APP control

1. Learning objectives

In this course, we mainly learn how to use MakeCode graphical programming to realize Bluetooth APP remote control Changing Face.

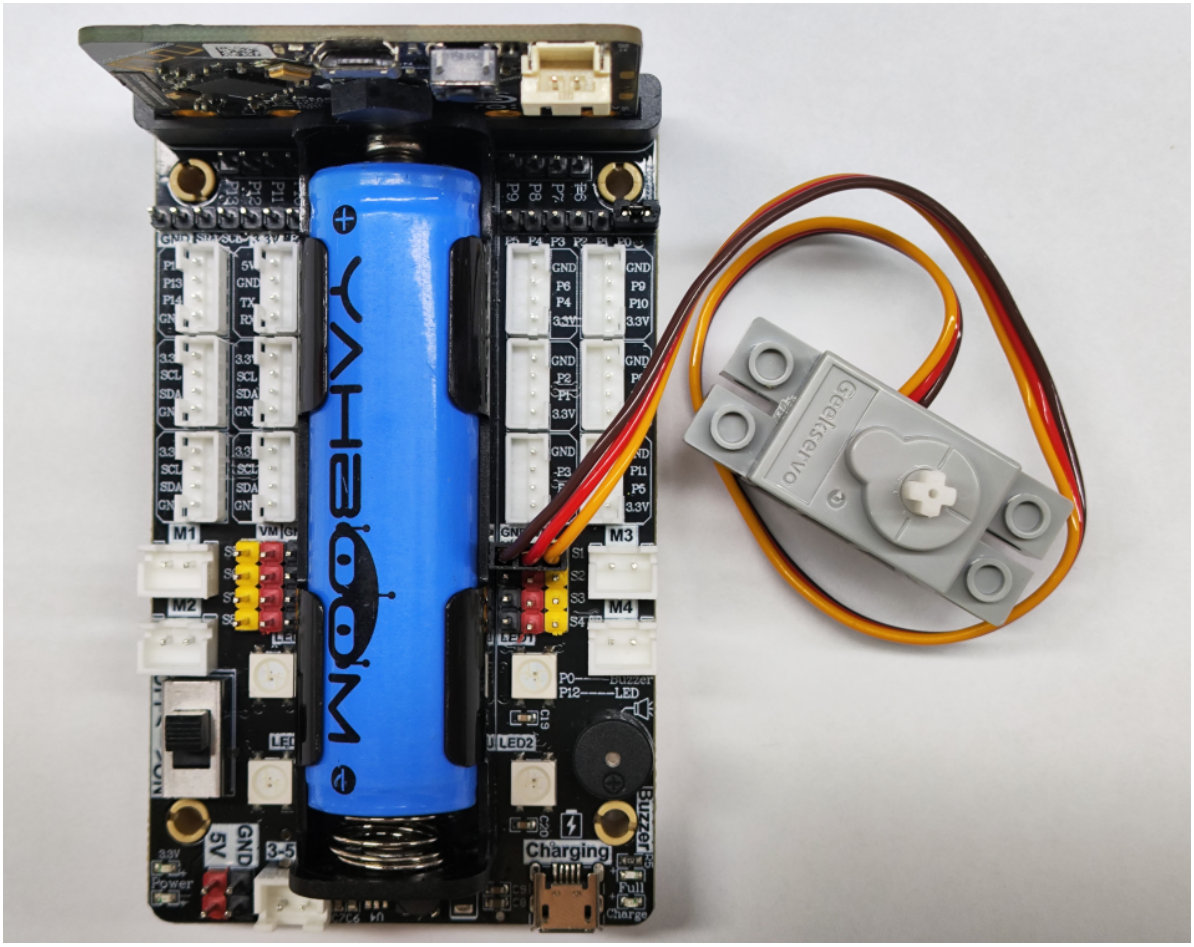
2. Building blocks

For detailed steps of building blocks, please refer to the installation drawings of **[Assembly Course]--[Changing Face]** in the materials or the building blocks installation album.

3. Motor wiring

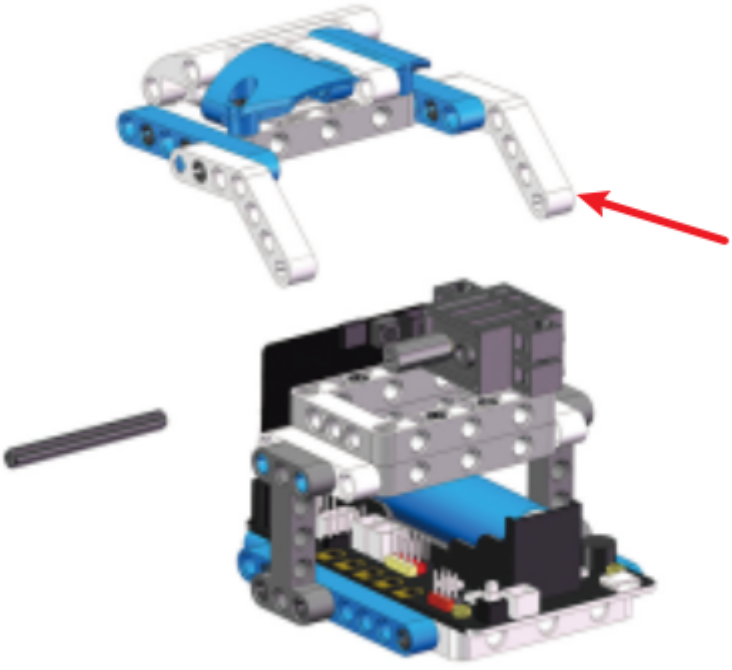
Insert the building block servo wiring into the S1 interface of the Super:bit expansion board, and the orange servo wiring into the yellow pin of S1.

As shown in the figure below:



! Notes:

When taking the course related to the building block servo for the first time, we need to remove the white building blocks installed on the servo and upload the program of this course to the micro:bit; then turn on the power switch of the Super:bit expansion board and wait for the building block servo to turn to the initial position; then, we can turn off the power, adjust the Changing Face mask to the closed state, as shown in the figure below, and then install the building blocks. (If you have used the Changing Face and servo-related programs before, you can skip this step)



4. Programming

Method 1 Online Programming:

First, connect the micro:bit to the computer via a USB data cable, and the computer will pop up a U disk. Click the URL in the U disk: https://makecode.microbit.org/ to enter the programming interface. Then, add the Yahboom smart software package **https://github.com/YahboomTechnology/SuperBitLibV2**, and you can start programming.

Method 2 Offline Programming:

Open the offline programming software MakeCode and enter the programming interface. Click [New] and add the Yahboom smart software package **https://github.com/YahboomTechnology/SuperBitLibV2** to start programming.

For the summary program of this course, please open the **microbit-Changing-Face-APP-control.hex** we provide in the MakeCode programming interface to view it.

5. Experimental Phenomenon

5.1 Download APP

Android users, please use the mobile browser to scan the following QR code to download and install the APP;

Apple users, please use the hand camera to scan the QR code to download and install the APP.

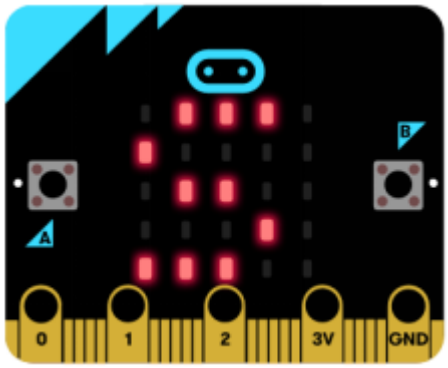
IOS

Android

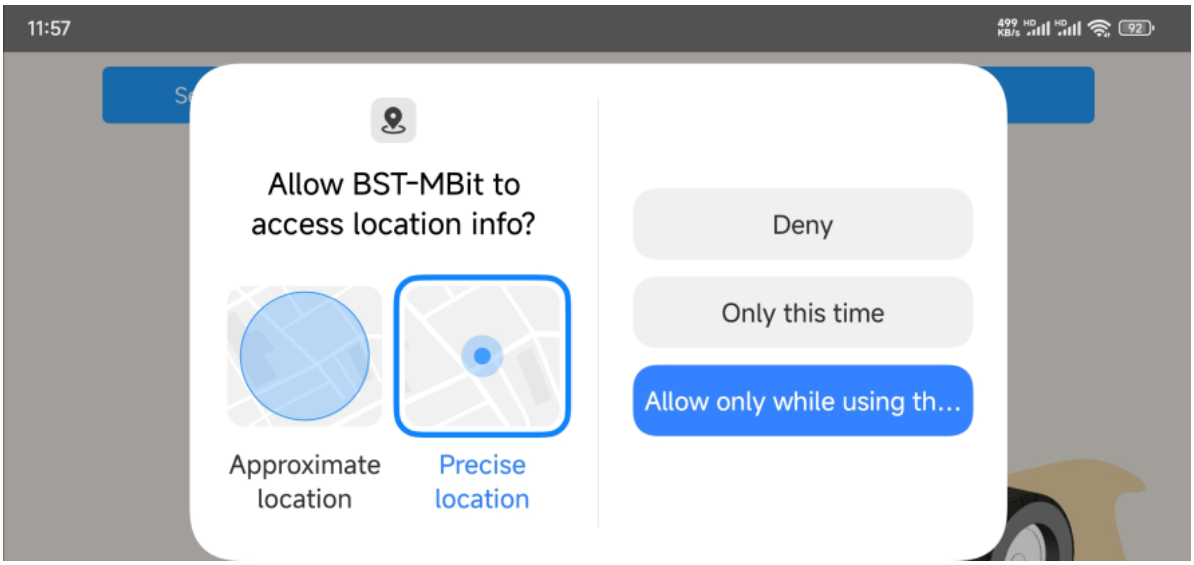
! Note: During the installation or use of the APP, if the phone prompts that any permissions need to be obtained, please select "Agree".

5.2 APP remote control

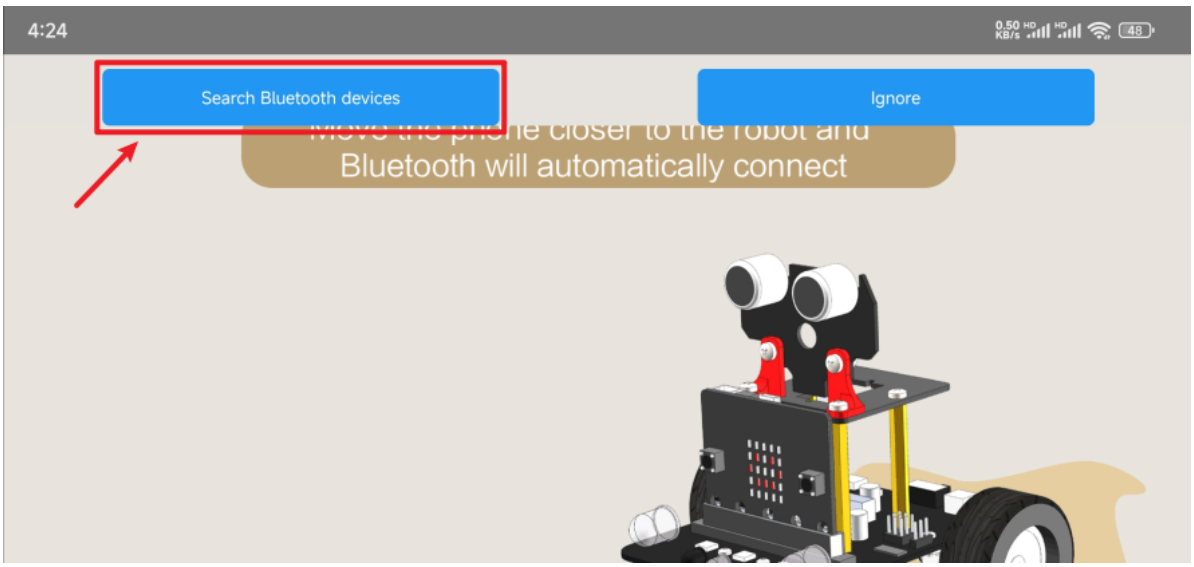
1) After the program is downloaded successfully, turn on the power switch of the car, and the micro:bit dot matrix will display an "S" pattern, as shown in the figure below. This is the state of Bluetooth disconnection.



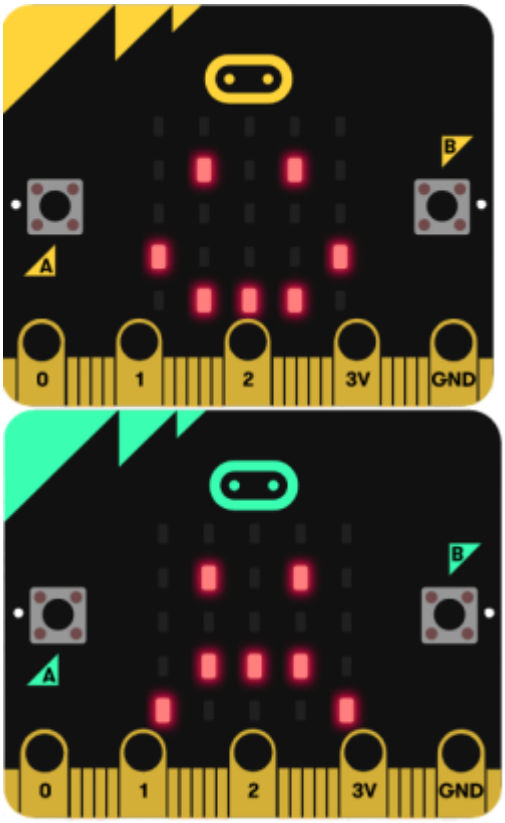
2) Turn on the Bluetooth of the mobile phone, open our APP, you can see the interface as shown in the figure below, click **Allow APP to use positioning information**.



3) After the mobile phone is close to the car and waits for a while, the Bluetooth will automatically connect; if it does not automatically connect, we can click [Search Bluetooth devices] to search for the device to connect.



After the Bluetooth is successfully connected, a smiley face pattern will be displayed on the micro:bit dot matrix; if the Bluetooth is disconnected, a crying face pattern will be displayed on the dot matrix.

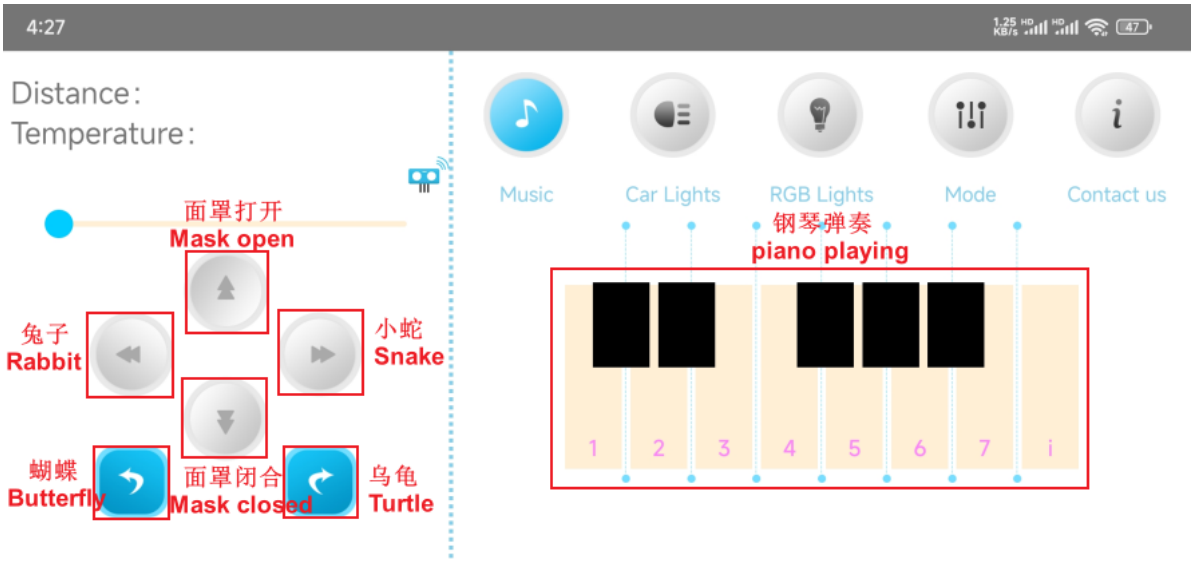


[Bluetooth successful connection status] [Bluetooth disconnection status]

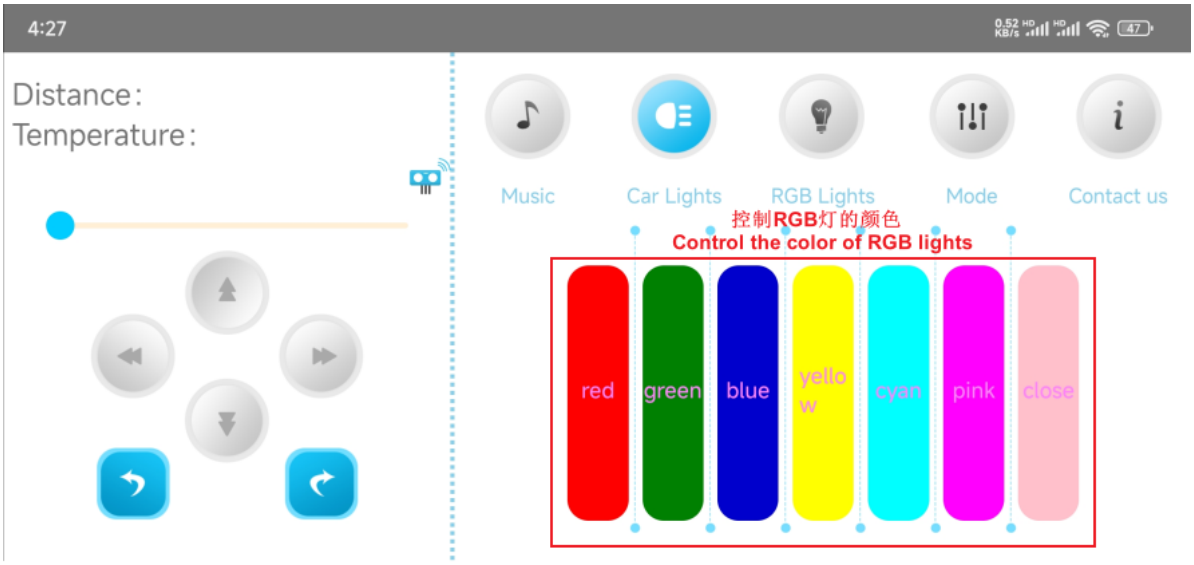
APP interface function introduction:

Main control interface:

- The forward button controls the opening of the Changing Face mask
- The back button controls the closing of the Changing Face mask
- The left turn, right turn, left rotation, and right rotation buttons control the dot matrix to display different patterns.
- Press the piano key to hear the buzzer play different tones

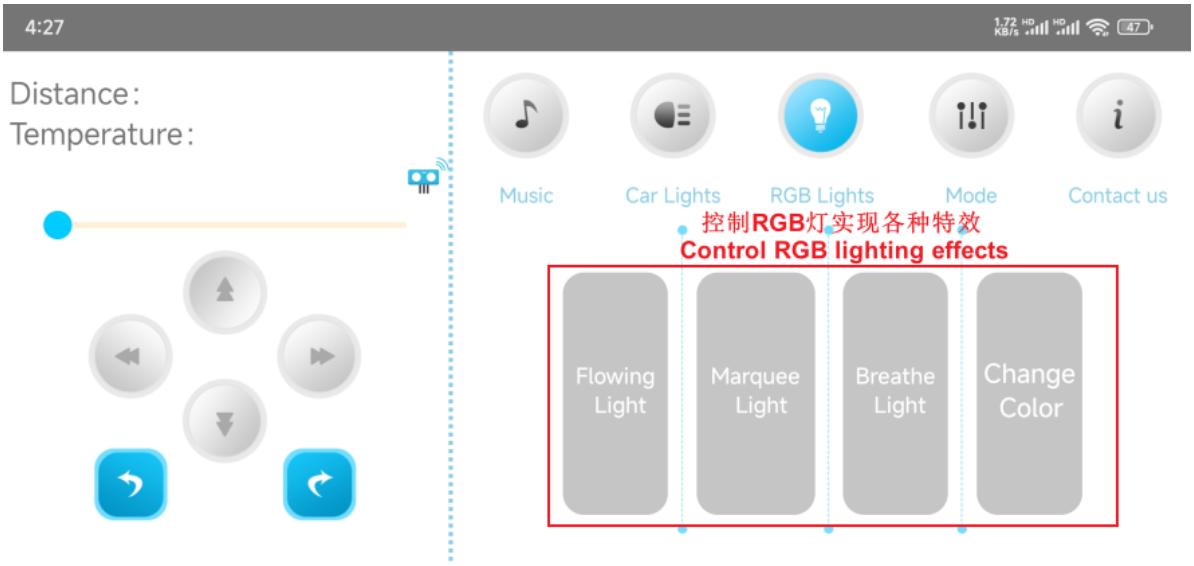


Car light interface:



RGB light interface:

Due to the upgrade of micro:bit V2 motherboard, the Bluetooth code control has deleted the RGB light control and changed to dot matrix display.



The buttons under the mode option have not yet defined any functions.