

Gesture control omnibit

1. Purpose

In this course, we mainly learn to use Micro:bit, gesture recognition module and Omni:bit to realize gesture choose music.

2. Programming method

Mode 1 online programming:

First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive:

<http://microbit.org/> to enter the programming interface. Add the Yahboom

package: <https://github.com/YahboomTechnology/GR> and

<https://github.com/lzty634158/OmniBit> to start programming.

Mode 2 offline programming:

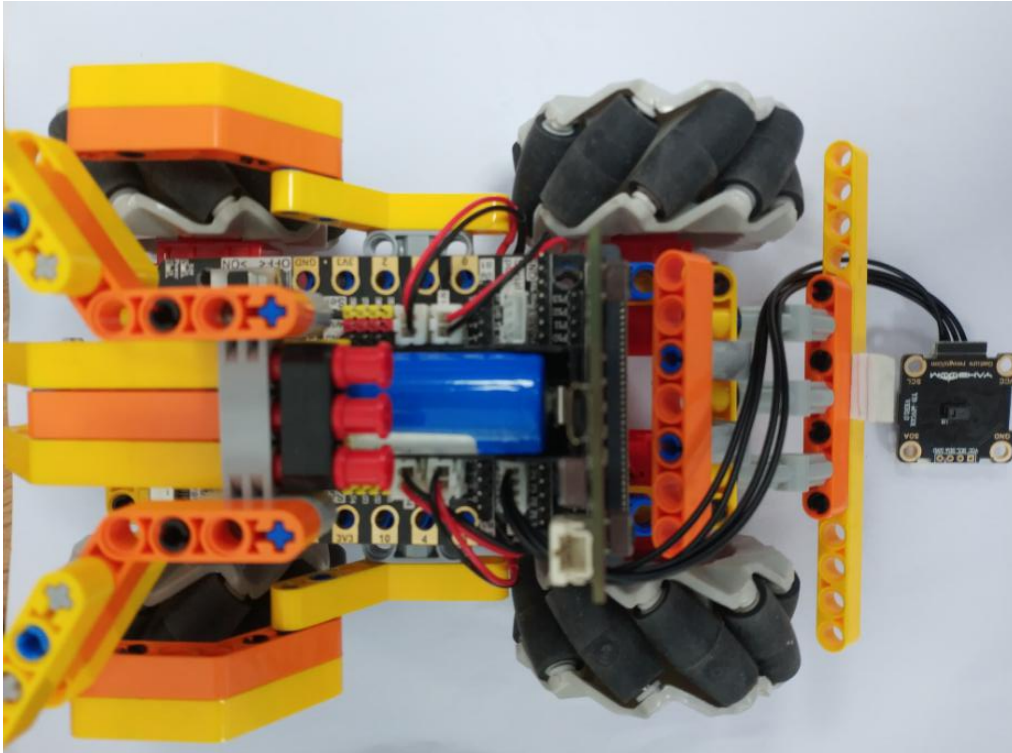
We need to open the offline programming software. After the installation is complete, enter the programming interface, click **[New Project]**. Add Yahboom

package: <https://github.com/YahboomTechnology/GR> and

<https://github.com/lzty634158/OmniBit> you can start programming.

3. About wiring

Gesture recognition module	Micro:bit(Super:bit IIC interface)
SCL	SCL
SDA	SDA
VCC	5V
GND	GND



4.Combine building blocks

We need to use the following programming building blocks.

The image shows the Scratch programming interface. On the left, the 'GestureRecognition' block is highlighted in the block palette. A red arrow points from this block to the main workspace. The workspace contains a sequence of three code blocks:

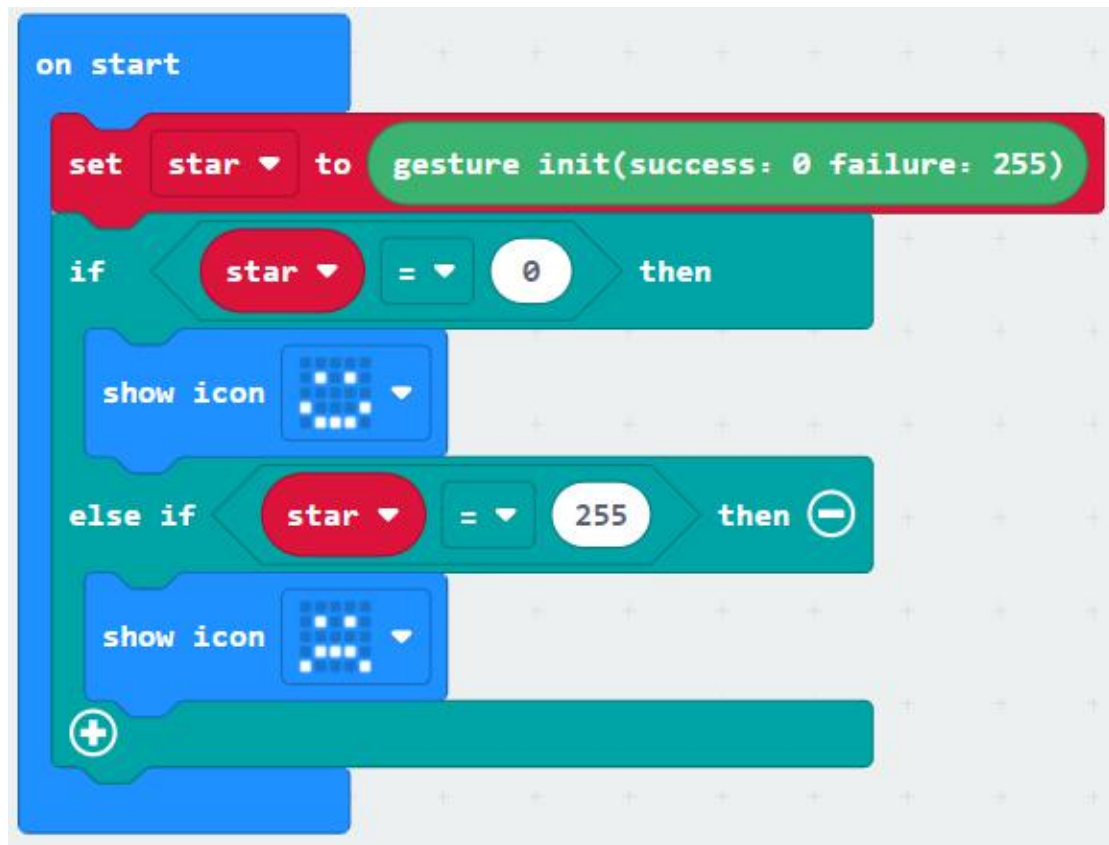
- GestureRecognition** block with the following sub-blocks:
 - `gesture init(success: 0 failure: 255)`
 - `get gesture`
 - `select gesture is` with a dropdown menu set to `right`.
- Basic** block with the sub-block `show icon` and a dropdown menu set to a grid icon.
- Basic** block with the sub-block `show arrow` and a dropdown menu set to `North`.

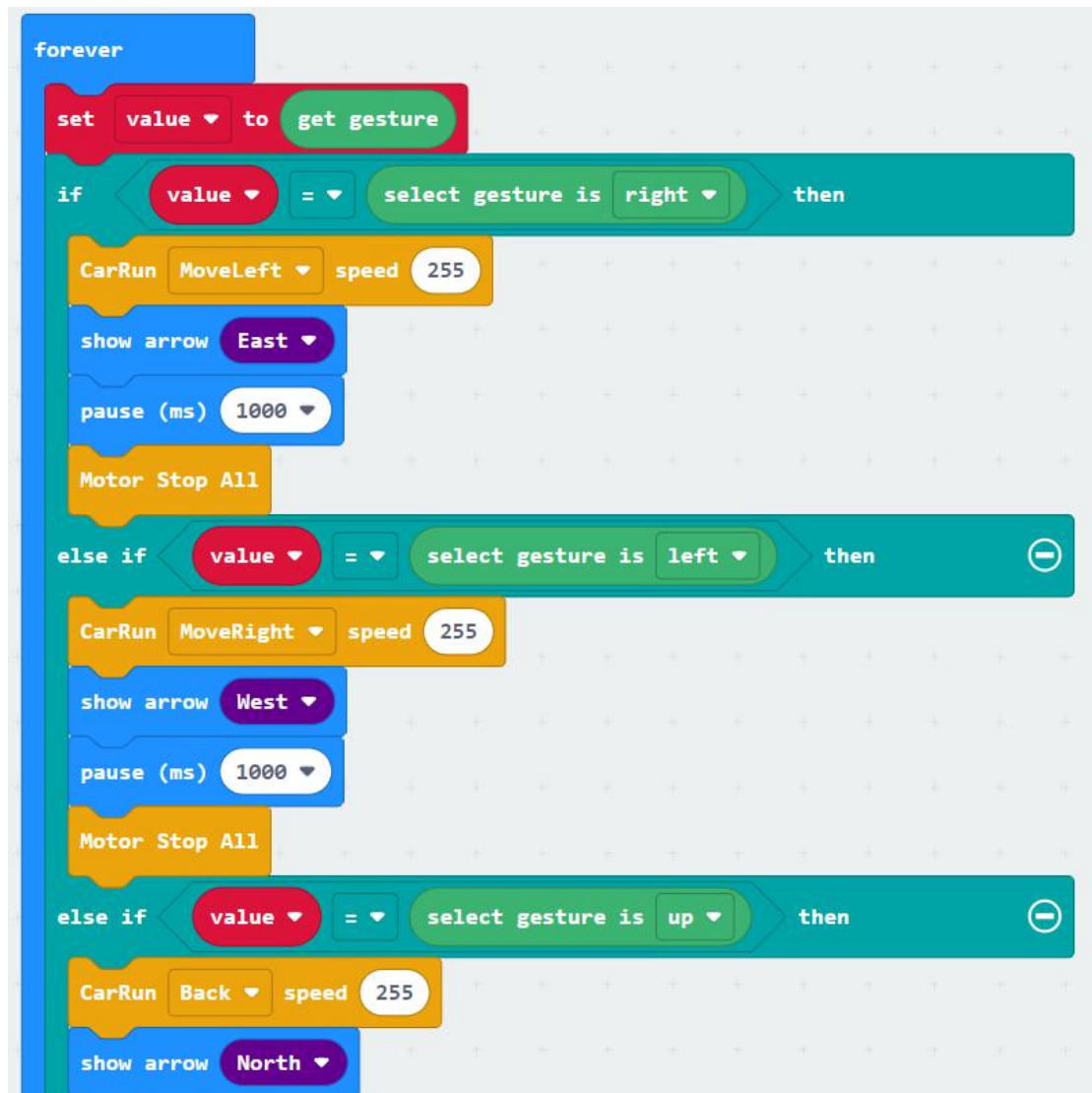
The image displays the YAHBOOM interface with a sidebar on the left and a main workspace on the right. The sidebar contains a search bar and a list of categories: Basic, Input, Music, Led, Radio, Loops, Logic, Variables, Math, GestureRecognition, and Advanced. The 'Variables' category is highlighted with an orange box, and an orange arrow points from it to the 'Variables' block in the workspace. The 'Logic' category is also highlighted with an orange box, and an orange arrow points from it to the 'Logic' block in the workspace.

The 'Variables' block in the workspace is titled 'Variables' and contains a 'Make a Variable...' button. Below this button are two dropdown menus: 'star' and 'value'. Below these are two red blocks: 'set star to 0' and 'change star by 1'.

The 'Logic' block in the workspace is titled 'Comparison' and contains an 'if true then' block. Below this is an 'else' block with a minus sign icon. Below the 'else' block is a plus sign icon. At the bottom of the block is a comparison operator block with '0', '=', and '0'.

Summary procedure as shown below.







Gesture recognition module needs to be initialized by initializing the recognition block. If the initialization is successful, it will return 0. If the recognition is fail, it will return 255, we can restart the program by pressing the reset button of the micro:bit.

Store the recognition result in the value variable, and compare the value of the value with the selection gesture as a building block. If the two are equal, it is the

corresponding gesture.

5. Phenomenon

After the program is downloaded successfully, if the initialization is successful, the micro:bit dot matrix will be a smiling face, and if it fails, it will be a crying face. You can press the micro:bit reset button to restart the program to initialize.

Open your palm to face the module.

Swing over your palm from left to right in front of the module, the car pan left and the dot matrix arrow points to the east.

Swing over your palm from right to left in front of the module, the car pan right and the dot matrix arrow points to the west.

Swing over your palm from bottom to top in front of the module, the car back and the dot matrix arrow points to the north.

Swing over your palm from top to bottom in front of the module, the car advance and the dot matrix arrow points to the south.

Make a fist and stretch out two or three fingers to point to the front of the module, then circle it clockwise for a while, car will spin right.

Make a fist and stretch out two or three fingers to point to the front of the module, then circle it counterclockwise for a while, car will spin left.

Approach from back to front directly in front of the module, the car will large angle drift.