



Instagram



Tik Tok

Foshan Biowin Robotics and Automation Co., Ltd.

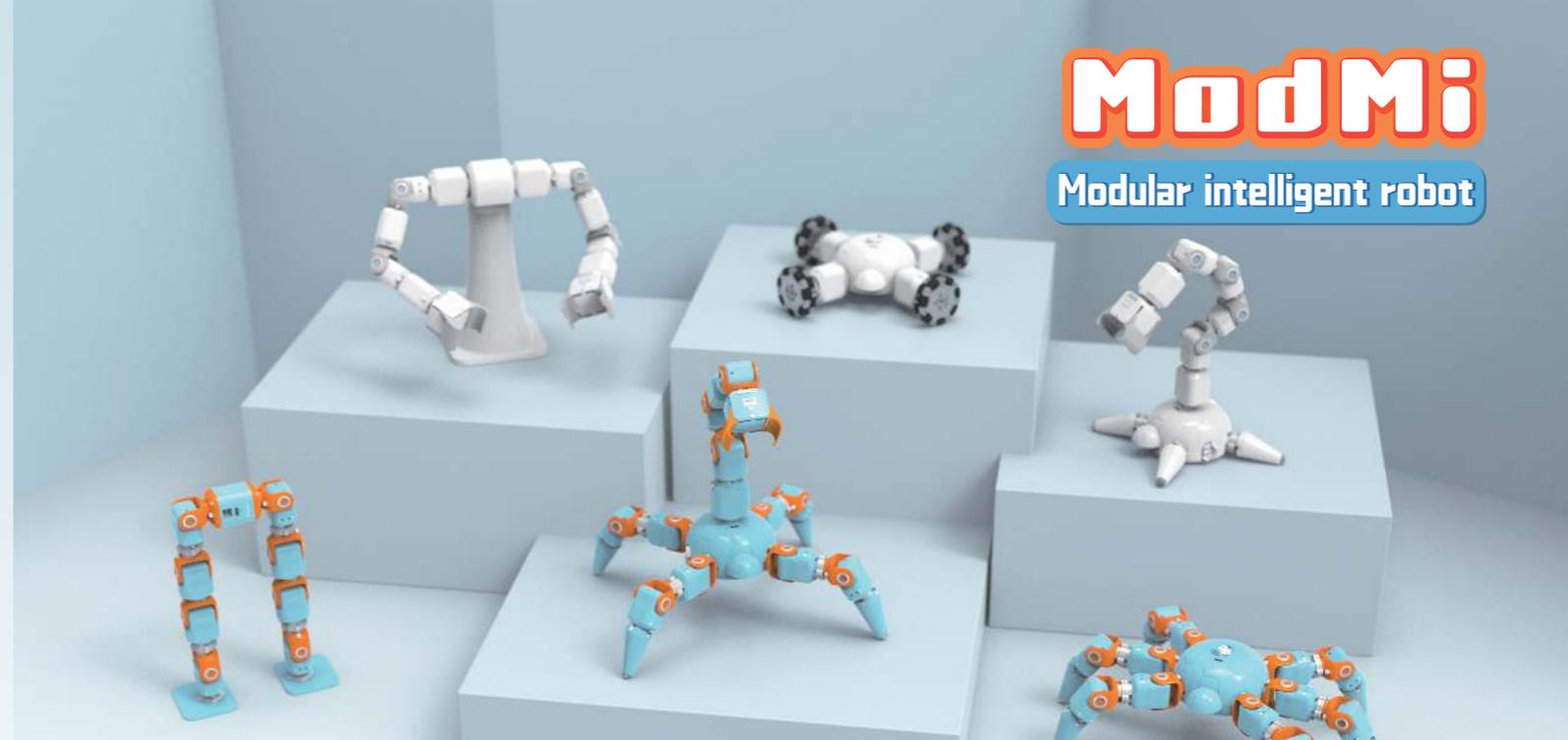
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# ModMi

Modular intelligent robot



## Product Description

Foshan Biowin Robotics and Automation Co., Ltd.

## Usage suggestions

You can learn about the quick use of ModMi from the Quick Use Guide, and know the different robot configurations of ModMi. This book details the product information of ModMi, including module specifications, splicing use, connection settings, battery charging, security and privacy, and FAQs.

## ModMi APP installation



Support  
IOS Android  
Chrome OS

### How to download ModMi ?

Method 1: Scan the QR code on the left

Method 2: You can also search for ModMi in Google Play and Apple Store.

## Matters needing attention

1. Contains small parts, not suitable for children under 3 years old;
2. Contains precision parts, avoid dropping;
3. Keep your ModMi dry; keep the product away from water;
4. Do not connect multiple control modules together directly or indirectly;
5. Do not remove or replace the built-in battery; please contact our after-sales service team for repairs in case of damage;
6. The robot can only use the recommended charger (recommended specification: output DC 8.4V/1.5A);
7. Do not force the robot to move when it is turn-on and locked;
8. Do not touch the robot with your hands during its movement to avoid crush;
9. Do not carelessly discard it and pollute the environment. Please recycle it properly;

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# Introduction

ModMi is a modular reconfigurable intelligent robot system with both education and entertainment functions.

With standard modular interface, ModMi allows you to create various interesting robots like playing blocks, such as manipulator robot arm, bionic spider robot, bionic snake robot, biped robot, innovative robot, etc. Each robot type can bring you different game playing methods and experiences.

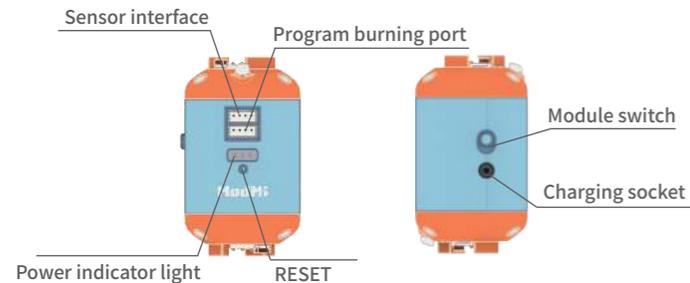
ModMi has various programming methods. You can simply setup the robot movement by moving it directly to desired waypoints, and easily learn programming through simple drag and drop operations. Also, the App provides DIY mode to play with customized robot system, which will satisfy all your imagination of robot and brings fun.

ModMi is also implemented with a series of STEAM courses, including preliminary, intermediate and high-level, to help children learn about robot control, programming and AI application. Inspire children's learning interest, and improve their creativities and imaginations.

The number of light lit up of the power indicator light on the F and P modules represents the power state of ModMi. To ensure the normal operation of ModMi and maintain the battery life, when there is only one light lit up, please charge the module in time. The indicator light of the DC charger will display green when fully charged, otherwise it will display red.

# Module Specifications

## F module

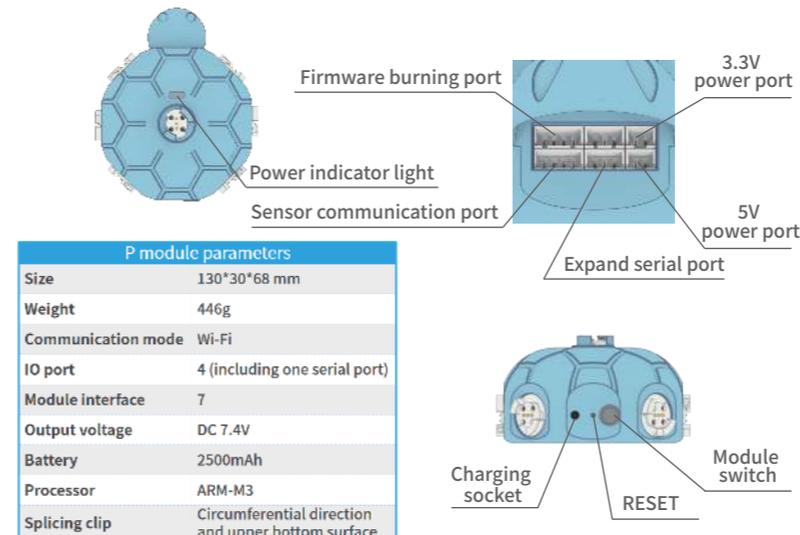


F module parameters			
Size	138*30*68 mm	Output voltage	DC 7.4V
Weight	446g	Battery	1500mAH
Communication mode	Wi-Fi	Processor	ARM cortex-M0
IO port	2 (including one serial port)	Splicing clip	Upper and lower underside
Module interface	2		

The F module is one of the control and power supply center of ModMi, which can be used in bionic snake, robot arm, biped robot etc. The module adopts ARM architecture processor, with 1.5Ah rechargeable lithium polymer battery built in. There are 2 connecting buckle interfaces on the top and bottom of the module. Each buckle is designed with clip button to avoid slipping. With this buckle interface, the F module can be connected or disconnected with other modules easily. And the F module is also integrated with a Wi-Fi module function unit.

# Module Specifications

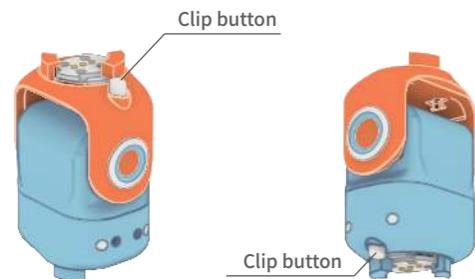
## P module



The P module is the control and power supply center for ModMi biomimetic spider, X-wheel, and robotic arm shaped robots. The P module adopts an ARM Cortex-M4 architecture processor with a built-in 2.5Ah lithium polymer battery. There are six buckle interfaces in the circumferential direction of the control module, and there is also a buckle interface directly above it. The power indicator light is displayed on the top surface, and the front includes a sensor communication interface, firmware burning port, extended serial port, 5V power supply interface, and 3.3V power supply interface. The back has a control module switch, charging interface, and reset button. The P module also integrates 2.4G Wi Fi module units.

## Module Specifications

### T module



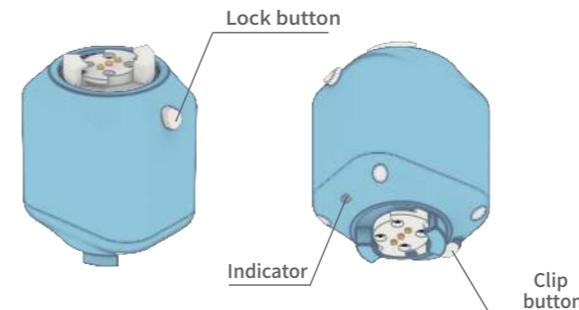
The T module is the swinging "joint" of ModMi, which is used to drive the swinging motion of the robot. It is a high-precision servo system with built-in DC reduction motor and position sensor. There are 2 buckle interfaces on the top and bottom of the module. Each buckle is designed with clip button to avoid slipping. With this buckle interface, the T module can be connected or disconnected with other modules easily. Additionally, there is indicator light on the module to show the connecting status of the modules.

T module parameters

<b>Size</b>	48*36*81 mm	<b>Output voltage</b>	DC 7.4V
<b>Weight</b>	100g	<b>Stall torque</b>	16 kg/cm
<b>Communication mode</b>	Serial port	<b>Freedom</b>	1
<b>Maximum speed</b>	299.2°/s	<b>Splicing clip</b>	Upper and lower underside
<b>Opening and closing range</b>	-90°~ 90°	<b>Rated power</b>	4.44W

## Module Specifications

### I module



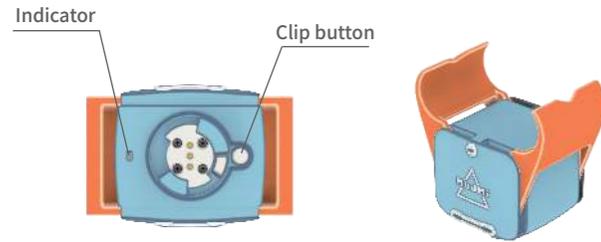
The I module is the rotary "joint" of ModMi, which is used to drive the rotary motion of the robot. It is a high-precision servo system with built-in DC reduction motor and position sensor. There are 2 connecting buckle interfaces on the top and bottom of the module. One is designed with clip button to avoid slipping, the other is designed with lock button to avoid rotating. With this buckle interface, the I module can be connected or disconnected with other modules easily. Additionally, there is indicator light on the module to show the connecting status of the modules.

I module parameters

<b>Size</b>	57*40*72 mm	<b>Output voltage</b>	DC 7.4V
<b>Weight</b>	105g	<b>Stall torque</b>	16 kg/cm
<b>Communication mode</b>	Serial port	<b>Freedom</b>	1
<b>Maximum speed</b>	299.2°/s	<b>Splicing clip</b>	Upper and lower underside
<b>Opening and closing range</b>	-180°~ 180°	<b>Rated power</b>	4.44W

# Module Specifications

## G module

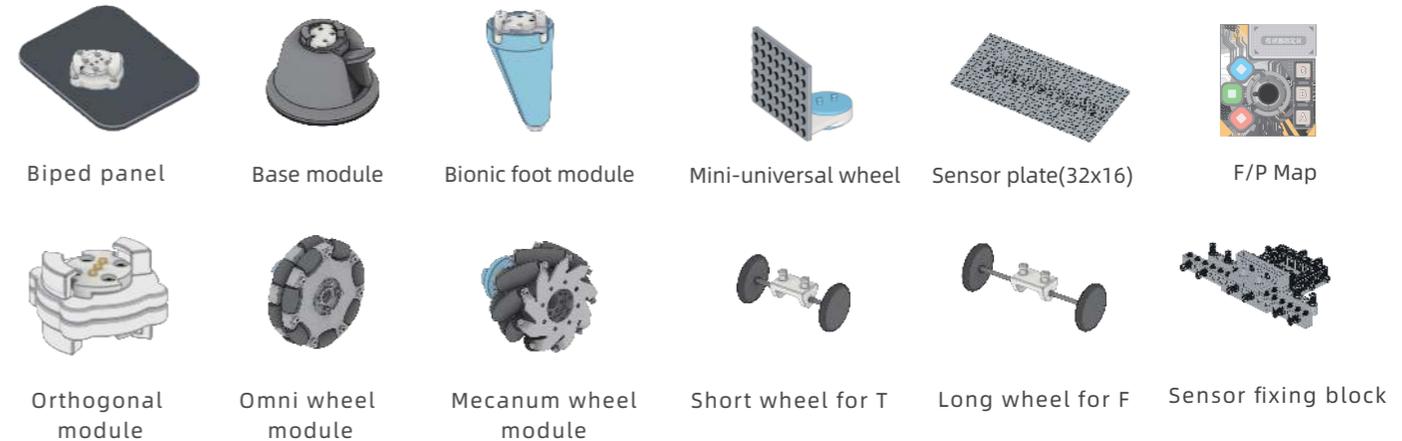


G module parameters			
Size	58*57*79 mm	Output voltage	DC 7.4V
Weight	123g	Stall torque	16 kg/cm
Communication mode	Serial port	Freedom	1
Maximum speed	299.2°/s	Splicing clip	Bottom surface
Opening and closing range	0°~ 90°	Rated power	4.44W

The G terminal module is the end "tool" of ModMi, which is installed at the end of the robot to manipulate objects. It is a high-precision servo system with built-in DC reduction motor and position sensor, also the clipping force can be adjusted. There is 1 connecting buckle interface on the bottom of the module. The buckle is designed with clip-button to avoid slipping. With this buckle interface, the G module can be connected or disconnected with other modules easily. Additionally, there is indicator light on the module to show the connecting status of the modules.

# Module Specifications

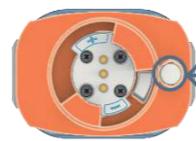
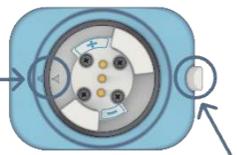
## Auxiliary module



# Module Assembly

1. Align (+) with (+), (-) with (-)

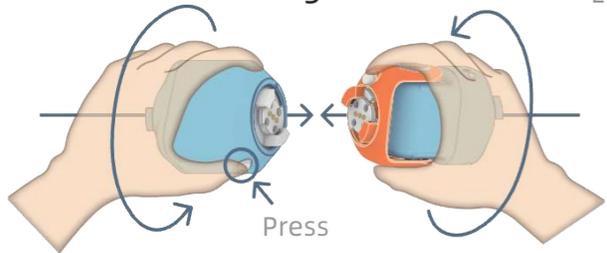
After aligning the arrows, The stop button can be pressed.



Clip button

2. Connecting the 2 modules

Lock button



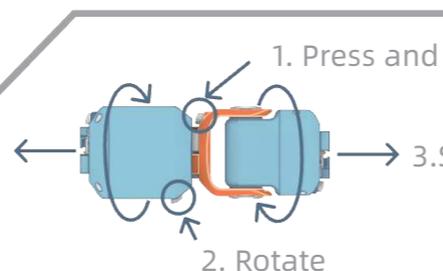
3. Rotate and fasten

Assembly methods

1. Press and hold

2. Rotate

3. Separate



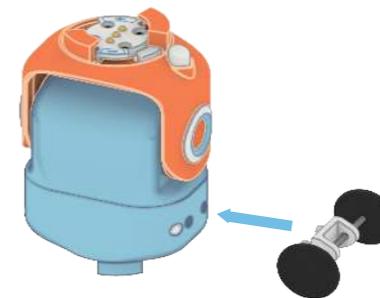
Disassembly methods

# Module Assembly

## Auxiliary module fixing method



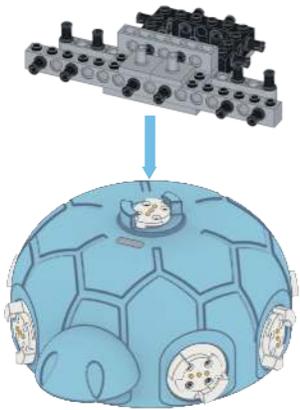
Long wheel for F



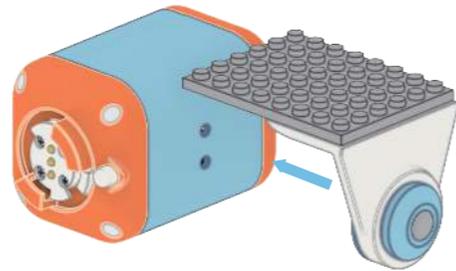
Short wheel for T

## Module Assembly

### Auxiliary module fixing method



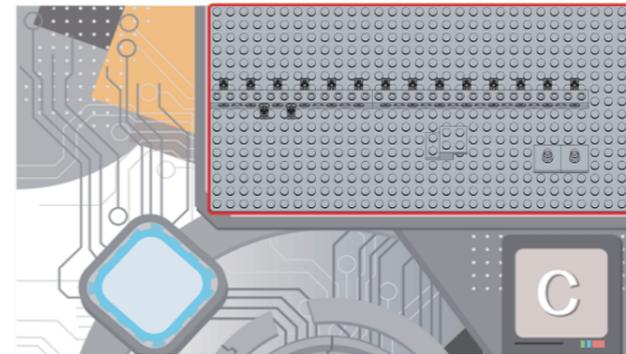
Sensor fixing block



Mini-universal wheel

## Module Assembly

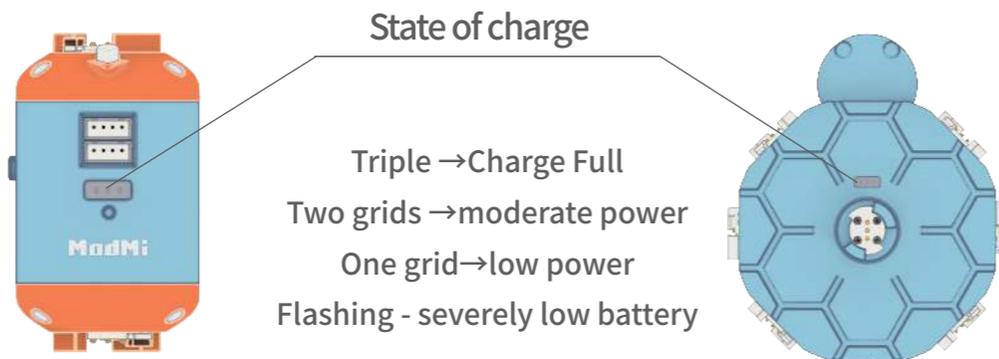
### Auxiliary module fixing method



Sensor plate(32x16)

## Power And Charging

The number of lit cells of the power supply indicator light of the F and P modules represents the power state of the ModMi robot. To ensure the normal operation of the robot and maintain the battery life, when only one cell of the power supply indicator light is left, please charge it in time. The indicator light of the charging charger will display green when fully charged, otherwise it will display red.



## Device Connection

The following are the four steps of equipment connection (taking the F module as an example):



1. Find the robot id on the silver label paper of the F module. The id starts with "biowin", and the last bit is the corresponding control module type. For example, F module is "biowinF"+others.

2. Turn on the switch button of the F module, and if the power indicator is on, it means that the switch is successfully turned on.

## Device Connection



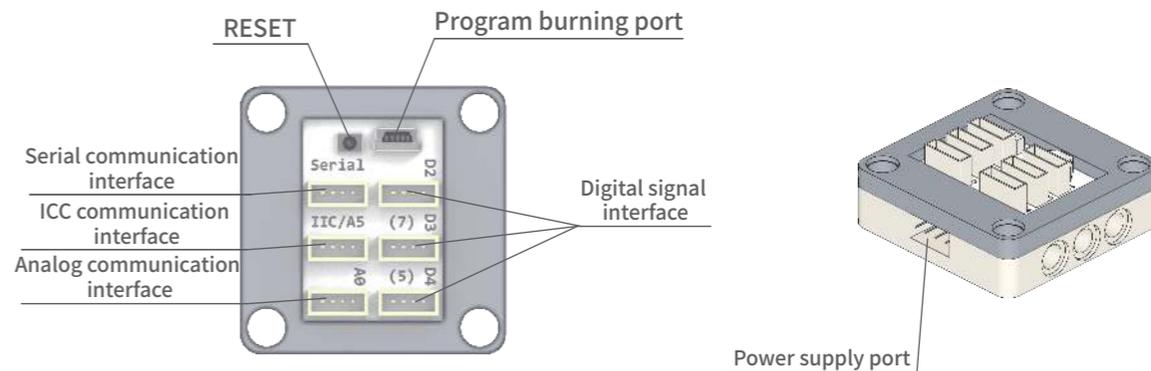
3. Open the mobile phone "Network Settings" to find the corresponding WiFi name, and click Connect; If the phone is connected to other WiFi, you can disconnect it first until you find the WiFi hotspot of the robot. The WiFi module starts for about 5s. **Note that if the pop-up window "The current WiFi is unavailable, do you want to continue using this WiFi?", you need to select "Use".**



4. After connecting to WiFi, return to the app and click Refresh. After the main control appears, click 'Connect'!

## Peripheral

ModMi provides a set of common sensors, enriching the applications of ModMi. The sensor mainly communicates with ModMi through the sensor controller, which has a communication serial port connected to the control modules. The sensor controller provides with 3 digital signal interfaces, 1 analog signal interface, 1 IIC communication7 interface, 1 serial communication interface, 1 program burning port, and 1 power supply port.



# Peripheral

## Ultrasonic sensor



Connect the main control board interface: D3

## Led matrix



Connect the main control board interface: D4

## Color sensor



Connect the main control board interface: IIC/A5

## Infrared tracking sensor



Connect the main control board interface: D3/D7.

## RGB light



Connect the main control board interface: D2

## Remote control sensor



Connect the main control board interface: D3

# Peripheral

## Sound sensor



Connect the main control board interface: D3

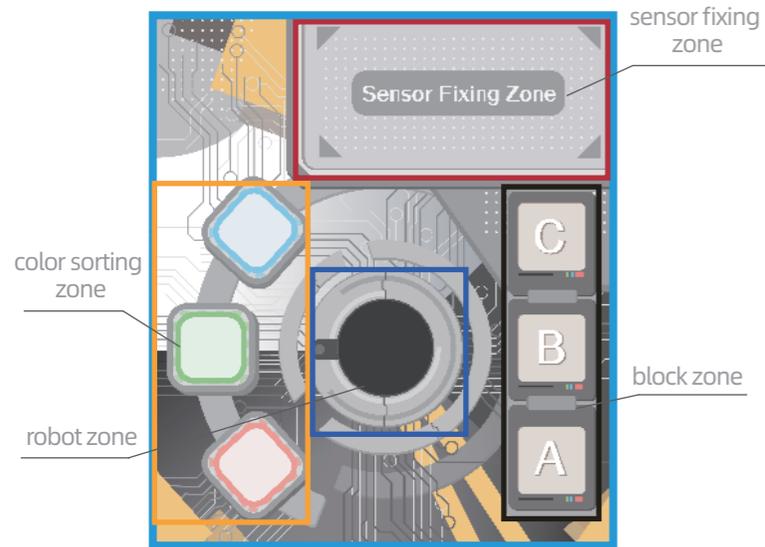
## Gesture Detection sensor



Connect the main control board interface: IIC/A5

# Peripheral

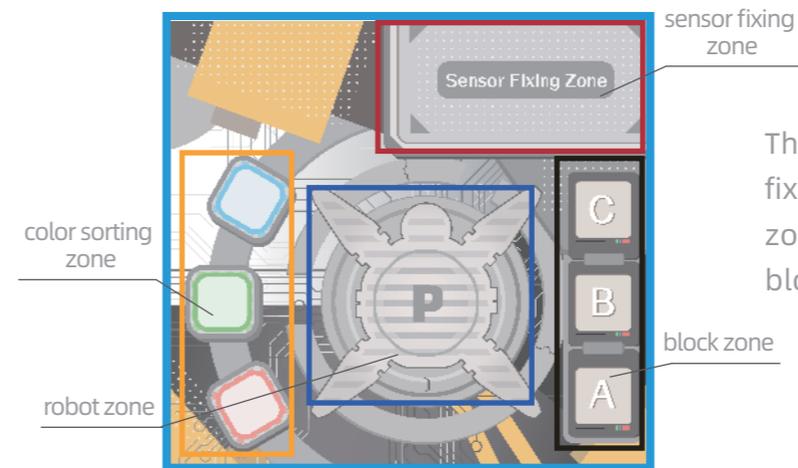
## F Map



The F map is divided into robot zone, sensor fixing zone, block zone, and color sorting zone, which can be used in combination with blocks, sensors, robot arm.

# Peripheral

## P Map



The P map is divided into robot zone, sensor fixing zone, block zone, and color sorting zone, which can be used in combination with blocks, sensors, robot arm.

### Security and privacy

We are fully aware of the importance of personal information security and will do our best to protect the personal information security of all users.

We will take all reasonable and feasible measures to ensure that irrelevant personal information is not collected. If the user is required to provide some personal information during the use of the product, we will first obtain the user's authorization and save the personal information provided by the user only in the local area of the device with security protection measures that meet the industry standards. In the case that the function uses unnecessary connection to the network, we will also use the personal information provided by users with limited local computing processing technology to prevent unauthorized access, public disclosure, use, modification, damage or loss of data on the Internet.

### Product Warranty Policy

#### I. General Principle

Any Biowin education products that are purchased legally or obtained for free through operational activities, if found defective, have access to the warranty service provided by Foshan Biowin Robotics and Automation Co., Ltd.(hereinafter referred to as Biowin) or Biowin-authorized agents.

#### II. Commitment

- (1) 1-Year Warranty for functional modules of ModMi
- (2) 3-Month, 6-Month, or 1 Year-Warranty for According Spare Parts
- (3) Consumables Not Covered Under Warranty

### ● How does ModMi power on and off?

F module: Push the switch on the left side upward to start the machine, and push the switch downward to shut down the machine.

P module: press the switch on the back to start the machine, and press the switch again to reset the pressed switch when the machine is started.

### ● How long does it take to fully charge ModMi? How long can I use it when fully charged?

F module: The charger with DC 8.4V/1.5A will take 2 hours to fully charge.

P module: The charger with DC 8.4V/1.5A will take 4.5 hours to fully charge.

The usage duration of the ModMi when fully charged depends on the number of joint modules connected. The indicator light of the charger will be green when fully charged, and the maximum usage duration can last for 4 hours.

### ● Does ModMi need to connect to the network?

ModMi does not need to connect to the network, just connect the WiFi of the computer or mobile phone to the hotspot sent by the control module.

## Common Problem

### ● What is the farthest control distance between APP and robot?

The farthest control distance between APP and robot is about 6m.

### ● What is the rotation range of each module of ModMi?

The T module can be rotated 90 ° to the left or right at most, the I module can be rotated 150 ° to the left or right at the center of the zero position at most, and the maximum angle that the end of the G end can be opened is 90 °. Each motion module can be controlled to a specific position in the APP customized configuration.

### ● What are the programmable modules ModMi supports?

At present, ModMi has more than 30 programmable controllable components, including F/P module, T/I module, G module, Ultrasonic sensor, Infrared tracking sensor, Nixie tube, Led matrix, RGB light, buzzer, etc.

## Common Problem

### ● What is the function of the indicator light of the module?

The power indicator of the Control Module is used to display the power condition; The flashing wifi signal  indicates that the module is being turned on during power on, and can be connected after the power indicator is always on. The red indicator light of joint module and end module is used to display whether the module is successfully spliced.