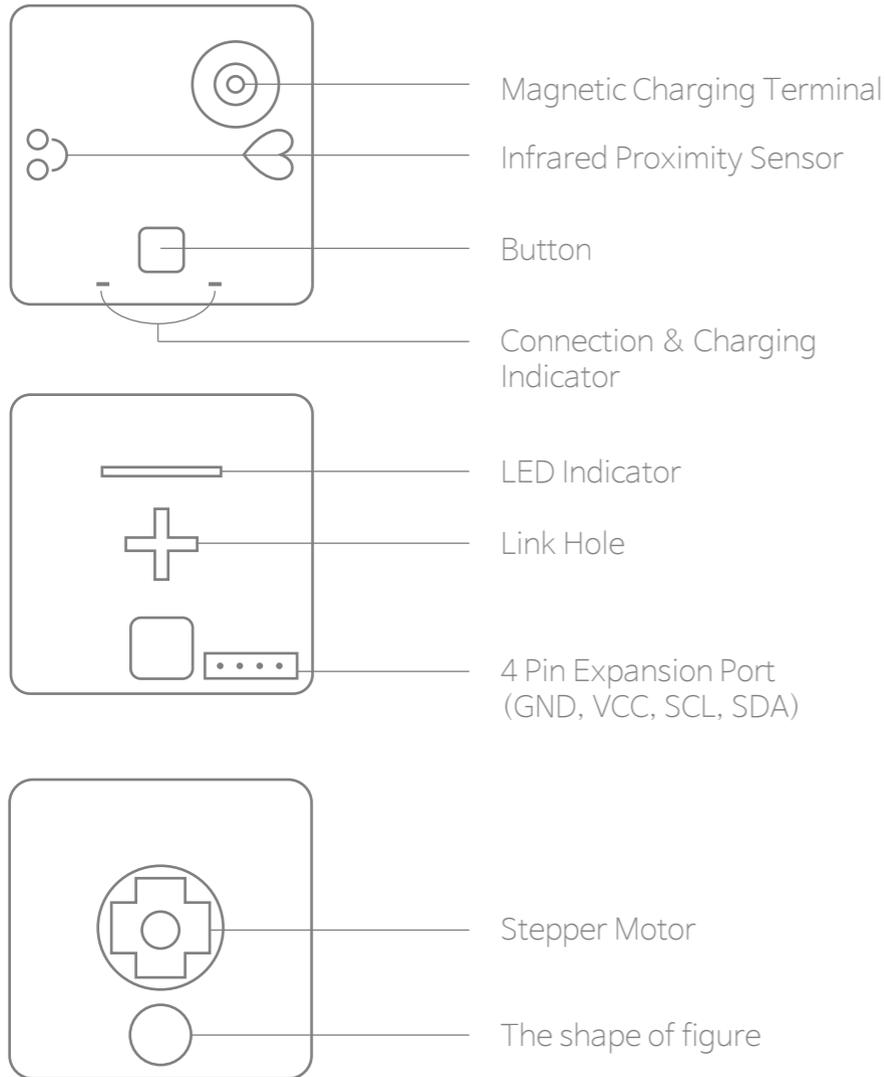
3

CHARGING CABLE

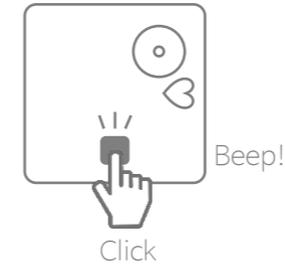This is a dedicated charger that can charge PingPong robot. Magnets are attached for easy connection.
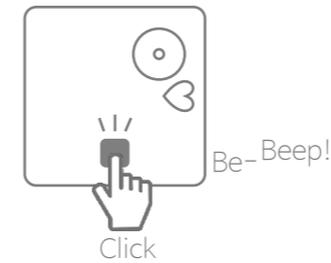
PINGPONG ROBOT (CUBE)

Magnetic Charging Terminal

Infrared Proximity Sensor

Button

Connection & Charging Indicator

LED Indicator

Link Hole

4 Pin Expansion Port
(GND, VCC, SCL, SDA)

Stepper Motor

The shape of figure

OPERATION OF BUTTON
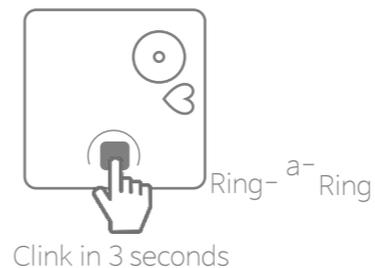
1. Turning On

Beep!

Click

If you press the button once briefly when the power is off, PingPong Robot is turned on.
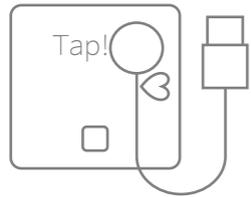
2. Connecting

Be-Beep!

Click

After running a Smartphone App or computer connection program, if you press the button once more when the power is on, PingPong Robot makes an attempt to connect with the device.

3. Turning Off

Ring- a- Ring

Clink in 3 seconds

If you press and hold the button when the power is on, PingPong Robot is turned off.

MATTERS RELATED TO CHARGING

Tap!

Flash–

You can charge PingPong Robot using the Magnet Charging Cable built in the box. When charging USB, use a rated 5V/3A dedicated charger. When using a USB port of laptop or PC, there is a concern of terminal damage.
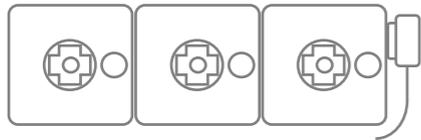
Several Cubes can be charged at a time connecting together.
It takes about an hour from 1 to 6 Cubes to the full charge, and takes more time for 7 Cubes for more.
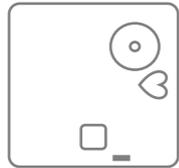
When charging starts, LED next to the button lights in red, and the light turns off when fully charged.

- Be sure to turn off the power when PingPong Robot is not used.
- As battery power supply may be insufficient depending on the robot model, fully charge it before use.
- As for the battery of cube, it can be used continuously for about an hour for a wheel-driven robot, and about 20 minutes for a joint-driven robot (or operation).
- In the event of the sudden voltage drop due to the continuous operation or battery discharge due to long use, LED indicator flickers in red 5 times and the power of Cube is turned off.
- After 5 minutes from disconnecting power and wireless connection, the system becomes the dormant state (flickering in white), and the power turns off automatically after 5 minutes

CONNECTION TO SMARTPHONE

1. Search the "PingPong Robot" application with a Smartphone and install it.
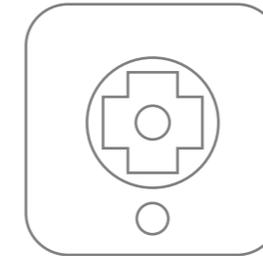
PingPong Robot

PingPong Robot
RoboRisen

Install

Download on the App Store

GET IT ON Google Play

2. Turn on Bluetooth and GPS in the Smartphone setting window, and allow use.

3. Run the application and select two Cubes on the screen.
(e.g. AUTO CAR)

4. Select the robot to connect
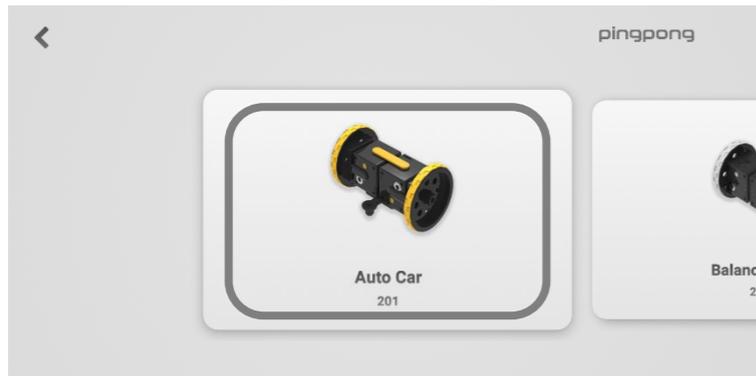
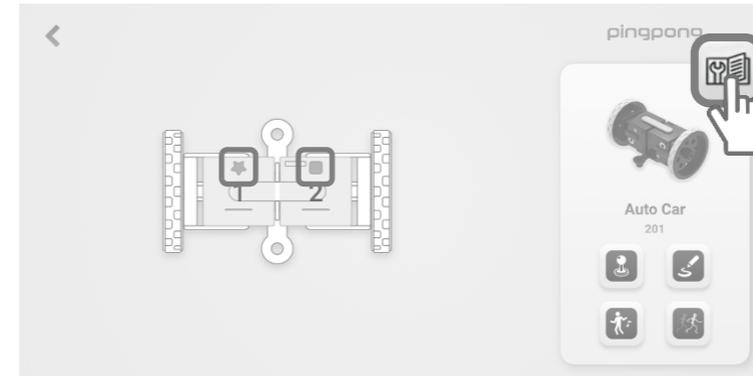5. Assemble it by referring the development view or the assembly flow chart.
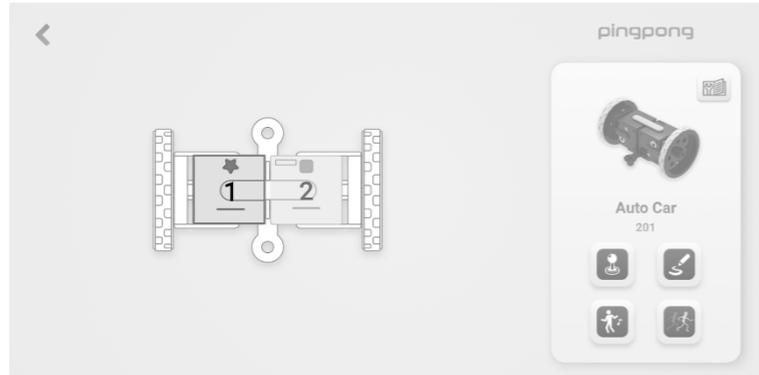

The assembly flow chart is at the last of the manual, and there are the assembly sequences of all the robots that can be assembled in this series.

The shape of the upper figure should be assembled to fit the star and square, so that the front and the rear are not changed when operating with a joystick.
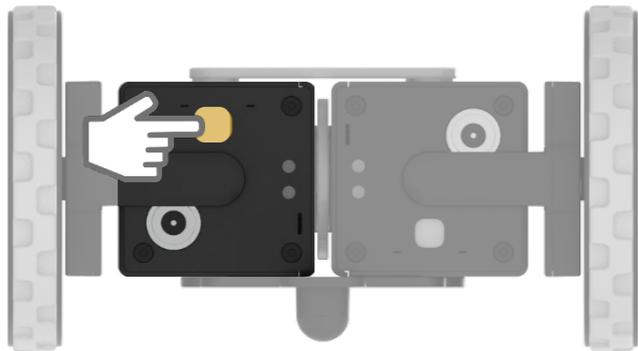

Direction
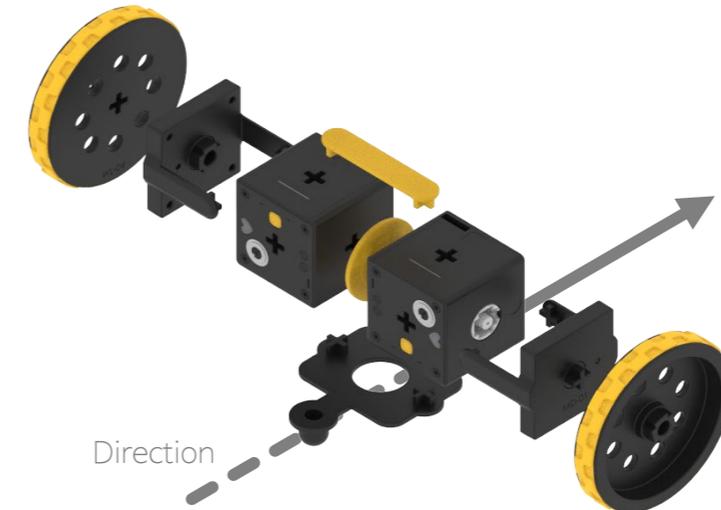
6. Find the No. 1 Cube on the Smartphone screen..

7. After turning on the power by pressing briefly the No. 1 Cube, press the button once more to connect

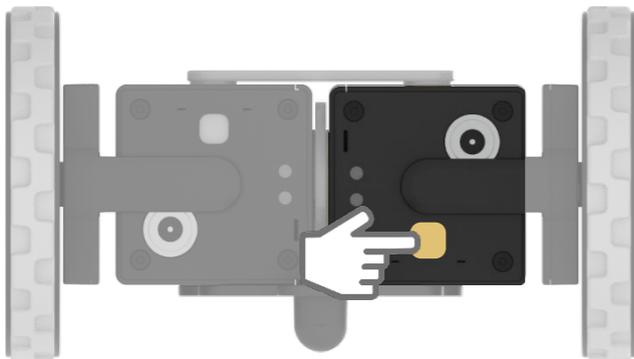8. When connected, the color of No. 1 Cube turns red on the application screen.
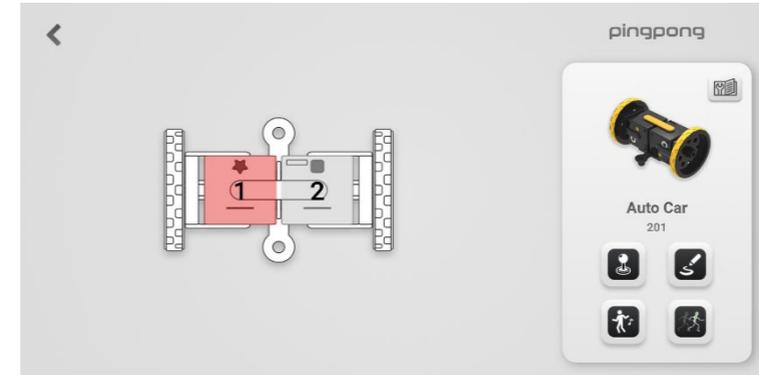
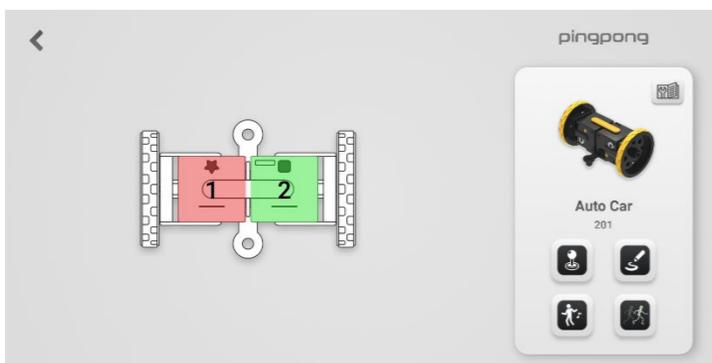9. At the same time, the LED indicator on the left Cube flickers in red.
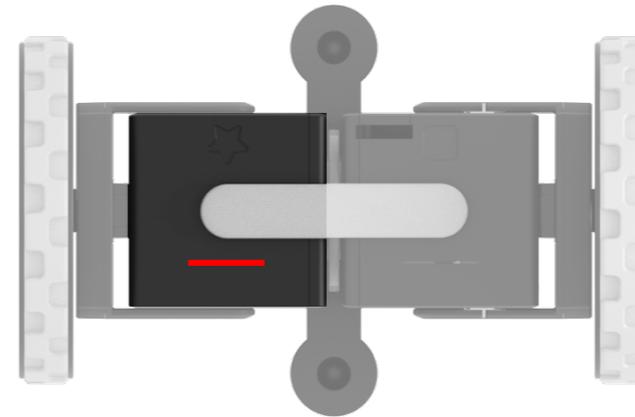
CONNECTION TO SMARTPHONE

10. Connect the second Cube in the same way.

It turns on If you press once briefly when it is turned off, and PingPong Robot makes an attempt to connect with the device if you press it once more when it is turned on.

11. Connection is completed with buzzer sound.

🕹 Joystick

✏ Drawing

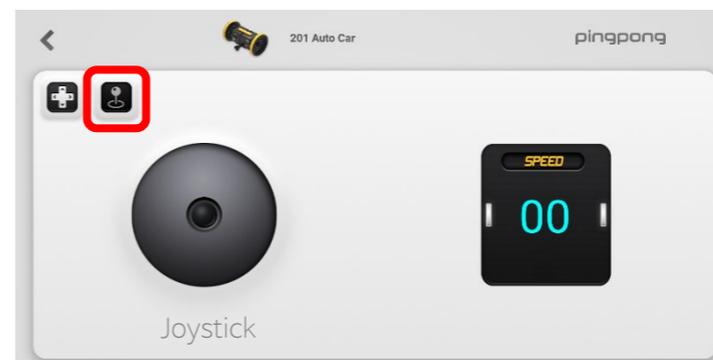🕺 Dancing to the music

🏃 Motion Maker

APP OPERATION

🕹 Moving with a joystick
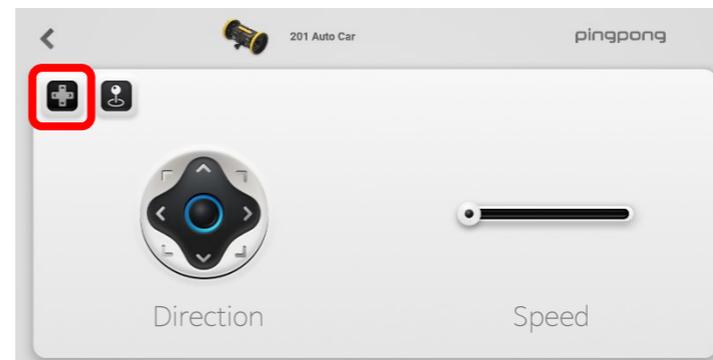
You can control the Auto Car by pressing the button. Press the left arrow key to move in straight, and press the blue circle to stop.

You can control the operation speed by using the speed bar on the right.

You can control it freely by moving the joystick. The PingPong Robot moves faster if you pull the joystick more.

The speed window on the right shows the current speed as the number of 1 ~ 100.

APP OPERATION

Drawing the basic figure
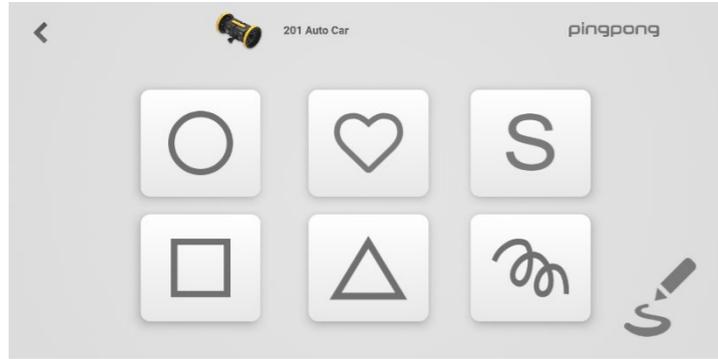
If you press the desired figure, it moves according to the specified figure. In case of Drawing Bot, you will draw a figure by lowering and lifting a pen.

Dancing to the music

If you press the icon, it will dance according to the predetermined motion with the theme song of PingPong Robot.
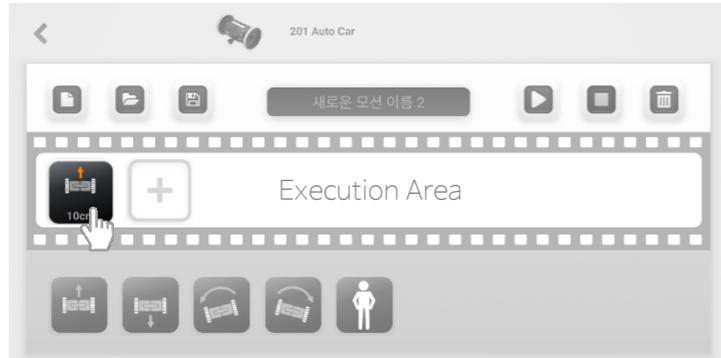
Motion Maker (To create motion)

It is the menu to create the desired motion and move the PingPong Robot at will.

After pressing and dragging the icons below, you will create the motion by placing them in order in the execution area of the film shape.
.

Motion Maker (To modify motion)

By pressing the motion icon in the execution area, you can change the values (movement distance, rotation angle and waiting time) for each motion.

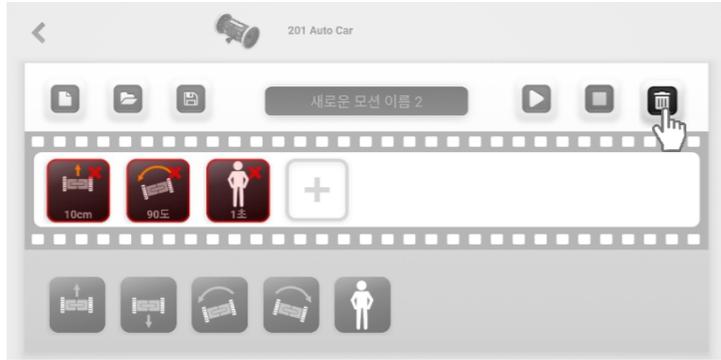## Motion Maker (To change the sequence and to play)
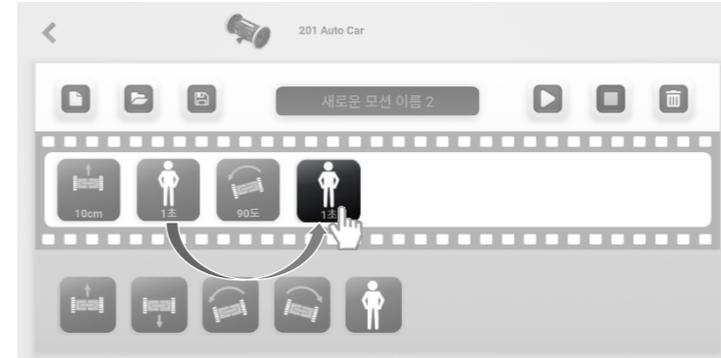
If you press the motion icon that you want to change and move it to another place, the sequence of motion is changed.
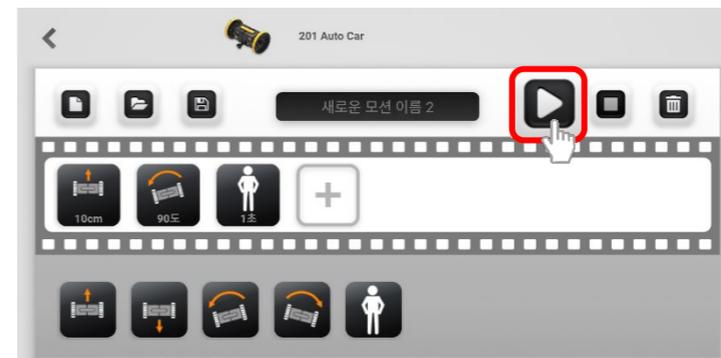
If you press the play button, the PingPong Robot moves in the order of the icons.

APP OPERATION

 Motion Maker (To delete motion)

You can delete unnecessary motion by pressing the trash button.
When deleting is completed, press the trash button again to clear the delete mode.

New	Clearing all the motions in the execution area and creating the new ones..	**Play**	PingPong Robot moves according to the sequence of the icons in the execution area..
Open	Invoking the saved motion.	**Stop**	Stopping the motion of a moving PingPong Robot.
Save	Saving the motion in the execution area to a Smartphone.	**Delete**	Deleting unwanted motions in the execution area.

CONNECTION OF SCRATCH

1. Download Scratch 3.0 for PingPong from the website of RoboRisen (www.roborisen.com) and install it.

Scratch 3.0
PingPong
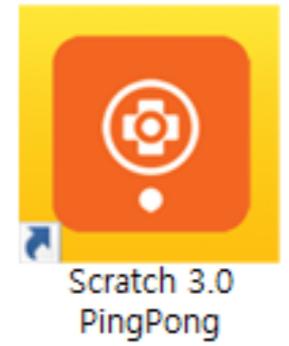
2. At this time, install 2 types of Link SW for Scratch connection as well. You can connect to PingPong Scratch 3.0 without a dongle, from Windows 10 and higher.

Scratch 3.0
Dongle

With Dongle

Scratch 3.0
Bluetooth

Without Dongle
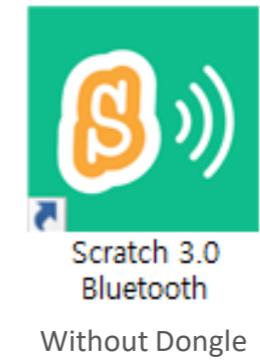
CONNECTION OF SCRATCH

3. Run Scratch to connect with Cube. Select "Add Extension Function" at the bottom left or PingPong Scratch.

Add Extension
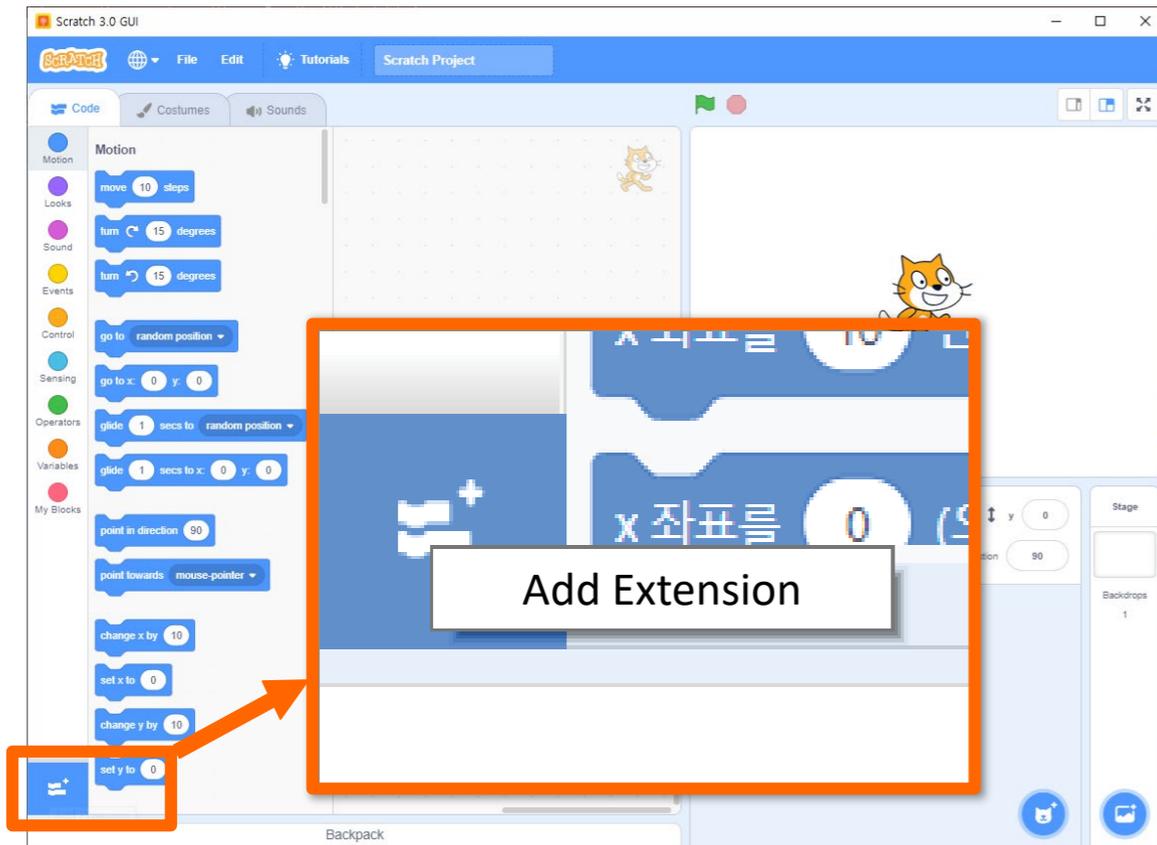
CONNECTION OF SCRATCH

4. Select the PINGPONG model you want to connect. This time, select Connecting two Cubes (G2) for PingPong robot project using two Cubes.
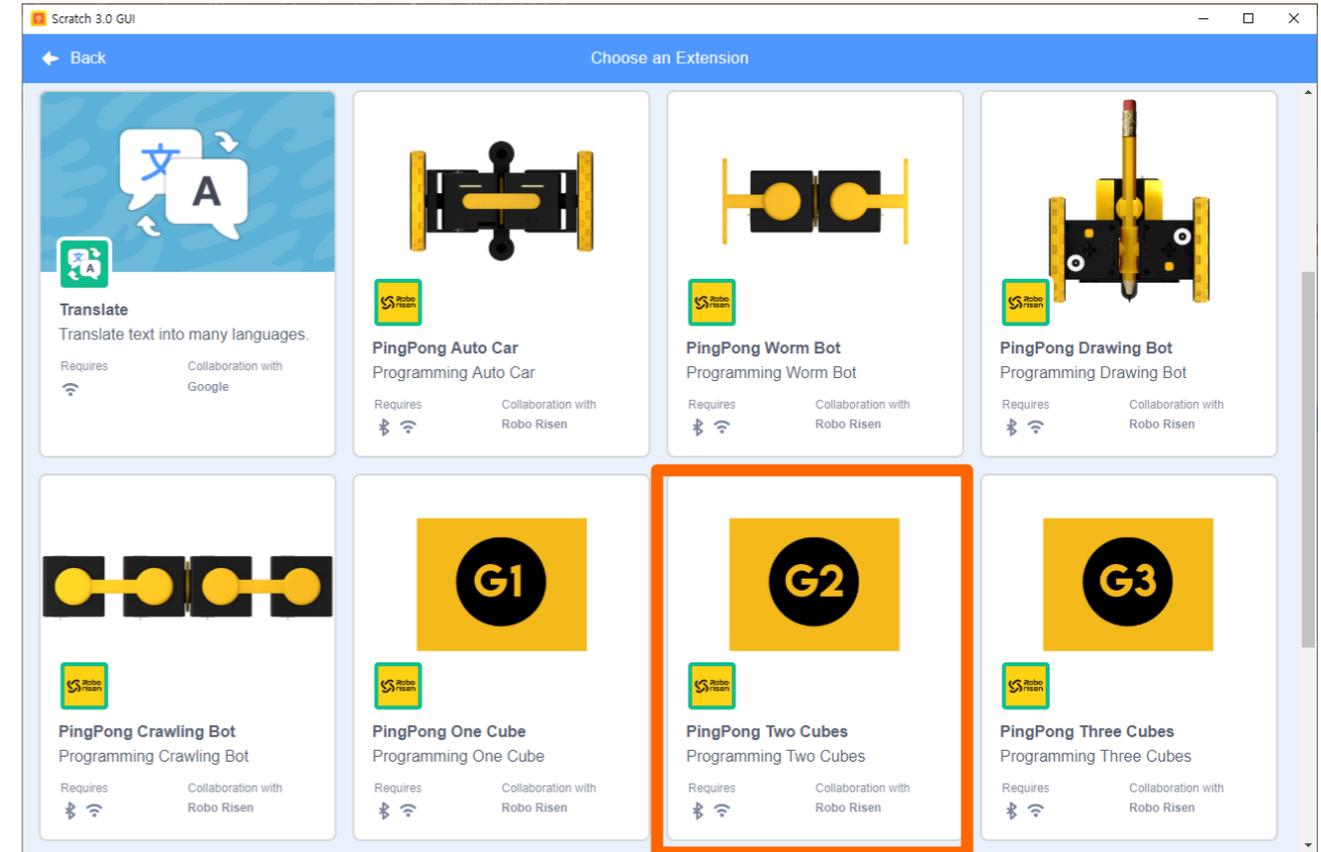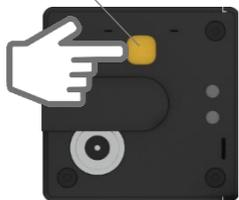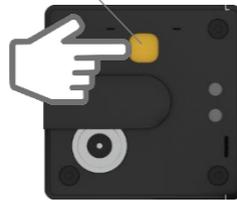
5. When the yellow window to find the device pops up, slowly press the yellow buttons of the prepared two Cubes twice respectively.
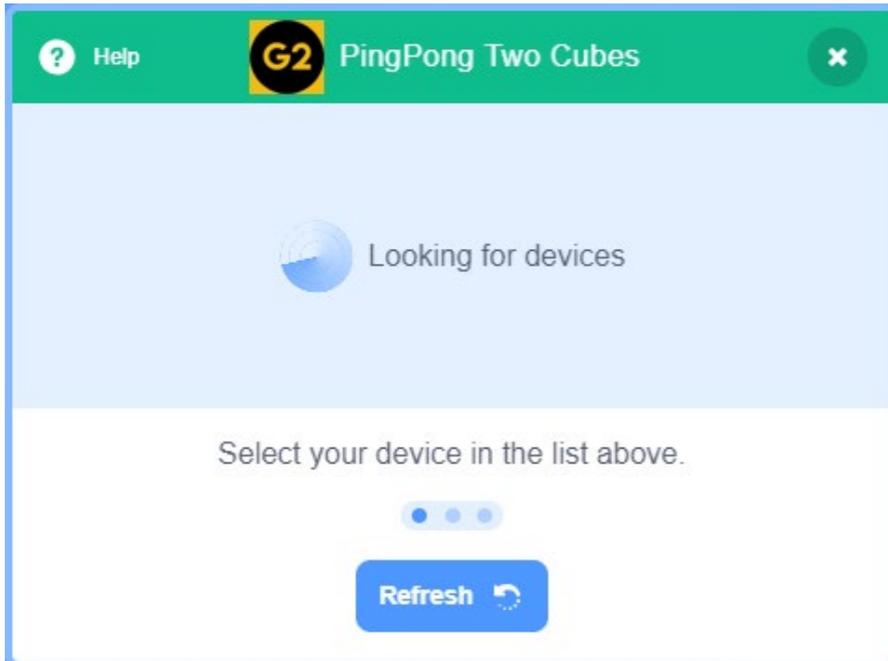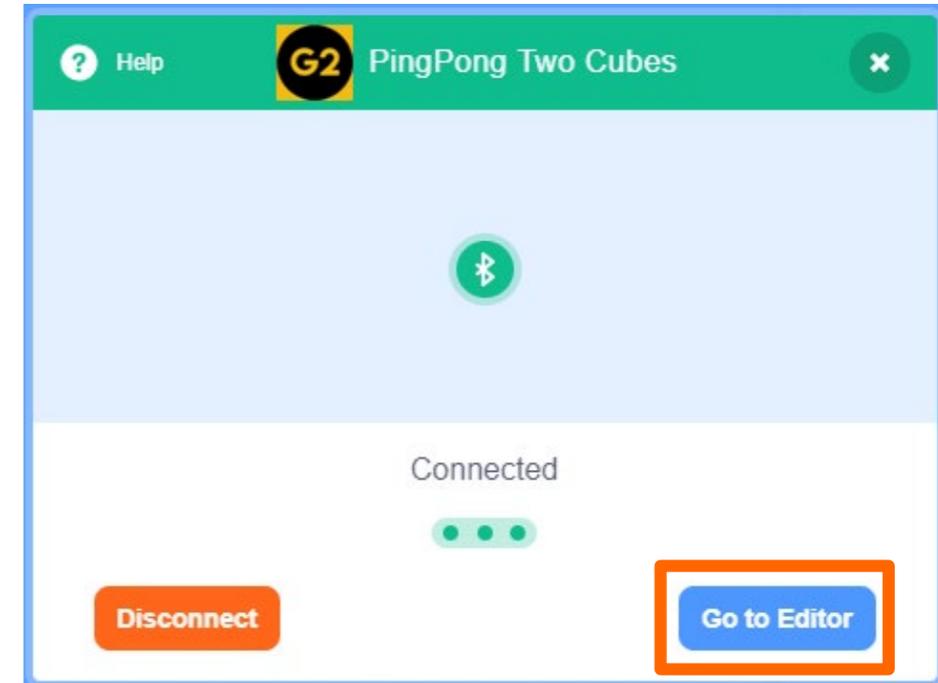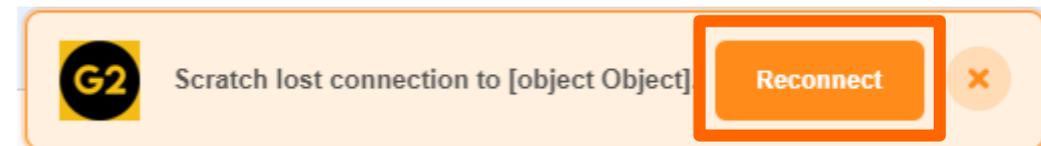

Click twice

Click Twice

6. When both Cubes are completed, move to the Editor to start coding.

7. If it is disconnected midway, press Connection again and repeat the previous process.

G2 Scratch lost connection to [object Object] **Reconnect** ✕

CONNECTION OF SCRATCH

8. Depending on the PingPong robot model or the Cube utilization project, you can select and use various types of models as shown below.
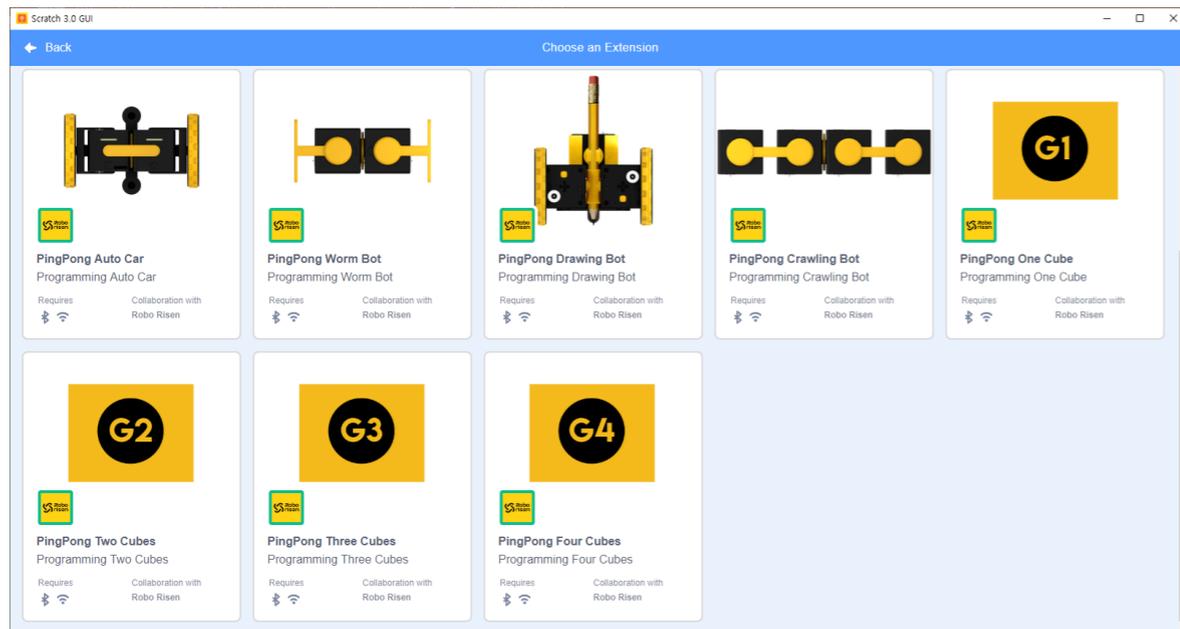
ROBOT OPERATION AND APP FUNCTION

SENSOR BASIC
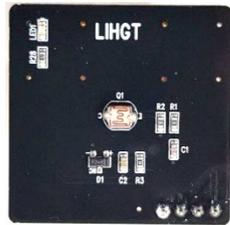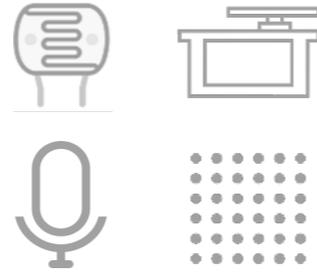
Light Sensor

RCServo Motor

Sound sensor
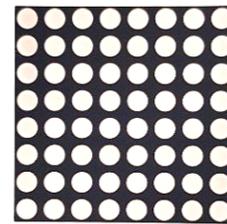
Dot Matrix

PINGPONG AUTO CAR
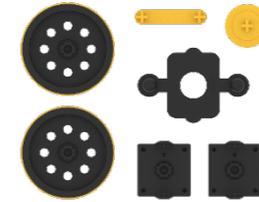
Links

Cube
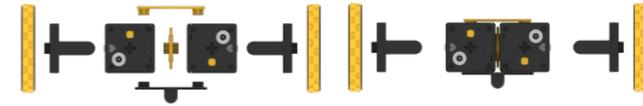
Assembly
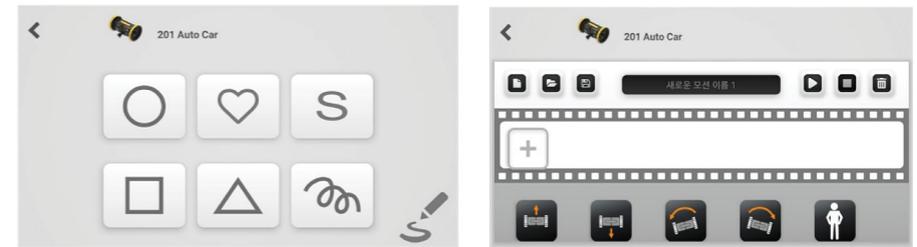
App functions

PINGPONG WORM BOT

Links

Cube
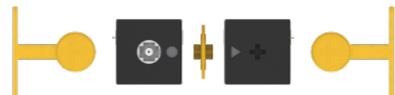
Assembly
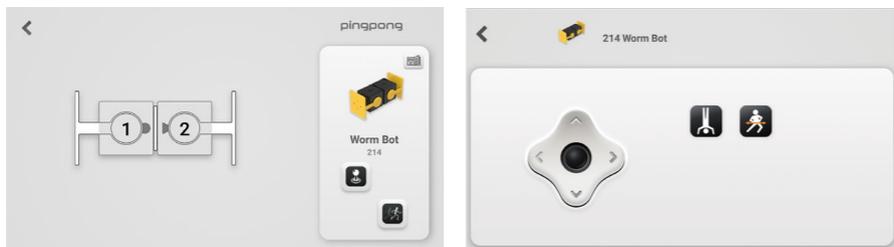
App functions

PINGPONG ROLLING CAR

Links

Cube
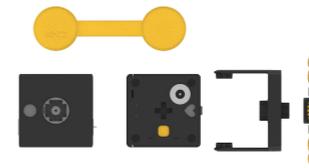
Assembly
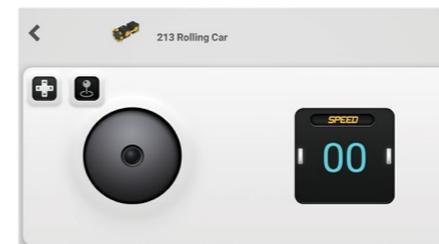
App functions

PINGPONG BATTLE BOT

Links
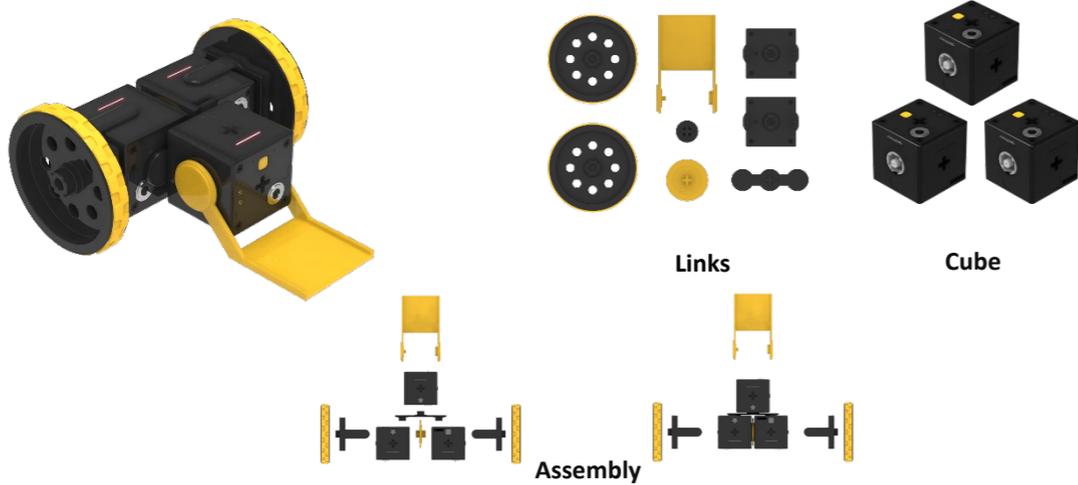
Cube

Assembly

App functions

PINGPONG DRAWING BOT

Links
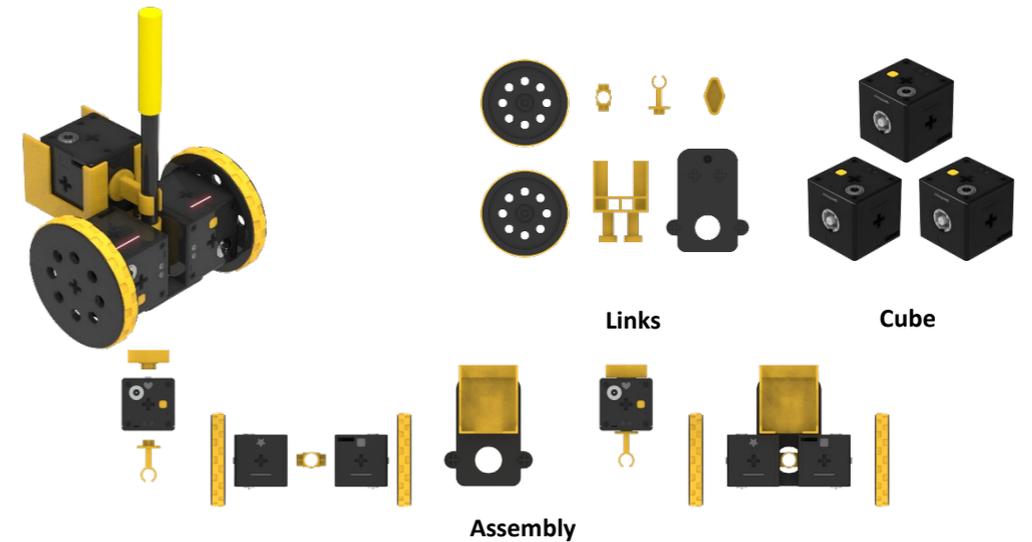
Cube

Assembly

App functions

PINGPONG HUMAN BOT

Links
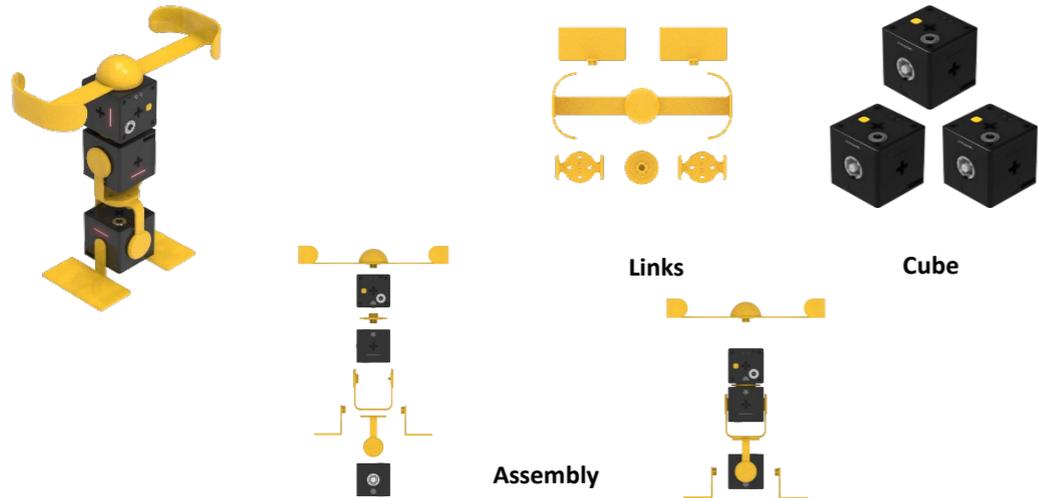
Cube

Assembly

App functions

PINGPONG ANT BOT

Links
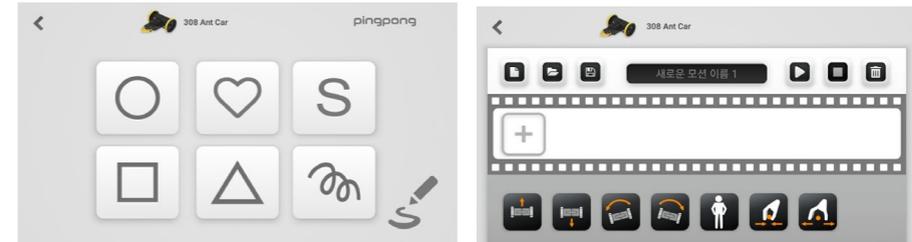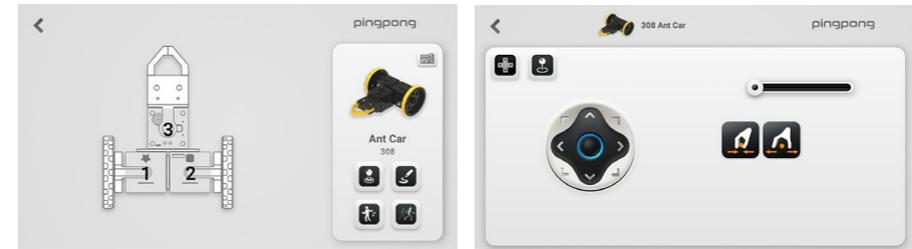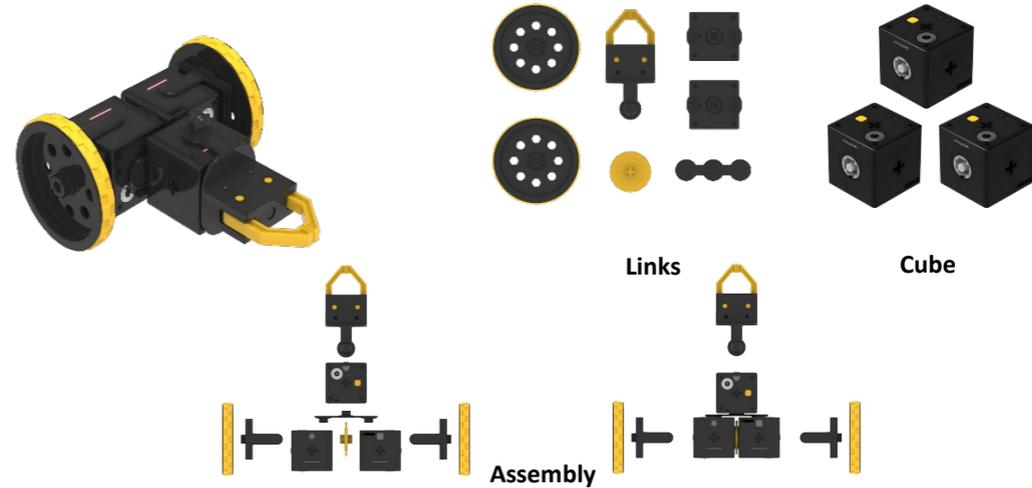
Cube

Assembly

App functions

PINGPONG ROBOT ARM

Links

Cube
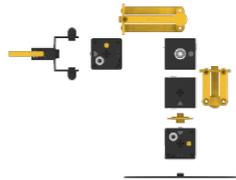
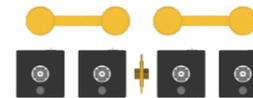**Assembly**
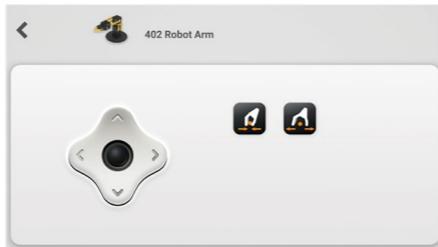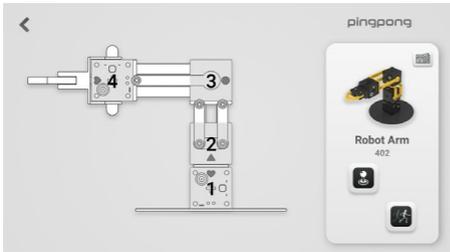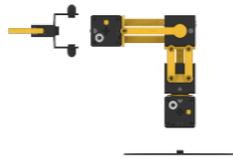
App functions

PINGPONG CRAWLING BOT

Links

Cube
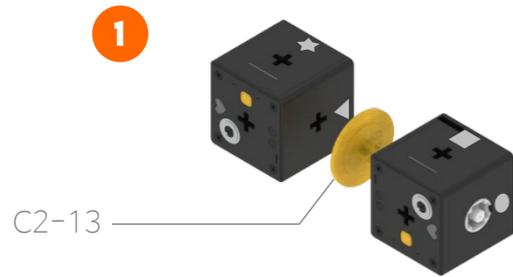

Assembly

App functions

PINGPONG ROBOT EDU SERIES

E

Assembly flowchart

AUTO CAR
ROLLING CAR
WORM BOT

BATTLE BOT
DRAWING BOT
HUMAN BOT

ANT BOT
CRAWLING BOT
ROBOT ARM

1

C2-13

Assemble it according to the shape of figure and the position of button.

2

C2-08

C2-07

Combine the rod Link (C2-08) on the upper side and Ball Caster (C2-07) on the bottom.
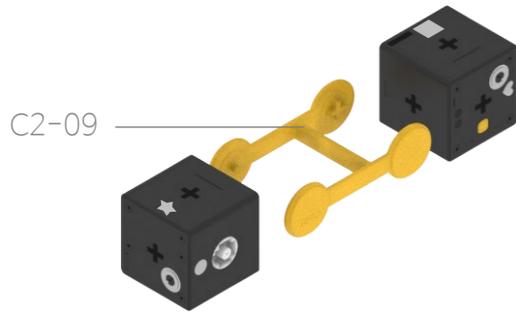
3

MD-01

Combine the Acceleration Gear (MD-01) nearby the Cube. If the Link does not enter well, turn the cross (+) shape of the gear to adjust the groove of the motor.

4

WL-04

Direction

Connect the Wheel (WL-04) to the Acceleration Gear.

PINGPONG ROLLING CAR ASSEMBLY

1

C2-09

Assemble it according to the shape of figure and the position of button. Combine the first Cube on the long side of H-type Link (C2-09), and combine the Second Cube on the short side.

2

MD-01

Combine the Acceleration Gear (MD-01) with No. 2 Cube (short Link). If the Link does not enter well, turn the cross (+) shape of the gear to adjust the groove of the motor.
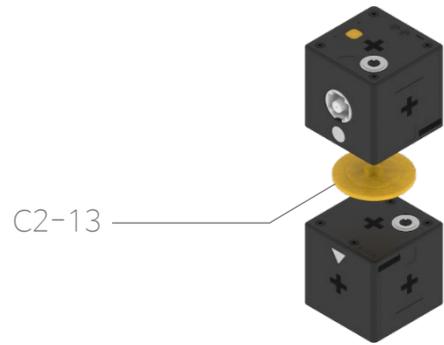
3
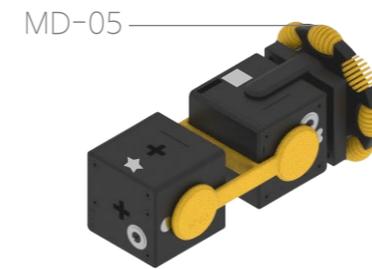
MD-05

Connect the Wheel (MD-05) to the Acceleration Gear.

1

C2-13

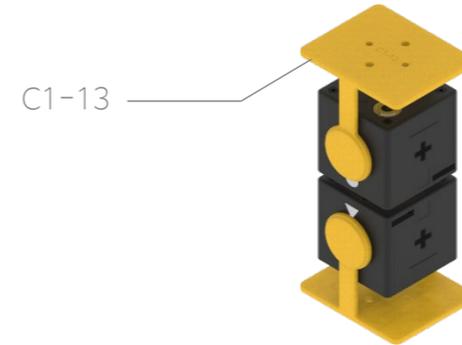Assemble it according to
the shape of figure and
the position of button.

2

Connect the Link (C2-13)
in the middle of Cube.

3

C1-13

Connect Link (C1-13) to
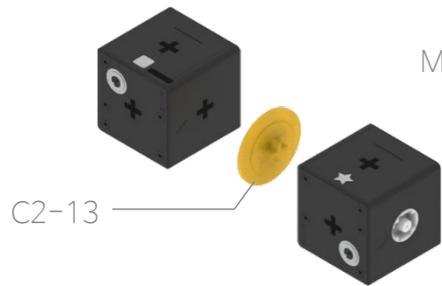two Cubes.

4

Before moving, lay Worm
bot on its side as shown in
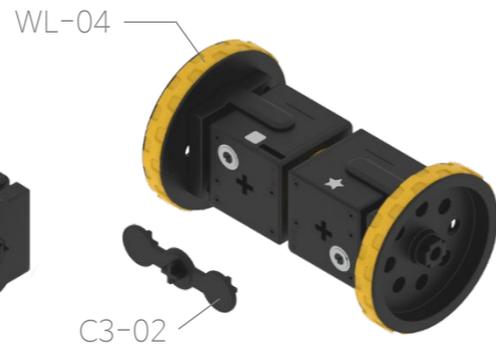the picture below.

PINGPONG BATTLE BOT ASSEMBLY

1

C2-13

Assemble the link (C2-13) according to the shape of figure and the position of button.
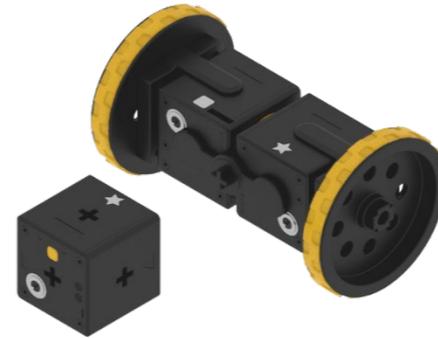
2

MD-01

Combine the Acceleration Gear (MD-01) on both sides. If the Link does not enter well, turn the cross (+) shape of the gear to adjust the groove of the motor.

3

WL-04

C3-02

Inset the wheel into the Acceleration Gear. Combine Link (C3-02) according to the shape of the figure.

4

Attach Cube according to the position of the figure shape.

5

C1-19

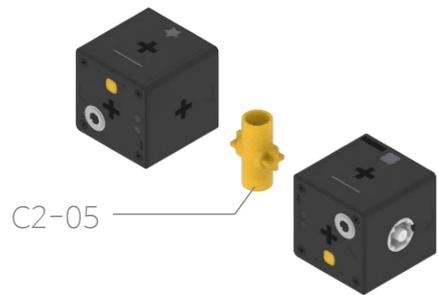Attach the Link (C1-19) to the bottom of the Cube.

6

C1-03

Attach the Link (C1-03) to both sides of the Cube.

PINGPONG DRAWING BOT ASSEMBLY
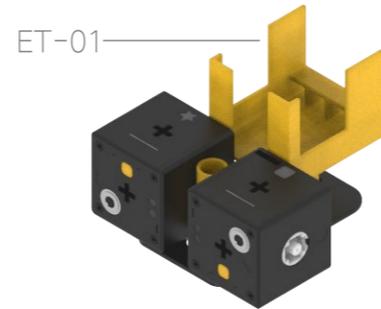
1

C2-05

Assemble it according to the shape of figure and the position of button. Combine the Link (C2-05) between two Cubes.
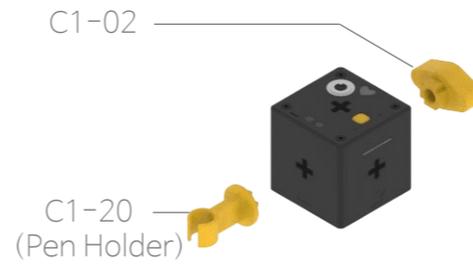.

2
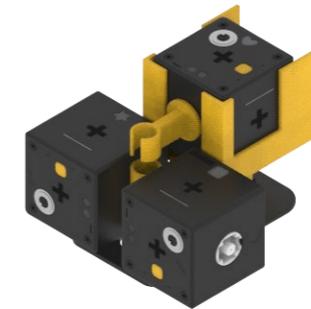
C2-04

Attach the Link (C2-04) under two Cubes.

3

ET-01
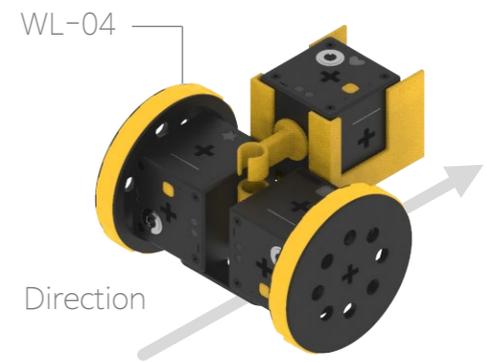
Combine the Link (ET-01).
.

4

C1-02

C1-20 (Pen Holder)

Attach the Pulley Link (C1-20) and the Pen Holder Link (C1-02).

5

Insert the assembled third Cube onto the Link (ET-01).
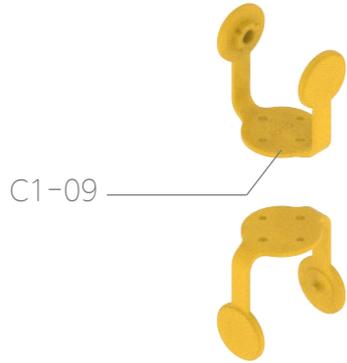
6

WL-04

Direction

Attach the Wheel (WL-04) to both sides of Step 5 Cube.
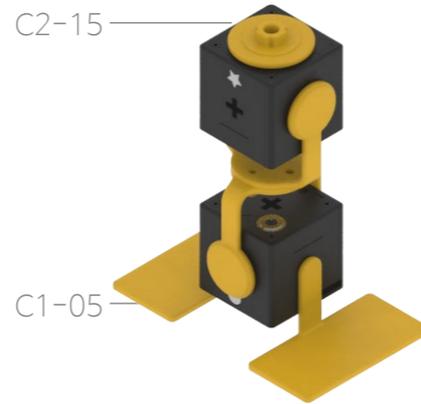
PINGPONG HUMAN BOT ASSEMBLY

1

C1-09

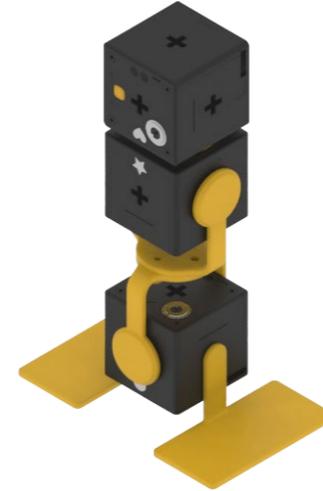Combine two Links (C1-09) with small screws.

2

Attach two Cubes to the Link (C1-09). Assemble it according to the shape of button.
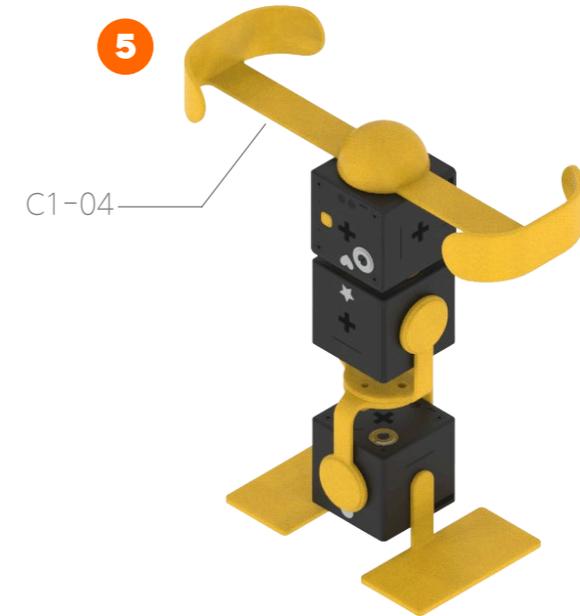
3

C2-15

C1-05

Attach the Link (C2-15) to the top of the Cube. Attach two Links (C1-05) to be the legs on both sides.

4

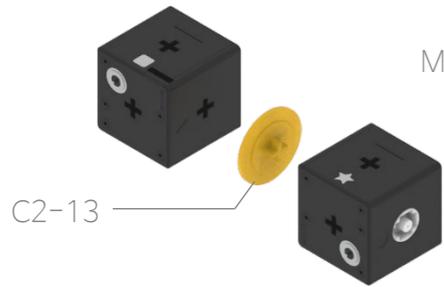Assemble it according to the shape of figure and the position of button.

5

C1-04

Attach the Link (C1-04) to the Cube.

1

C2-13

Assemble it according to the shape of figure and the position of button

2

MD-01

Combine the Acceleration Gear (MD-01) beside the Cube. If the Link does not enter well, turn the cross (+) shape of the gear to adjust the groove of the motor.
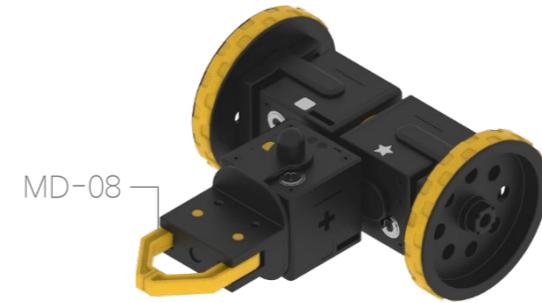
3

WL-04

C3-02

Inset Wheel (WL-04) into the Acceleration Gear. Combine the Link (C3-02)

4

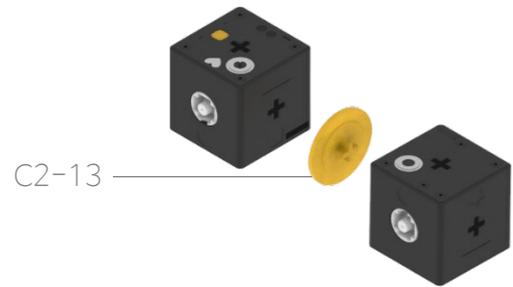Assemble it according to the shape of figure and the position of button.
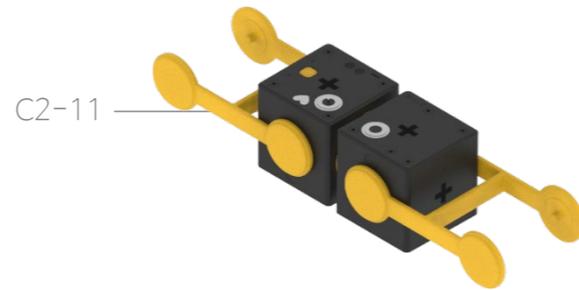
5

MD-08

Attach Link (MD-08) to the Cube.
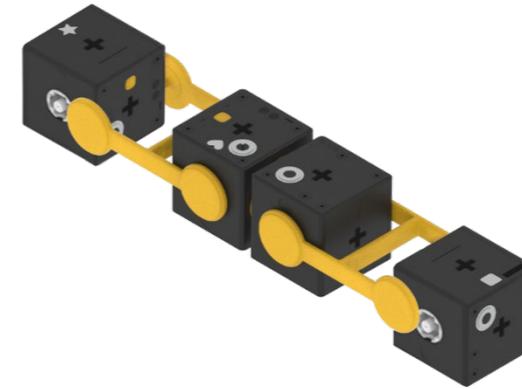
PINGPONG CRAWING BOT ASSEMBLY

1

C2-13

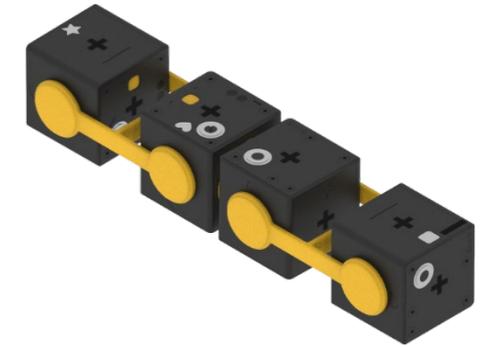Assemble it according to the shape of figure and the position of button.
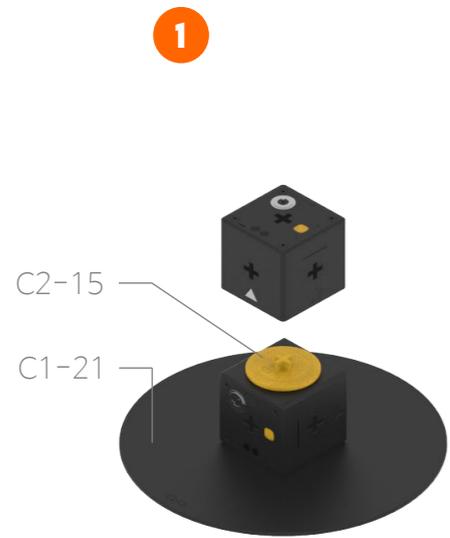
2

C2-11

Attach two Links (C2-11) to Cube.

3

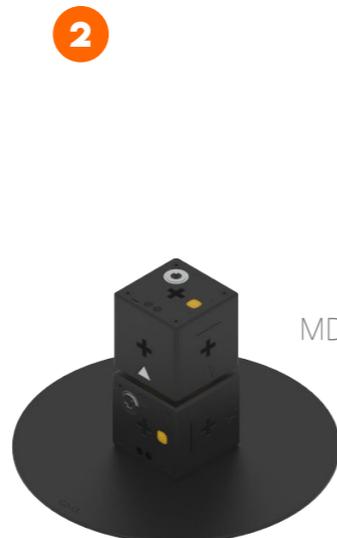Assemble Cube according to the shape of figure and the position of button.

4

Complete the robot.
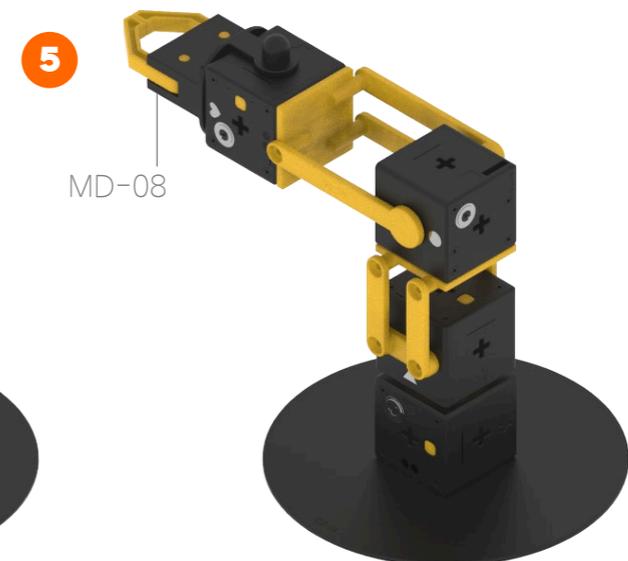
PINGPONG ROBOT ARM ASSEMBLY

1

C2-15

C1-21

Assemble it according to the shape of figure and the position of button.

2

3

MD-07

Attach Link (MD-07) to the Cube..

4

MD-06

Attach Link (MD-06) to the Cube.

5

MD-08

Attach Link (MD-08) to the Cube..

PINGPONG ROBOT
EDU SERIES

CONTACT INFORMATION

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