Changing Face Micro:bit handle control

1.Learning goals

In this course, we mainly learn how to use handle control changing Face.

2.Building block assembly steps

For the building block construction steps, please refer to the installation manual or building block installation picture of [Assembly course]-[Changing face].

3.Wiring of servo

Building block servo insert into the Super: bit expansion board S1 interface, and the orange wiring connect the yellow pin of S1.

As shown below:
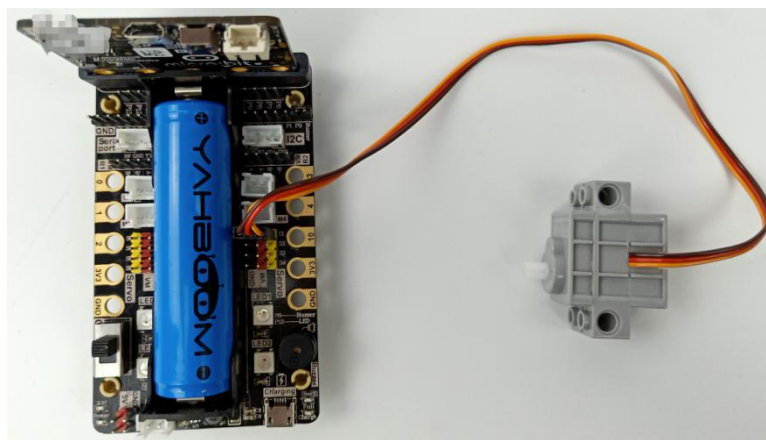
Note:

For the first course related to building block servo, we need to remove the gear on the servo and upload the program of this course to micro: bit. Then, turn on the power switch of the Super:bit expansion board and wait for the building block servo turn to the initial position. Next, we can turn off the power, and adjust the changing face mask to be off. Finally, install the servo. (If you have used programs related to clip robot before, you can skip this step)
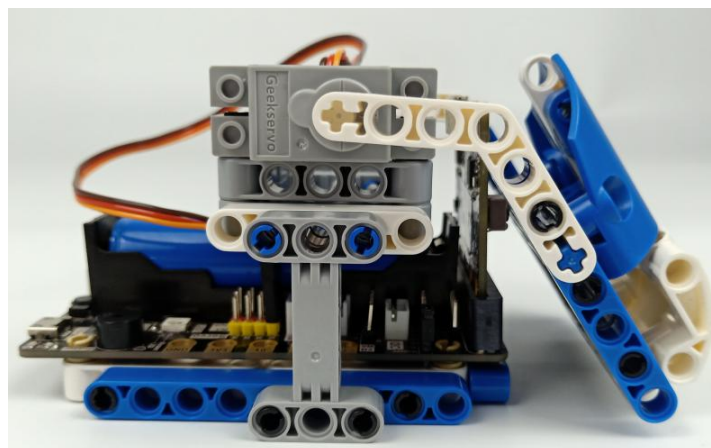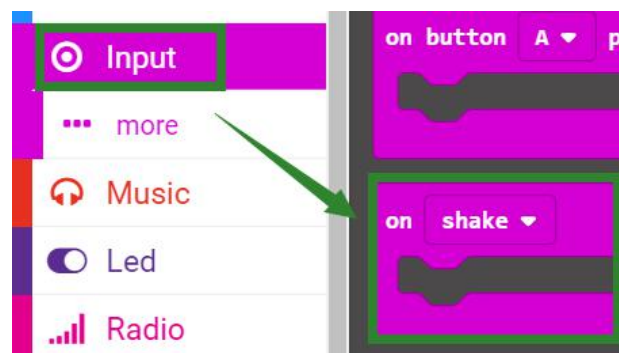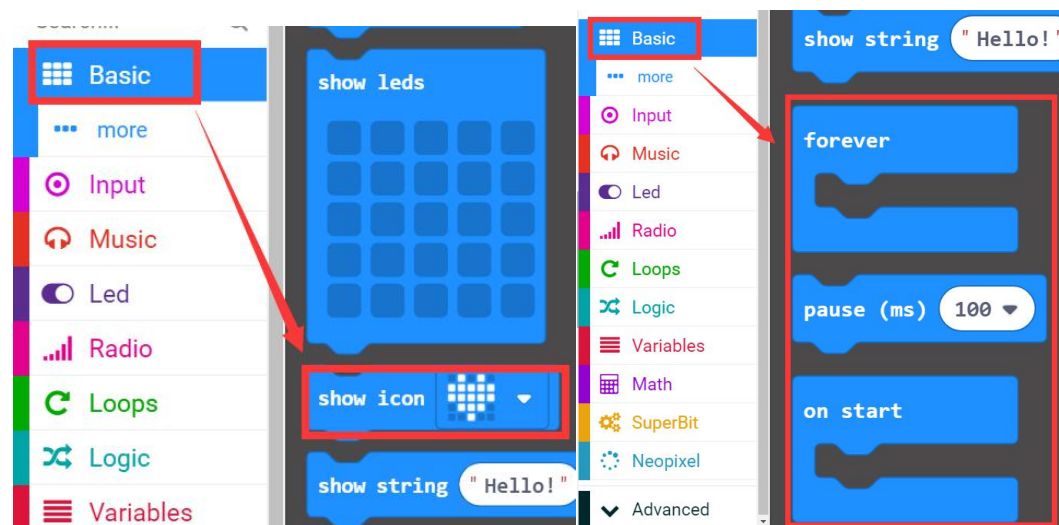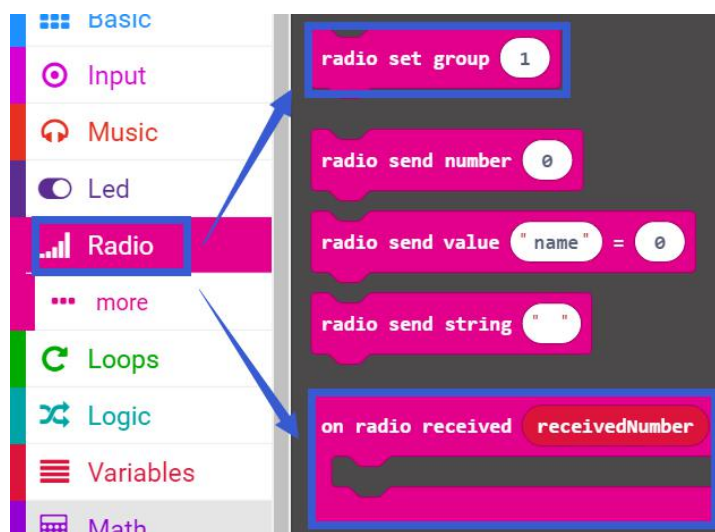

4.Programming method

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/lzty634158/SuperBit** and **https://github.com/lzty634158/GHBit** to program.

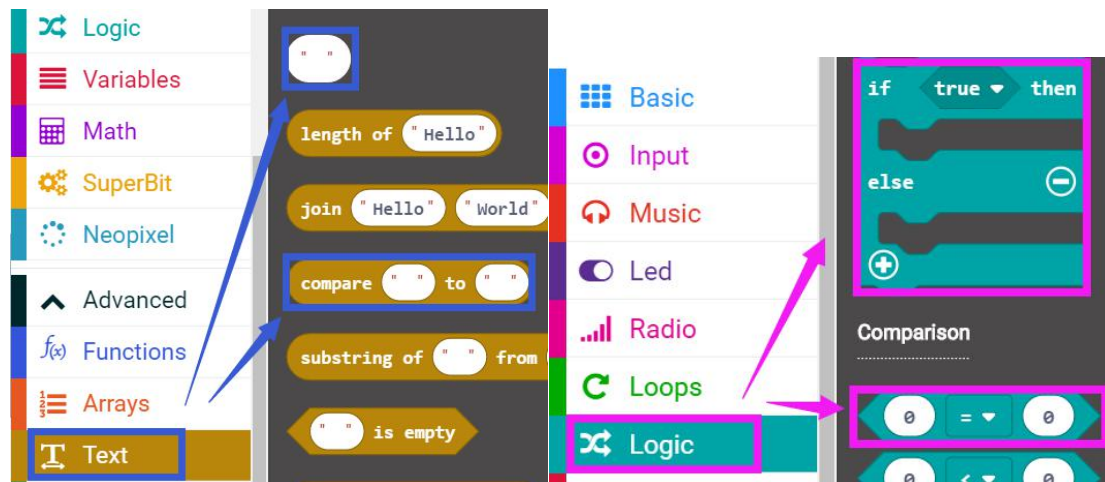**Mode 2 offline programming:** We need to open the offline programming software. After the installation is complete, enter the programming interface, click【New Project】, add Yahboom package: **https://github.com/lzty634158/SuperBit** and **https://github.com/lzty634158/GHBit** , you can program.

5.Looking for blocks

The following is the location of the building blocks required for this programming.

Led
Radio
Loops
Logic
Variables

set item ▼ to 0
change item ▼ by 1

Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
SuperBit

RGB_Program
Music dadadum ▼
Servo(180°) num S1 ▼ value 0
Servo(270°) num S1 ▼ value 0
Servo(360°) num S1 ▼ pos forward ▼
Motor M1 ▼ speed(-255~255) 0
Motor

Radio
Loops
Logic
Variables
Math
GHBit

Rocker value Nostate ▼
Button num B1 ▼ value Pre
Key B1 ▼ Press
Music Handle dadadum ▼

Basic
Input
Music
Led
Radio
more
Loops
Logic
Variables
Math

radio set group 1
radio send number 0
radio send value "name" = 0
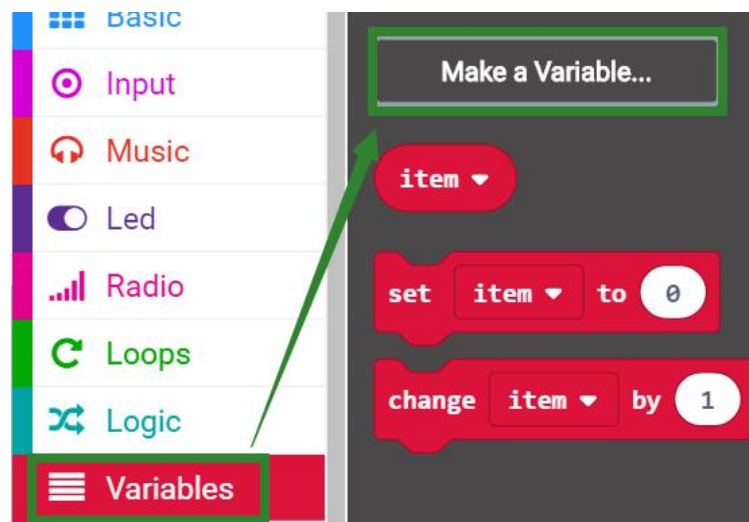radio send string " "
on radio received receivedNumber

How to create a new variable

①Find the [Variable] option in the building block column-[Make a Variable]

②Enter the name of variable to complete the new variable.
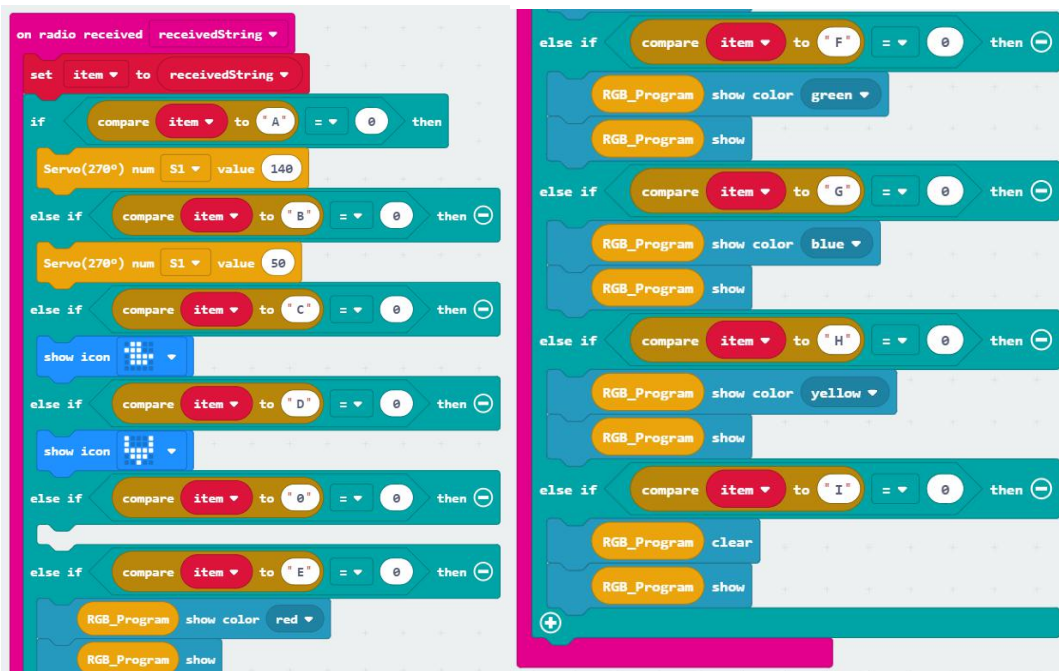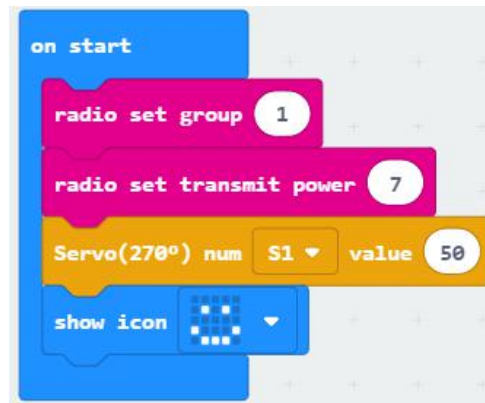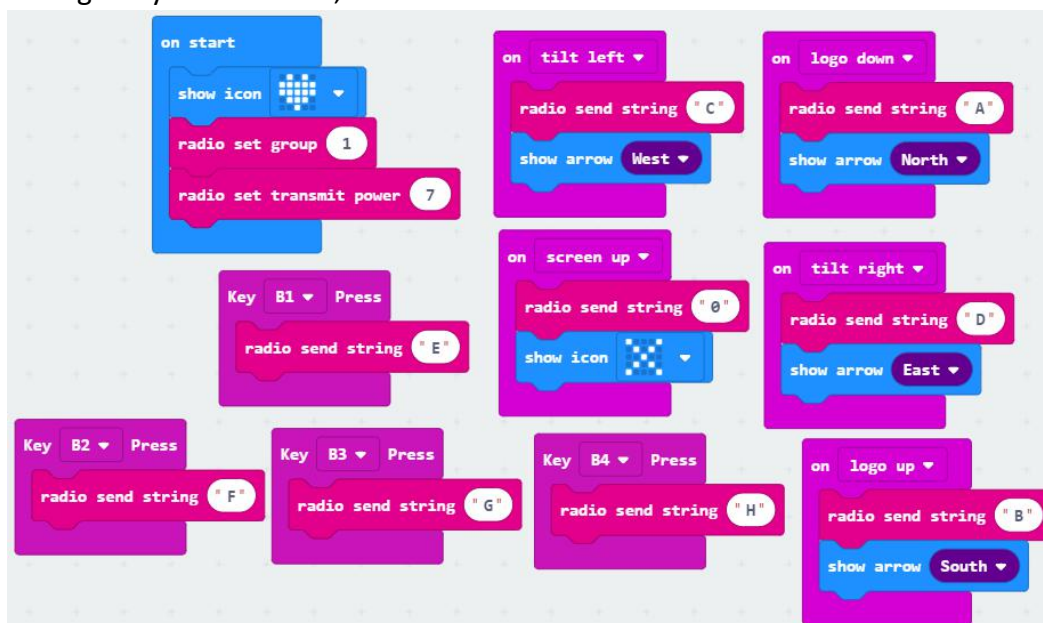

6.Combine block

The Changing face program is shown below.

```
on start
    radio set group 1
    radio set transmit power 7
    Servo(270°) num S1 value 50
    show icon [icon]
```

```
on radio received receivedString
set item to receivedString
if compare item to "A" = 0 then
    Servo(270°) num S1 value 140
else if compare item to "B" = 0 then
    Servo(270°) num S1 value 50
else if compare item to "C" = 0 then
    show icon [icon]
else if compare item to "D" = 0 then
    show icon [icon]
else if compare item to "0" = 0 then

else if compare item to "E" = 0 then
    RGB_Program show color red
    RGB_Program show
else if compare item to "F" = 0 then
    RGB_Program show color green
    RGB_Program show
else if compare item to "G" = 0 then
    RGB_Program show color blue
    RGB_Program show
else if compare item to "H" = 0 then
    RGB_Program show color yellow
    RGB_Program show
else if compare item to "I" = 0 then
    RGB_Program clear
    RGB_Program show
```

Handle gravity control code, as shown below.

```
on start
    show icon [icon]
    radio set group 1
    radio set transmit power 7

on tilt left
    radio send string "C"
    show arrow West

on logo down
    radio send string "A"
    show arrow North

on screen up
    radio send string "0"
    show icon [icon]

on tilt right
    radio send string "D"
    show arrow East

Key B1 Press
    radio send string "E"

Key B2 Press
    radio send string "F"

Key B3 Press
    radio send string "G"

Key B4 Press
    radio send string "H"

on logo up
    radio send string "B"
    show arrow South
```

Handle rocker control code, as shown below.
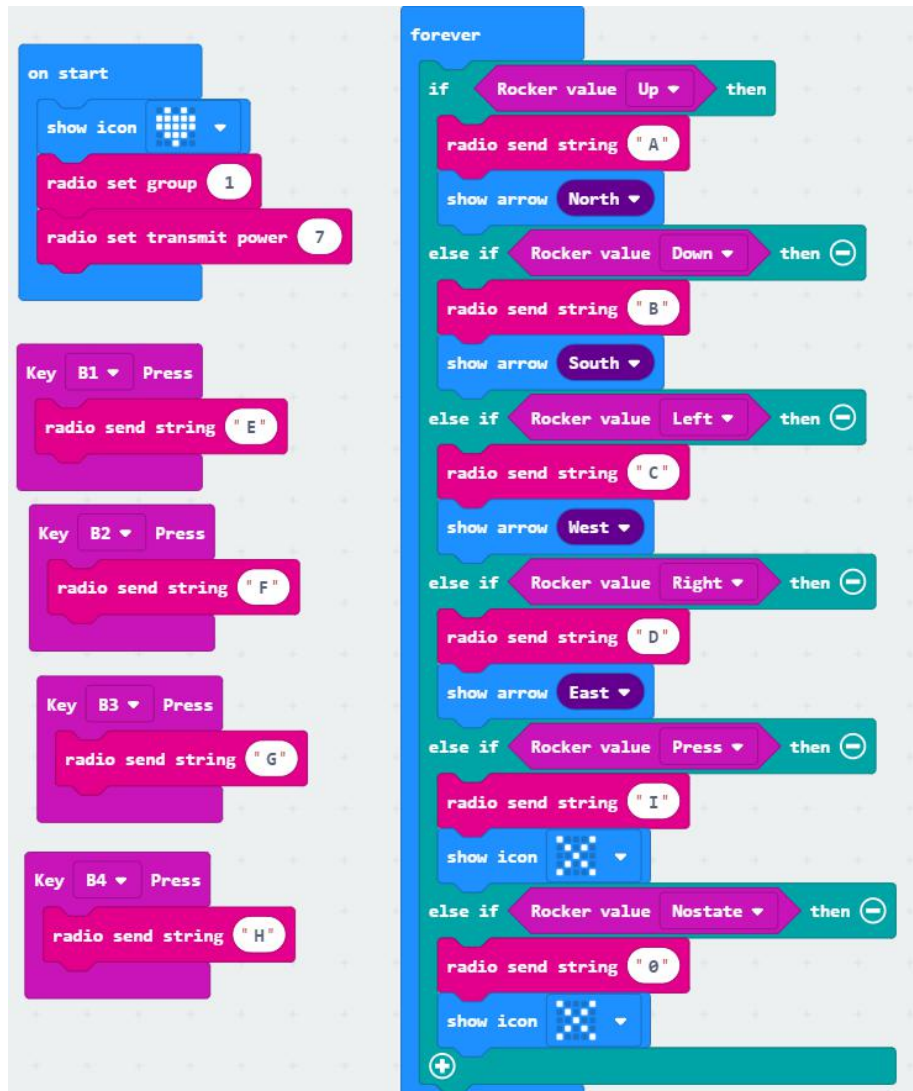
7.Experimental phenomena

We need to download the Changing face code into the micro:bit board of the Changing face . Open the power switch of the Changing face , we can see a smile pattern displayed on the micro:bit dot matrix;

We need to download the Handle code into the micro:bit board of the handle.

Open the power switch of the handle, we can see that the micro:bit dot matrix will initially display a heart pattern, and then display an "X" pattern, indicating that the handle is in the default(no data is sent).

They will automatically pairing, then, we can start remote control the Changing face by handle.

The handle functions are shown below.