APP control

1. Learning objectives

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

2. Building blocks

For the building blocks steps, please refer to the installation drawings of **[Assembly Course]--[Clip robot]** in the materials or the building blocks installation book.

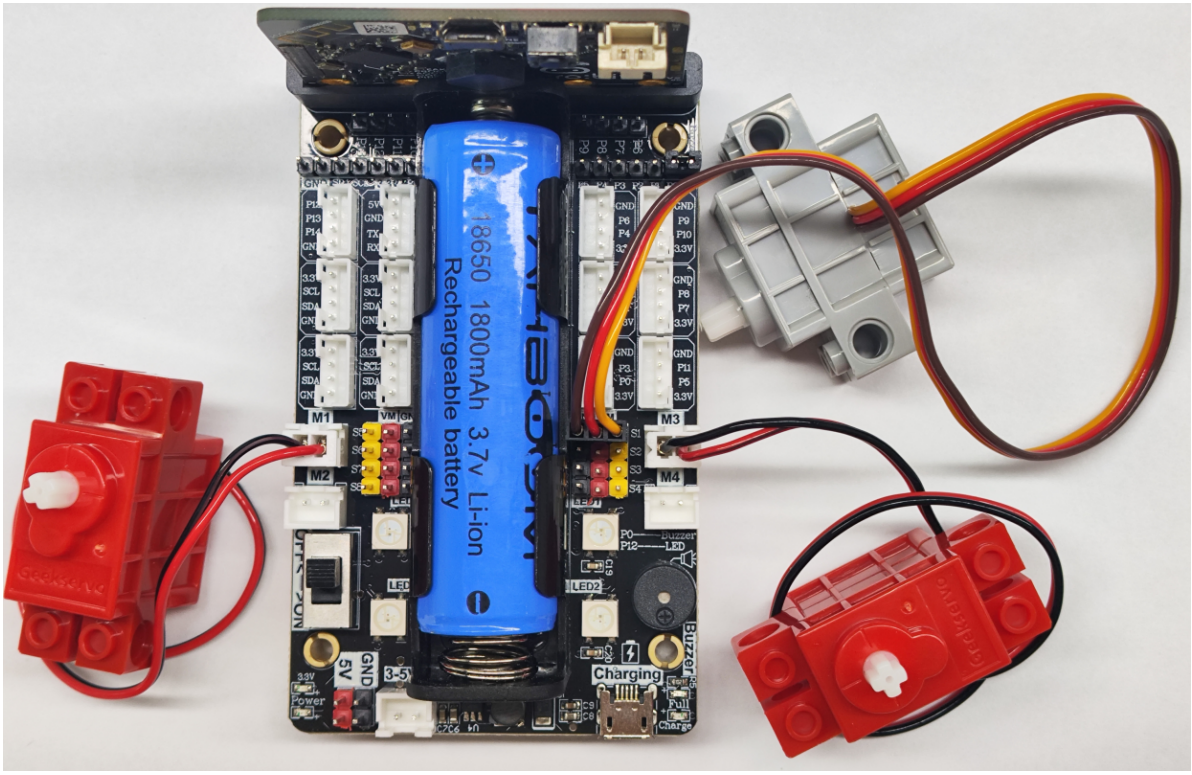
3. Motor wiring

Insert the motor wiring on the left side of the car into the M1 interface of the Super:bit expansion board, and the black wire is close to the battery side;

Insert the motor wiring on the right side of the car into the M3 interface of the Super:bit expansion board, and the black wire is close to the battery side;

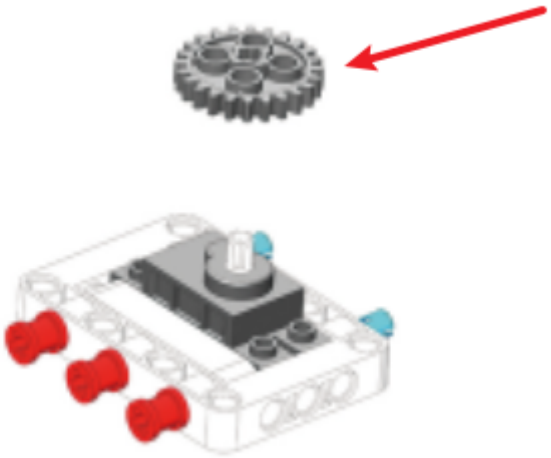
Insert the building blocks servo wiring into the S1 interface of the Super:bit expansion board, and the orange servo wiring is inserted into the yellow pin of S1.

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 gear 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 clip to open to the widest point, and then install the servo gear. (If you have used Clip robot 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 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 smart software package **https://github.com/YahboomTechnology/SuperBitLibV2** to 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-Clip-robot-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.

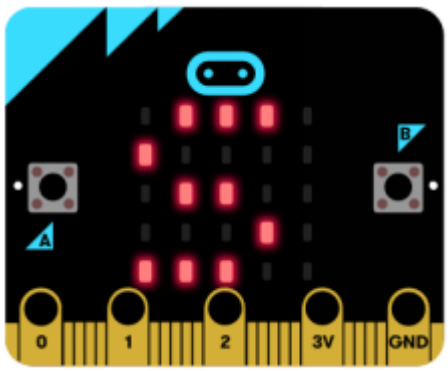
IOS

Android

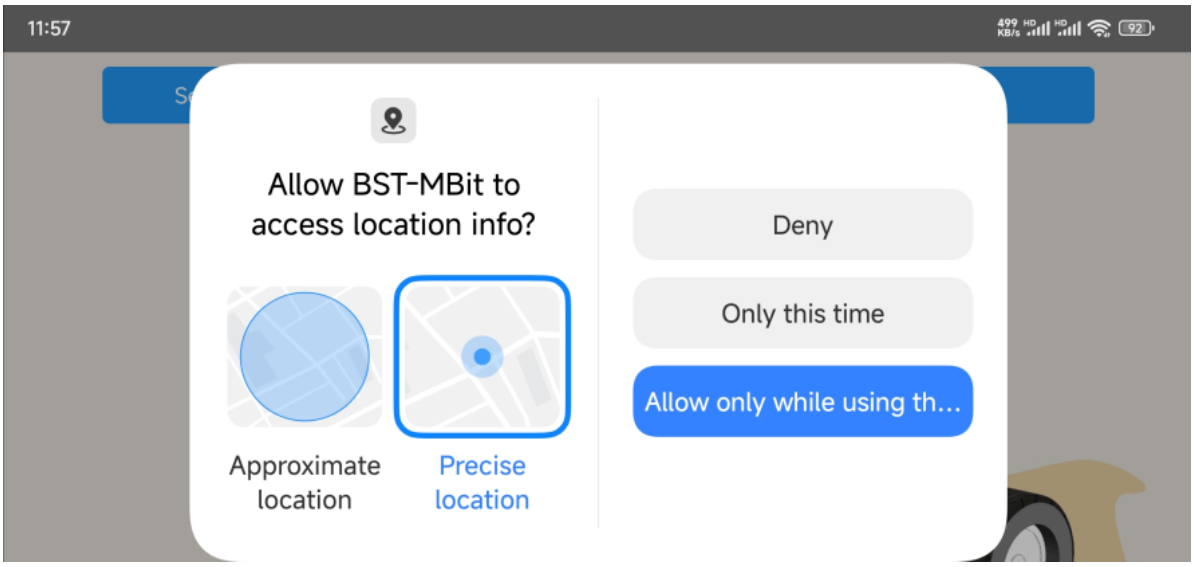
! Note: During the installation or use of the APP, if the mobile phone prompts that any permissions need to be obtained, please select "Agree".

5.2 APP remote control

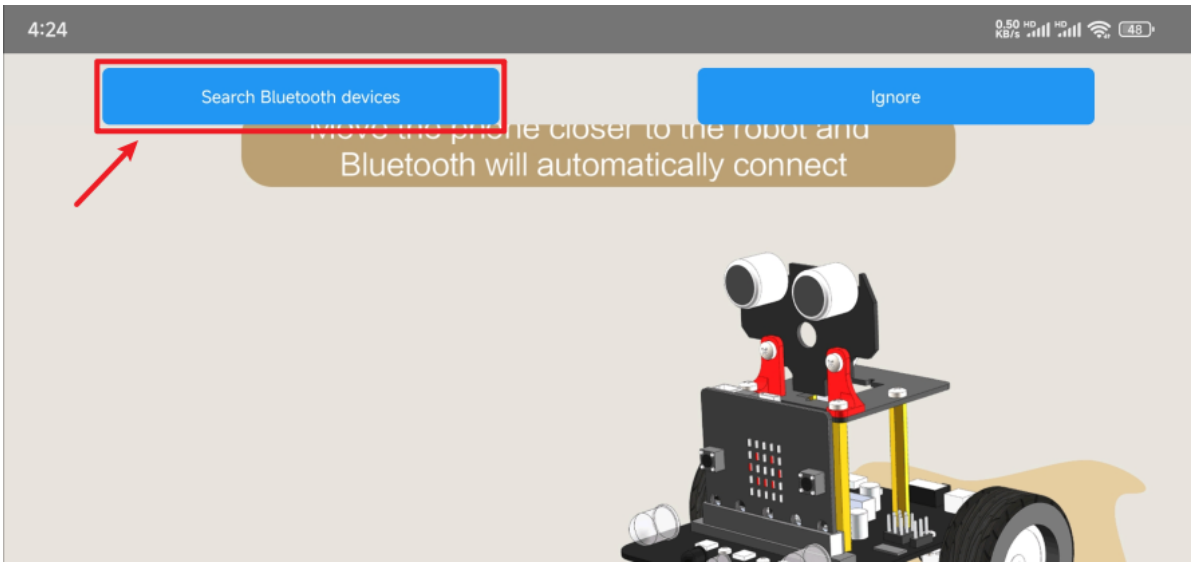
1) After the program is successfully downloaded, turn on the power switch of the car, and the micro:bit dot matrix will display the "S" pattern, as shown in the figure below, which is the state of Bluetooth not being connected.



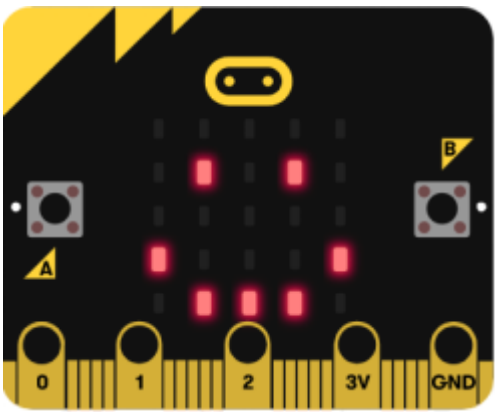
2) Turn on the Bluetooth of your mobile phone and open our APP. You can see the interface as shown below. Click **Allow APP to use location information**.



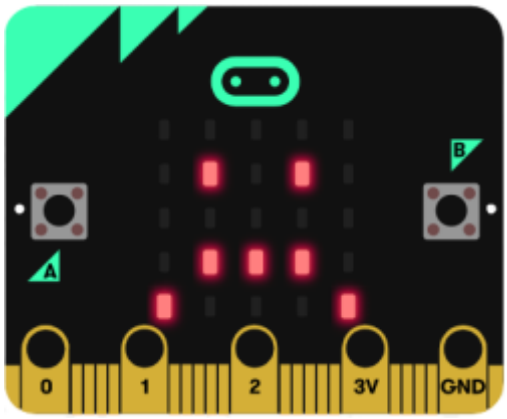
3) After the mobile phone is close to the car and waits for a while, the Bluetooth will automatically connect; if it is not automatically connected, we can click [Search Bluetooth devices] to search for the device to connect.



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]

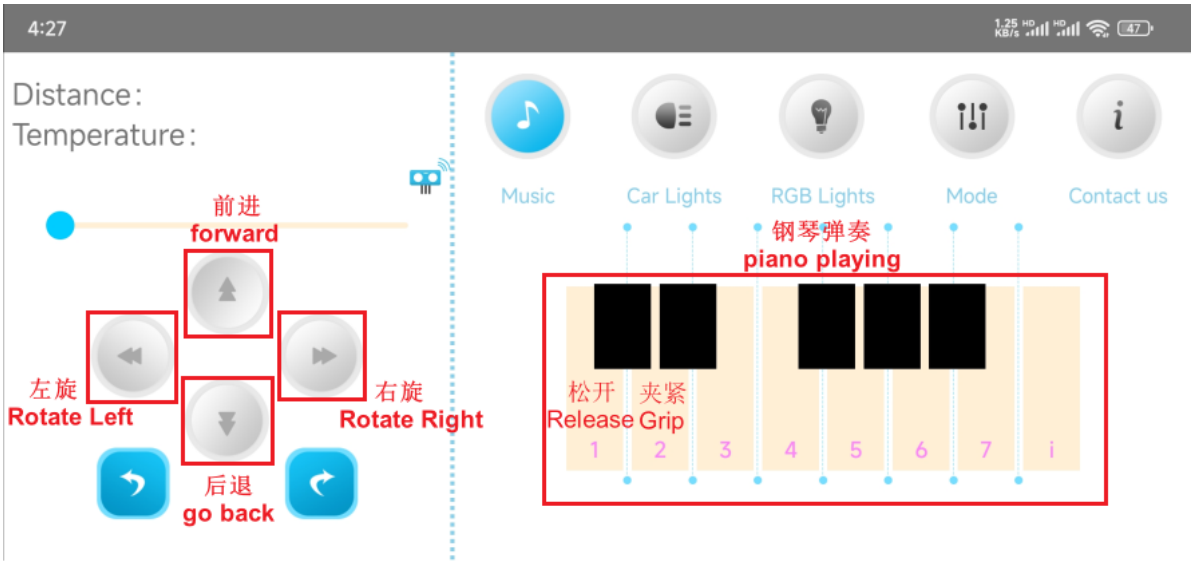


[Bluetooth disconnection status]

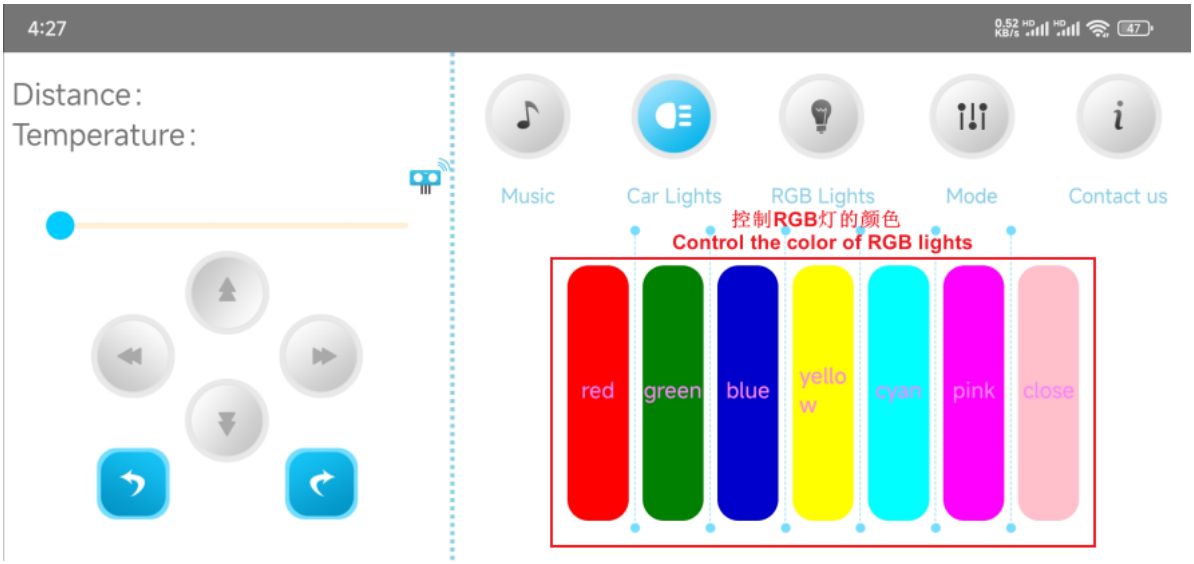
APP interface function introduction:

Main control interface:

- The forward button controls the car to move forward;
- The backward button controls the car to move backward;
- The left turn button controls the car to rotate left;
- The right button controls the car to rotate right;
- Piano key 1 controls the clamp to release;
- Piano key 2 controls the clamp to clamp;
- Press the piano key to hear the buzzer play different tones.

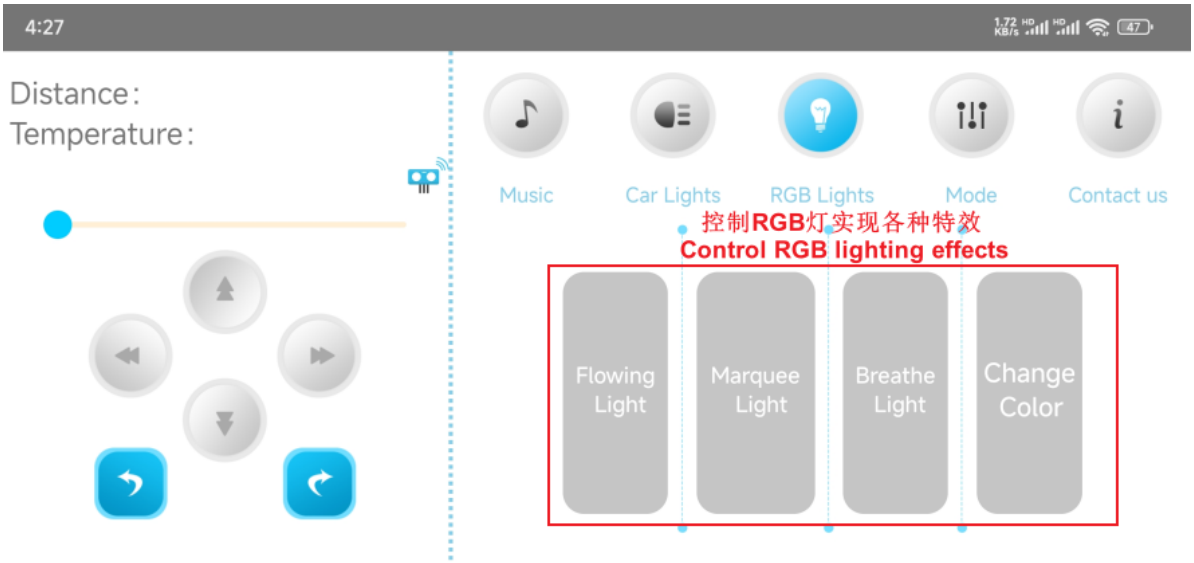


Car light interface:



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.