

Automatic safety door

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1. Learning objectives
2. Building blocks
3. Sensor wiring
4. Programming
 - 4.1 Add expansion package
 - 4.2 Building blocks used
 - 4.3 Combination blocks
5. Experimental phenomenon

1. Learning objectives

In this course, we mainly learn how to make color recognition security automatic doors through MakeCode graphical programming.

2. Building blocks

For detailed steps of building blocks, please refer to the installation drawings of [Assembly Course]--[Color-recognition automatic door] or the building blocks installation album in the materials.

3. Sensor wiring

Insert the building block servo wiring into the S1 interface of the Super:bit expansion board, and the orange servo wiring into the yellow pin of S1.

The color recognition module is connected to the I2C (SDA, SCL) interface.

First, connect the micro:bit to the computer via a USB data cable, and a U disk will pop up on the computer. Click the URL in the U disk: <https://makecode.microbit.org/> to enter the programming interface. Then, add the Yahboom software package to program.

Method 2 Offline Programming:

Open the offline programming software MakeCode and enter the programming interface. Click [New] and add the Yahboom software package to start programming.

superbit kit expansion package: <https://github.com/YahboomTechnology/SuperBitLibV2>

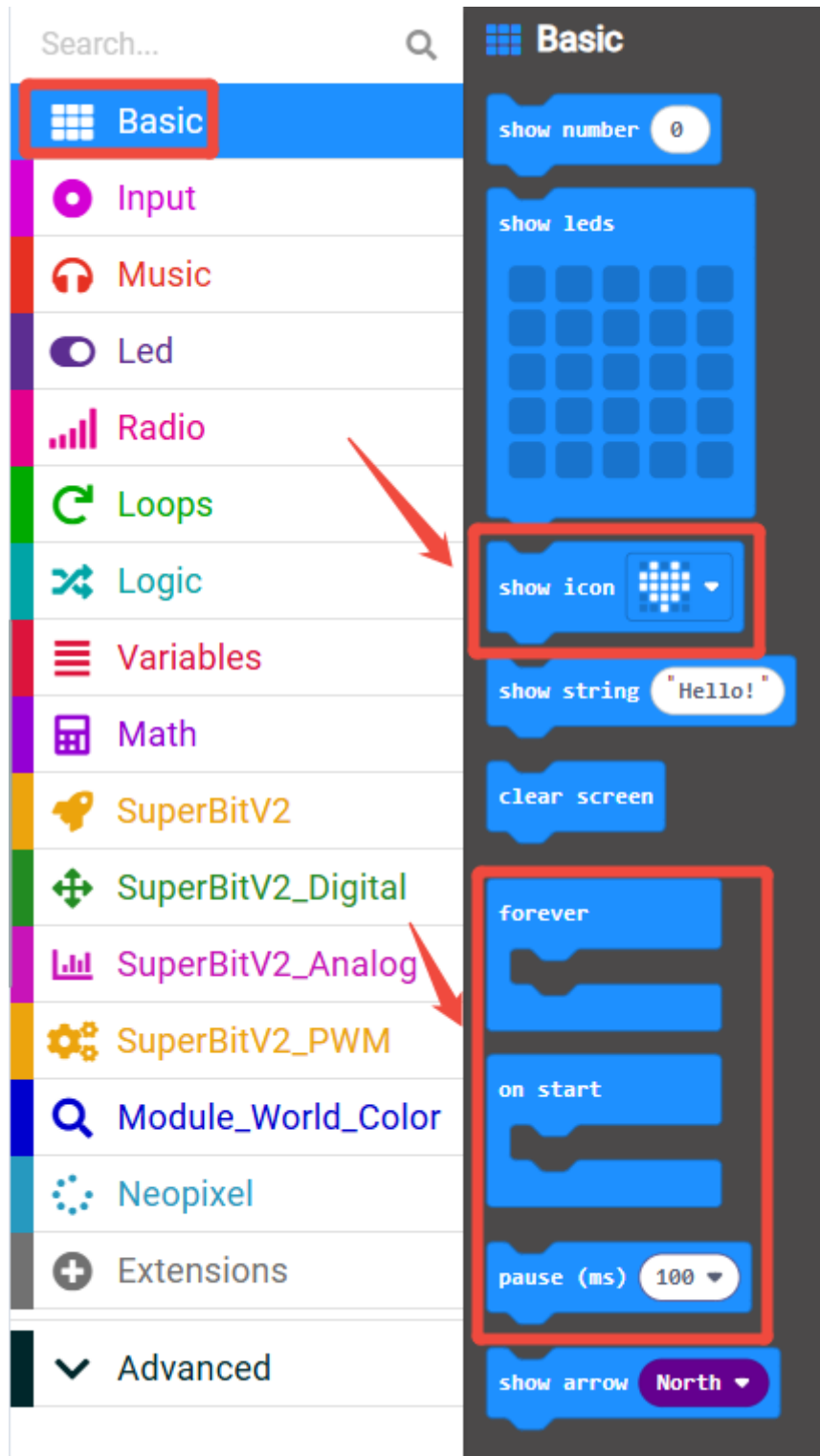
Color recognition sensor: https://github.com/YahboomTechnology/module_world_color

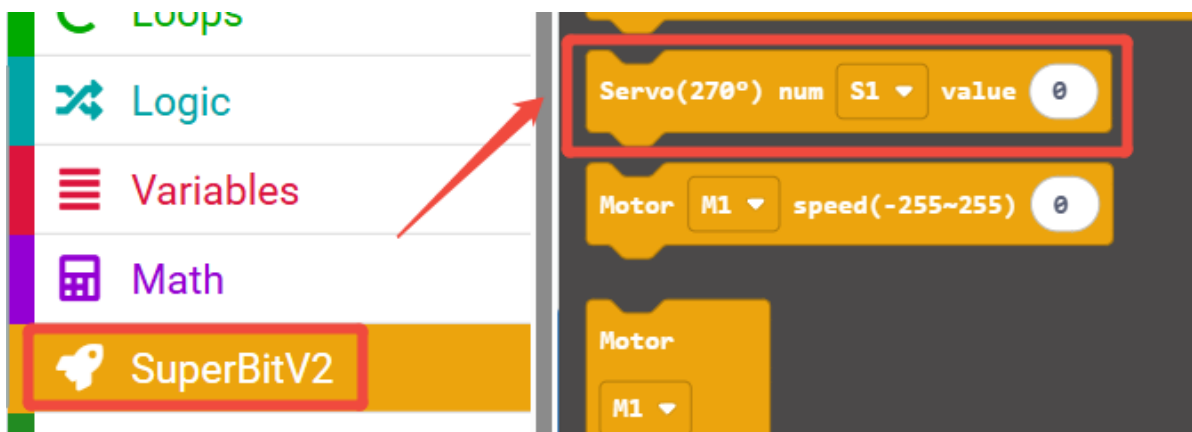
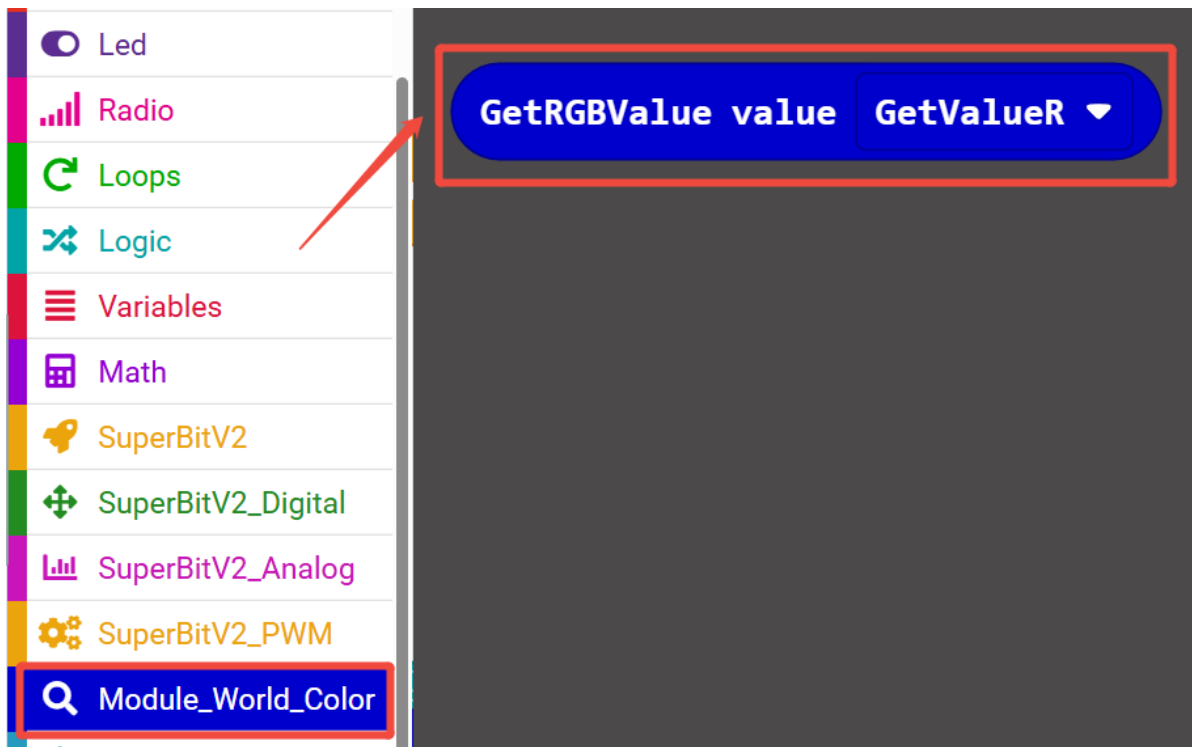
4.1 Add expansion package

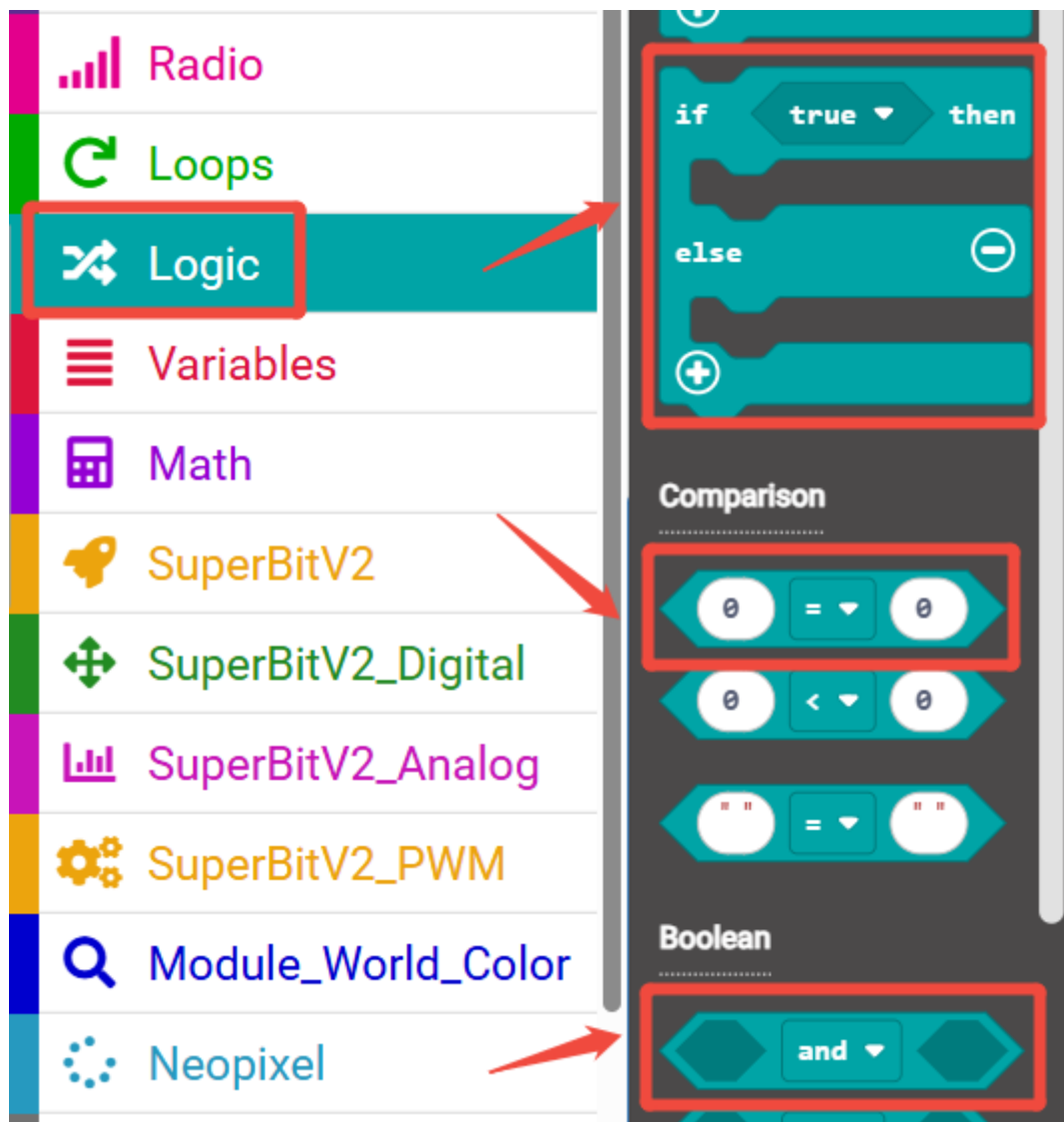
The image shows the MakeCode Micro:bit IDE interface. On the left is a visual representation of a micro:bit board with various components like a screen, buttons, and pins labeled 0, 1, 2, 3V, and GND. On the right is a sidebar with a search bar and a list of categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, Extensions, and Advanced. The 'Extensions' category is highlighted with a red box. Below this, the 'Extensions' panel is shown. It features a search bar (labeled 1) containing the URL 'https://github.com/YahboomTechnology/SuperBitLibV2' and a search icon (labeled 2). Below the search bar are several category buttons: 'Lights and Display', 'Software', 'Science', 'Robotics', 'Gaming', and 'Networking'. The 'Software' button is selected. The main area displays the 'SuperBitV2' extension, described as 'Extension for YahBoom SuperBitV2' (labeled 3). At the bottom, a note states 'User-provided extension, not endorsed by Microsoft. Learn More'.

4.2 Building blocks used

The location of the building blocks required for this programming is shown in the figure below.







4.3 Combination blocks

For detailed procedures, please drag the **Automatic-safety-door.hex** file provided in this experiment into the browser that opens the URL to view, and the program diagram of this project source code will be automatically opened.

5. Experimental phenomenon

After the program runs successfully, the servo is initialized to 0°. When the color sensor recognizes blue, the door will open and the microbit dot matrix will display "smiley face". It will close the door after two seconds. For other colors, the door will not open and the microbit dot matrix will display "asleep".