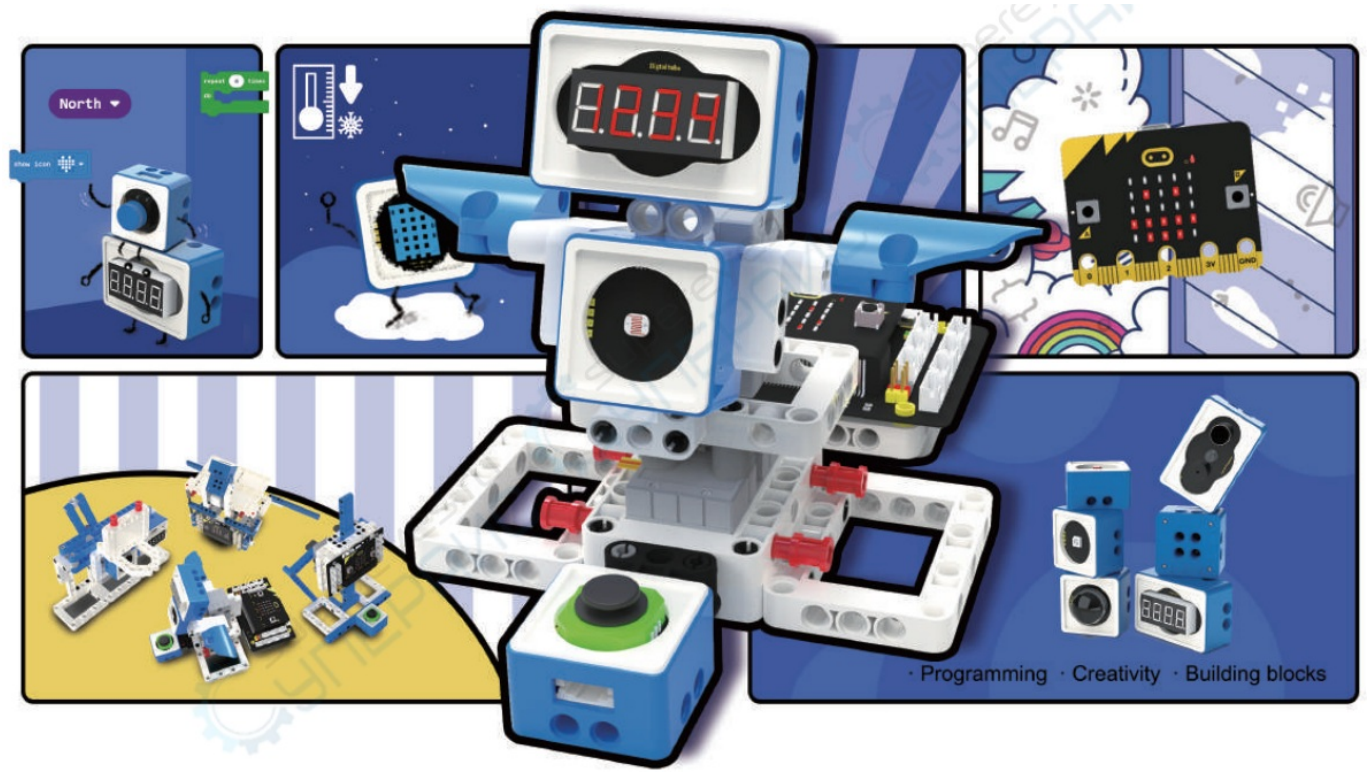
YAHBOOM Sensor Kit For Microbit User Manual

Contents

YAHBOOM Sensor Kit For Microbit

OVERVIEW



1. Please read this manual carefully before use
2. Our company reserves the right of interpret for this manual
3. Product appearance, please prevail in kind

4. Please keep the manual properly after reading

https://www.yahboom.com/study/WOM-Sensor-Kit-microbit

Tutorial link: http://www.yahboom.net/study/WOM-Sensor-Kit-microbit

Packing list

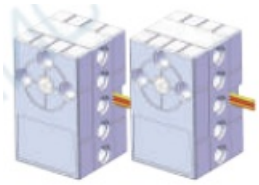
- RGB module
- Button module

- Rocker module
- Photosensitive module

- Temperature and humidity module
- Infrared module

- Human body infrared sensor module
- Color recognition module


- Ultrasonic module
- Digital tube module

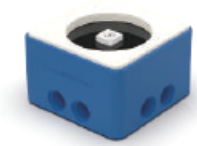
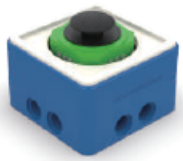


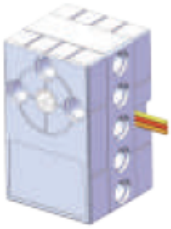

- Building block servo*2
- PH2.0 cable *10 USB data cable *1


- Microbit sensor expansion board
- Micro:bit (optional)

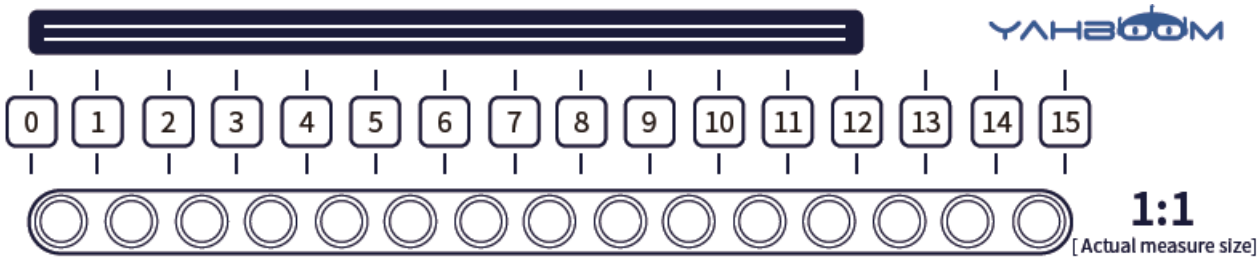

- Block package A
- Block package B

Module introduction

Name	Description	Basic course	Advanced course	Creativity course
 RGB module	It can be controlled to display any color.	1.RGB module	1.Table lamp 2.Rocker control light 3.Emergency light	6.Automatic door 10.Color sorter
 Button module	It can be used for button control, answering devices or other projects.	2.Button module	1.Table lamp 9.Smart wiper	3.Lifting platform 5.Moving basket 7.Sunflower
 Rocker module	It can output the analog value of x axis and Y axis, realize rocker control.	3.Rocker module	2.Rocker control light 9.Smart wiper 10.Rotating range-finder	3.Lifting platform 7.Sunflower 9.UFO catcher

 Photosensitive module	It can sense the light intensity of the current environment.	4.Photosensitive module	3.Emergency light	7.Sunflower
 Servo	The rotation range of this servo is 0°~360°.	5.Servo	9.Smart wiper 10.Rotating range-finder	1.Running box 2.Temperature-humidity monitor 3.Lifting platform 4. Interactive box 5.Moving basket 6.Automatic door 7.Sunflower 8.Flying penguin 9.UFO catcher 10.Color sorter

Building block ruler

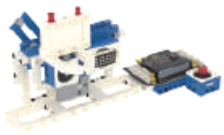


Building models introduction

Building models	Name	Description
	Table lamp	Control table lamp by button.
	Rocker control RGB light	Control RGB light by rocker.
	Emergency light	According to the external environment light intensity to control RGB light.
	Infrared warning device	Detect obstacles by infrared light.
	Hand-held rangefinder	A simple rangefinder.

Building models	Name	Description
	Human body warning device	Detect a moving human body.
	Color recognition	Different colors are re-cognized and displayed through RGB light.
	Thermometer	Detect the temperature of the current environment.
	Smart wiper	The wiper is controlled by the rocker to move, or you can press the button to make the wiper work automatically.
	Rotating rangefinder	Measure the distance of obstacles in front on different direction through rocker control.

Building models	Name	Description
	Piggy bank	It can count and display the number of coins in the piggy bank.
	Running box	When the human infrared sensor detects human movement around, the box will move forward.
	Temperature-humidity measurement	Display the current temperature and humidity, and you can also change its shape.
	Lifting platform	The height can be controlled by the rocker, or press button to enter voice control mode, and its height can be controlled by the sound.
	Interactive box	Every time you change the position of the brick bar, it will return to its original position. After many times, it will randomly trigger the brick bar to strike several times.
	Color sorter	It can sort blocks in three colors (red, green and blue).

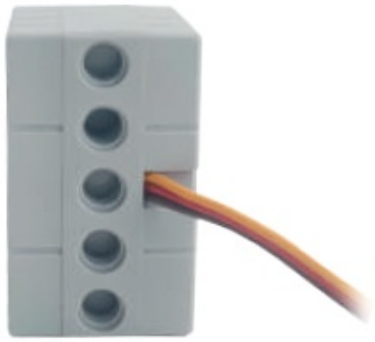
Building models	Name	Description
	Moving basket	A movable shooting counter, the speed of movement is controlled by users.
	Automatic door	When the human body approaches, the door is automatically opened, and it will play music and the light is turned on at the same time.
	Sunflower	The digital tube displays the light intensity. You can use the rocker to control the photosensitive module to move up, down, left, and right, or press the button to start the follow light mode. After detection, the servo will make the photosensitive sensor stay at the strongest angle of the current lighting environment.
	Flying penguin	Penguins can flap their wings to simulate a flying state. The flapping speed of the wings changes with the distance of the obstacle ahead.
	UFO catcher	Control the left and right movement of the UFO Catcher and the gripping and loosening of the clip by rocker.

First Trial

Tutorial link:
www.yahboom.net/study/WOM-Sensor-Kit-microbot

1. Enter the above link, and click [Assembly and servo calibration]—[servo calibration]. Download the hex file we provided, and complete the calibration of the servo.
2. Assemble the building blocks according to our steps.
3. Connect the sensor module and expansion board according to the wiring diagram.

4. View a single course and download the hex file we provided to the Micro: bit board through the USB data cable.
5. View experimental phenomena.



Servo direction display diagram

Tips:

1. When using the related gameplay of the servo, you need to use a dual-head micro USB data cable to connect to the computer, board and the expansion board, otherwise only the board will not be able to drive the servo, and only the expansion board will not be able to download the program.
2. Before assembling the building blocks, you need to download the servo calibration code to initialize the servo to a fixed angle. If the servo is not calibrated before use, it is easy to jam the servo during use, causing a stall and burning the servo.
3. When assembling, pay attention to the installation direction of the servo. The direction of the servo can be determined through the line of the servo. Otherwise, the angle of driving the servo will be reversed after running the program. In severe cases, the servo will be blocked or even stuck, and the servo will be damaged.

Safety instructions

1. This product contains small accessories, please prohibit the use of children under three years old, the use of this product is 8 years old and above, and children should be used under adult supervision.
2. Do not touch the servo shaft and related structures when it’s rotating.
3. Do not touch the pin headers on the expansion board with your hands.
4. Do not reverse the positive and negative poles of the power supply of this product.
5. It is strictly forbidden to modify and weld the circuit of this product by yourself.
6. Do not soak or rinse the product with liquid.
7. Do not place this product in a strong magnetic field, and keep it away from magnetic equipment.
8. Do not use this product in high temperature and dust environments, and keep this product away from fire.
9. Do not put the accessories contained in this product in your mouth, and be careful to prevent children from swallowing small parts in the kit.
10. Do not hit, throw, or needle the product, and please avoid dropping, squeezing, or bending the product.
11. Do not expose this product to a corrosive environment, and it is strictly forbidden to use other chemical liquids to clean this product.
12. Please strictly follow the experimental wiring to prevent damage to the product.

Disclaimer

1. Unauthorized maintenance, misuse, collision, negligence, abuse, liquid ingress, accident, alteration, incorrect use of non-product accessories, or tearing, altering the logo;
2. Damage caused by force majeure
3. Performance failure of this product due to human factors.

Solemnly reiterate
Please read this specification carefully, especially the parameters, precautions, etc., to understand the use of the product and the scope of application. If the product is used incorrectly, the circuit is connected incorrectly, or the input power source, load function parameters, and the performance parameters marked in the product specifications do not match, it is improper use. The product, load, and peripheral links are damaged due to improper use. The company does not bear related responsibilities.

Tutorial link
www.yahboom.net/study/WOM-Sensor-Kit-microbot
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Shenzhen Yahboom Technology Co., Ltd.
Website: www.yahboom.net

Documents / Resources

	YAHBOOM Sensor Kit For Microbit [pdf] User Manual Sensor Kit For Microbit, Sensor Kit, Microbit

References

- Yahboom Robotics, open-source hardware electronics and kits.
- Study
- -Microbit