

APP control

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1. Learning objectives

In this course, we mainly learn how to use MakeCode graphical programming to realize Bluetooth APP remote control of Proficient carrier.

2. Building blocks

For the building blocks steps, please refer to the installation drawings of **[Assembly Course]-- [Proficient carrier]** in the materials or the building blocks installation brochure.

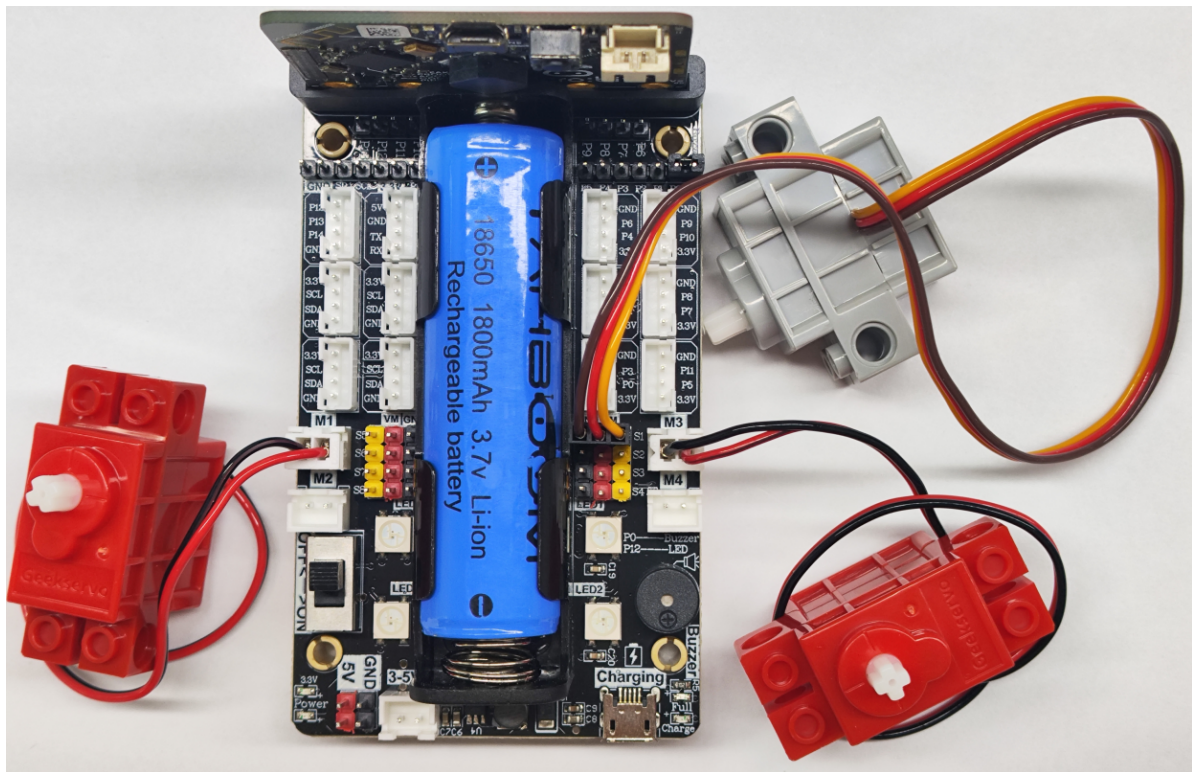
3. Motor wiring

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

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

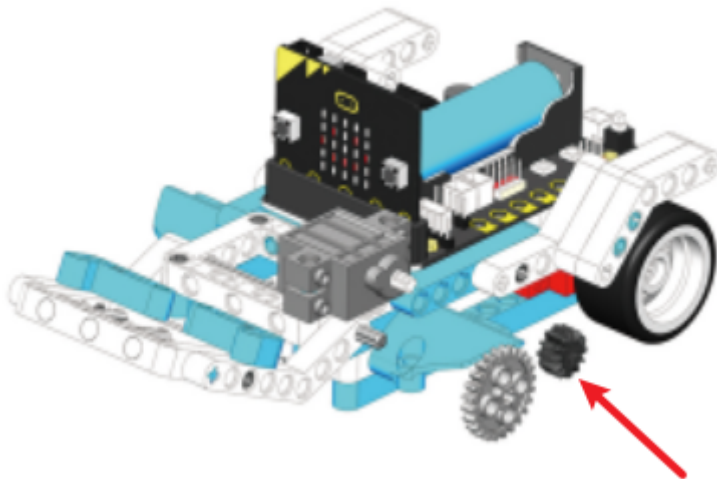
The building block servo wiring is inserted into the S1 interface of the Super:bit expansion board, and the orange servo wiring is inserted into the yellow pin of S1.

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 angle of the shovel of the car to be parallel to the ground, and then install the servo gear. (If you have used the Proficient carrier 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 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 software package <https://github.com/YahboomTechnology/SuperBitLibV2> to start programming.

For the summary program of this course, please open the **microbit-Proficient-carrier-APP-control.hex** we provided 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

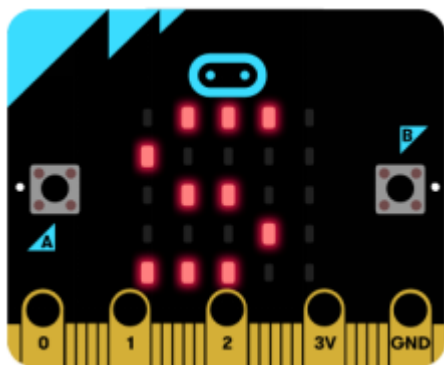


Android

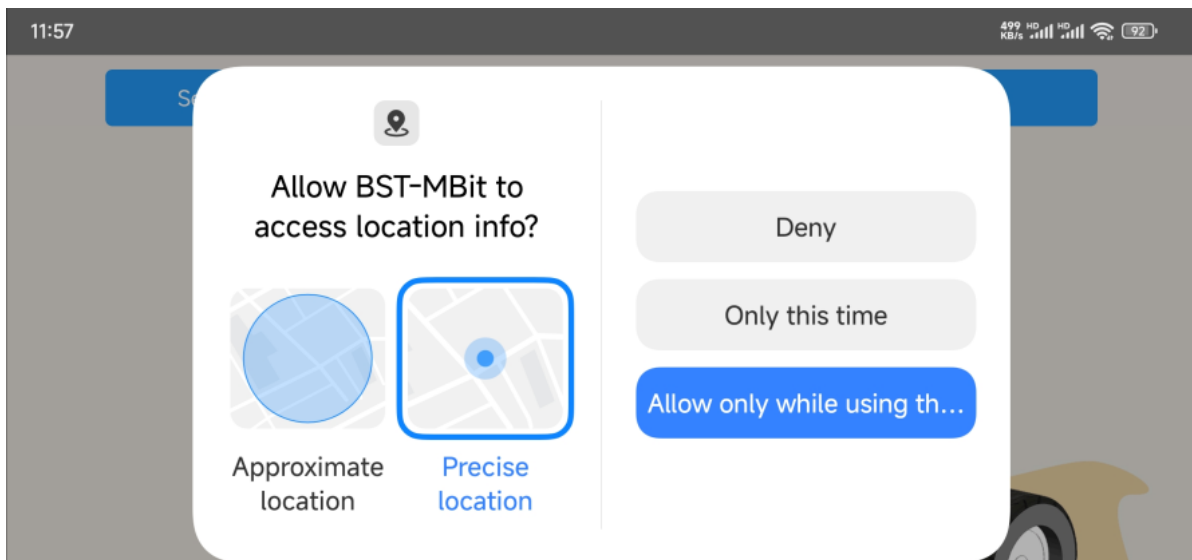
! Note: During the installation or use of the APP, if the phone prompts that any permissions need to be obtained, please select "Agree".

5.2 APP remote control

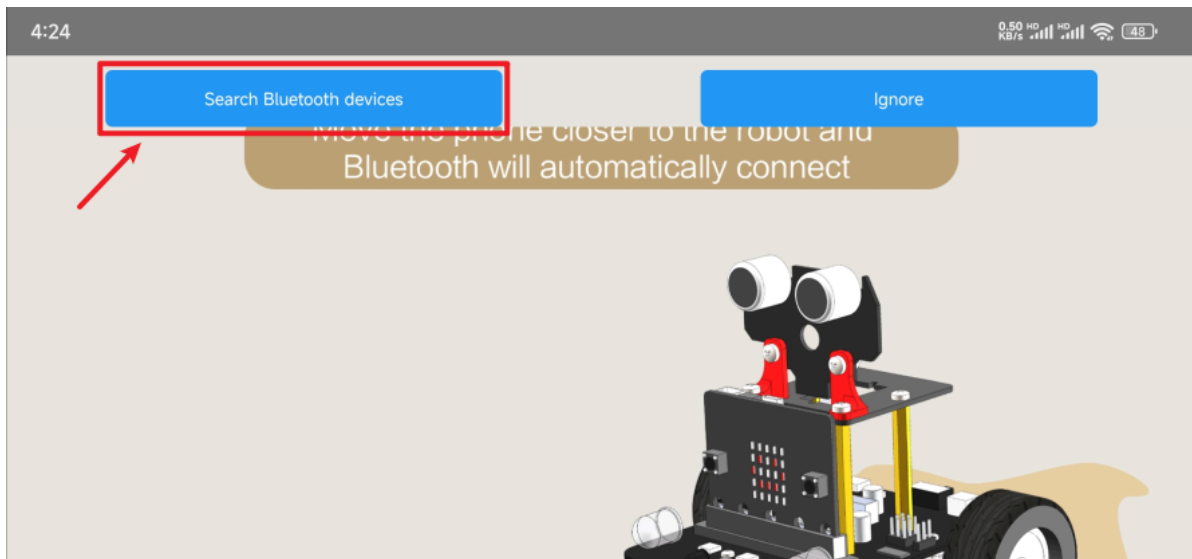
1) After the program is downloaded successfully, turn on the power switch of the car, and the micro:bit dot matrix will display an "S" pattern, as shown in the figure below. This is the state of Bluetooth disconnection.



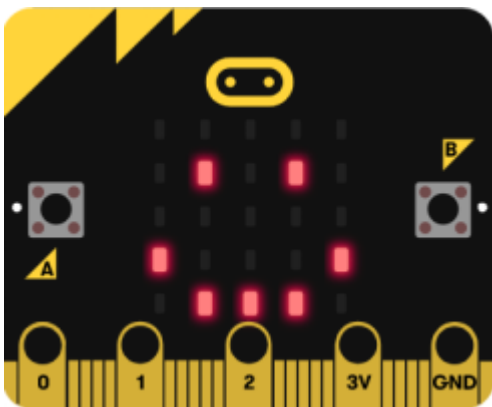
2) Turn on the Bluetooth of the mobile phone, open our APP, you can see the interface as shown in the figure below, click **Allow APP to use positioning information**.



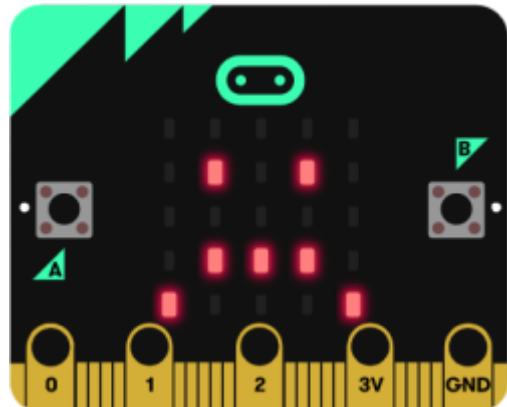
3) After the mobile phone is close to the car and waits for a while, the Bluetooth will automatically connect; if it does not automatically connect, we can click [Search Bluetooth devices] to search for the device to connect.



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]

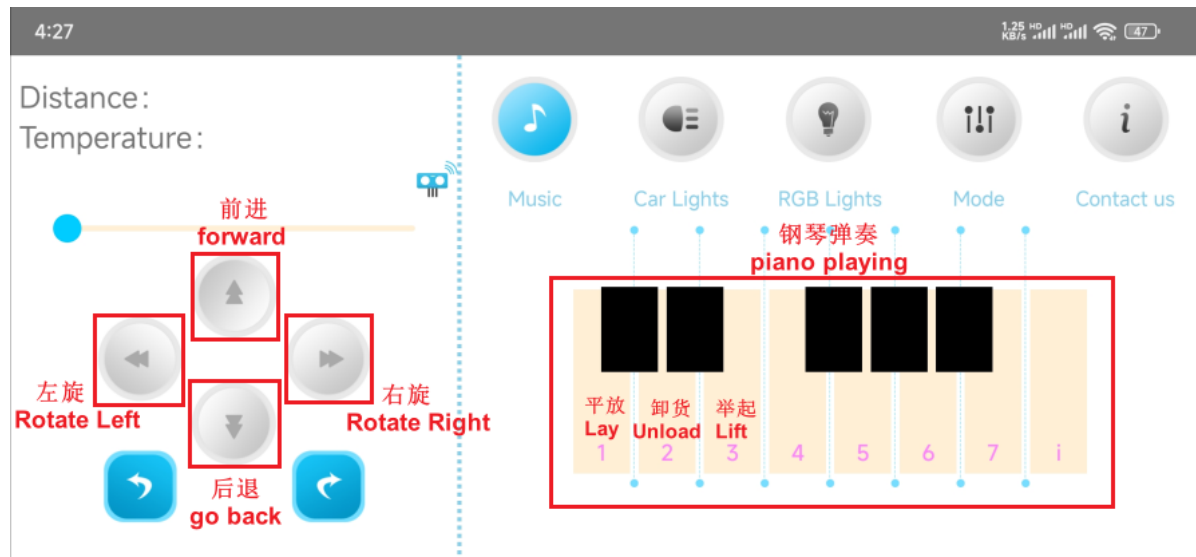


[Bluetooth disconnection status]

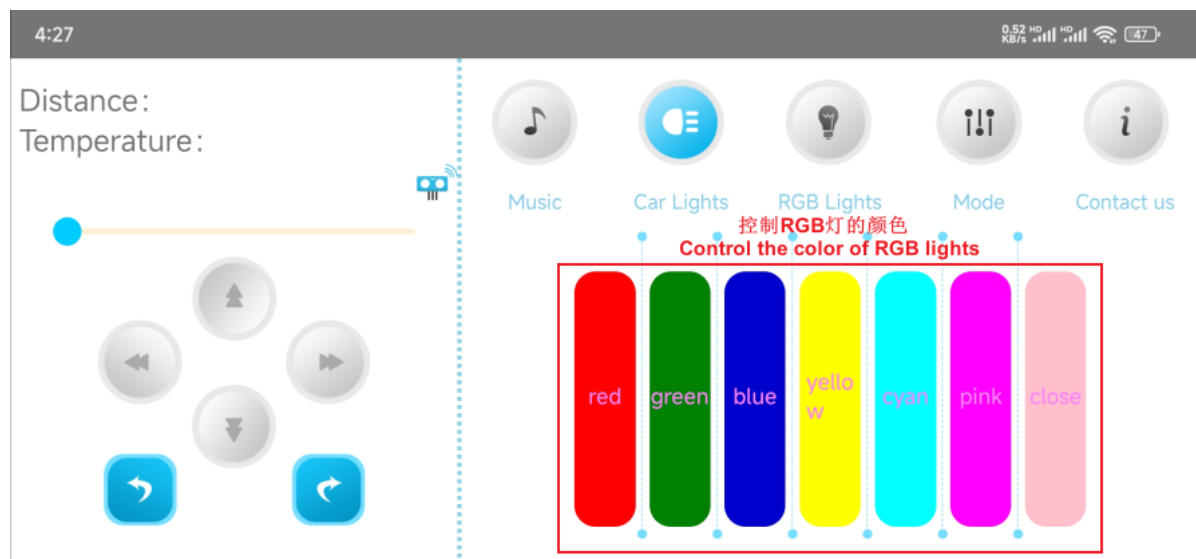
APP interface function introduction:

Main control interface:

- The forward button controls the car to move forward;
- The backward button controls the car to move backward;
- The left turn button controls the car to turn left;
- The right button controls the car to turn right;
- Piano key 1 controls the clamp to lay flat;
- Piano key 2 controls the clamp to unload;
- Piano key 3 controls the shovel to lift;
- Press the piano key to hear the buzzer play different tones.

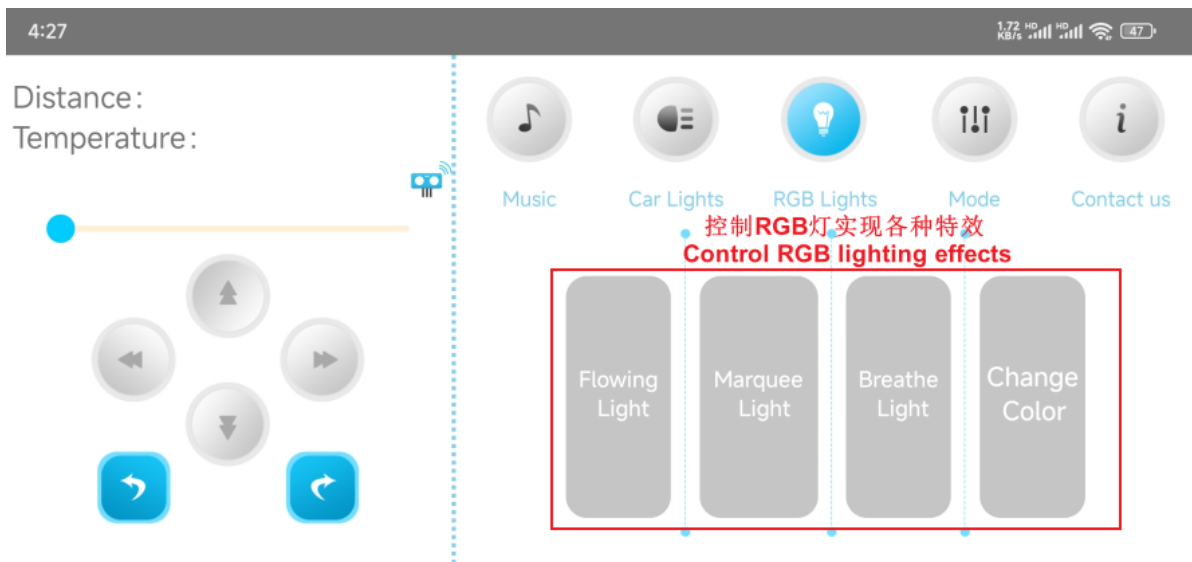


Car light interface:



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.