Skip car code Micro:bit handle control

1.Learning goals

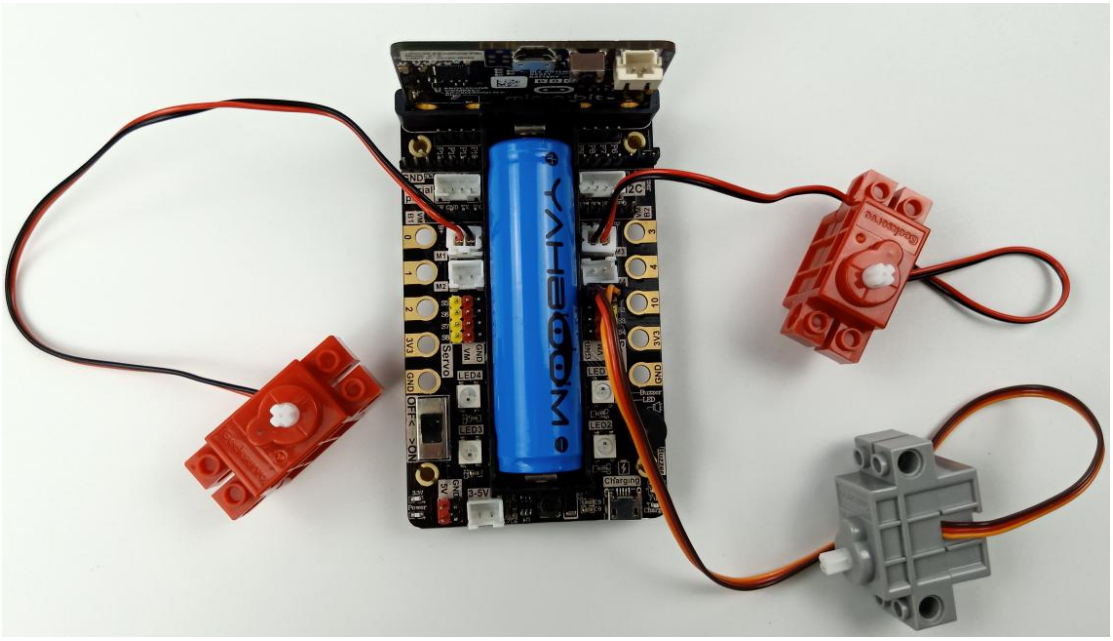
In this course, we mainly learn how to use handle control Skip car.

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]-[Skip car].

3.Wiring of motor and servo

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;
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 loading platform of the car to keep it parallel to the ground. Finally, install the servo. (If you have used programs related to mobile shooter before, you can skip this step)

4.Programming method

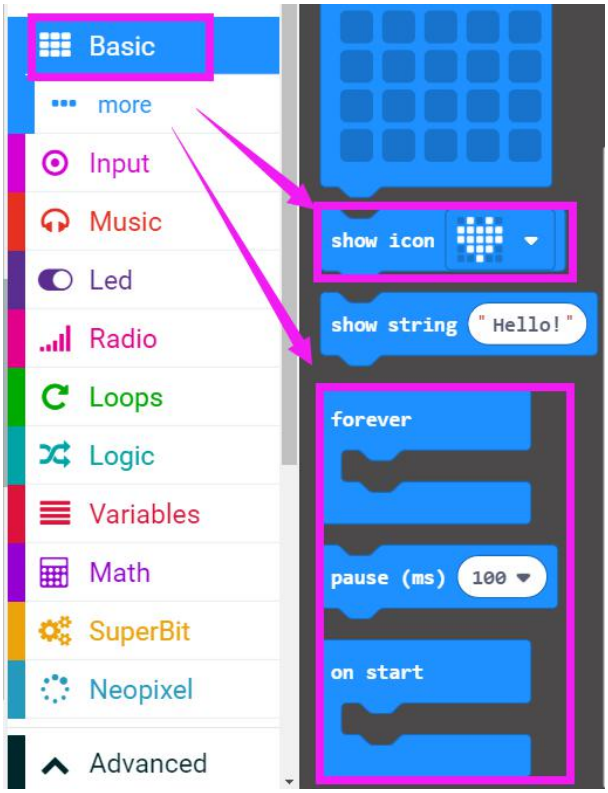
Mode 1 online programming: First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the

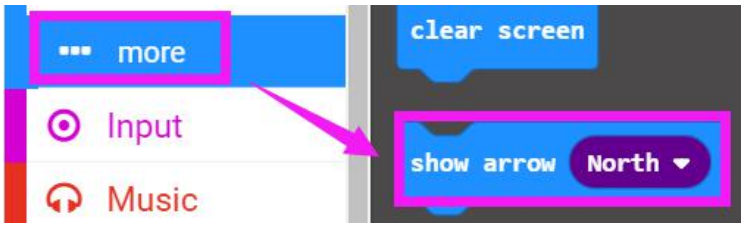
URL in the USB flash drive: http://microbit.org/ to enter the programming interface. Add the Yahboom package **https://github.com/lzty634158/SuperBit** and **https://github.com/lzty634158/GHBit** to program.

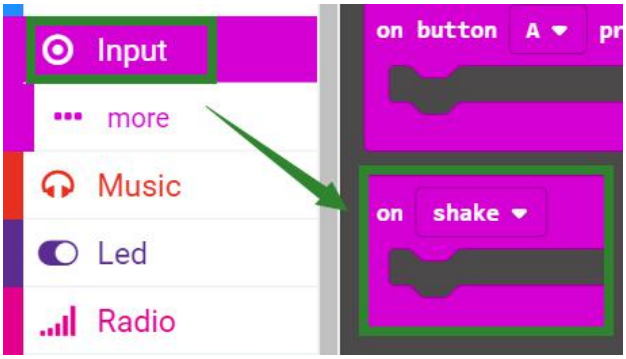
Mode 2 offline programming: We need to open the offline programming software. After the installation is complete, enter the programming interface, click【New Project】, add Yahboom package: **https://github.com/lzty634158/SuperBit** and **https://github.com/lzty634158/GHBit** , you can program.

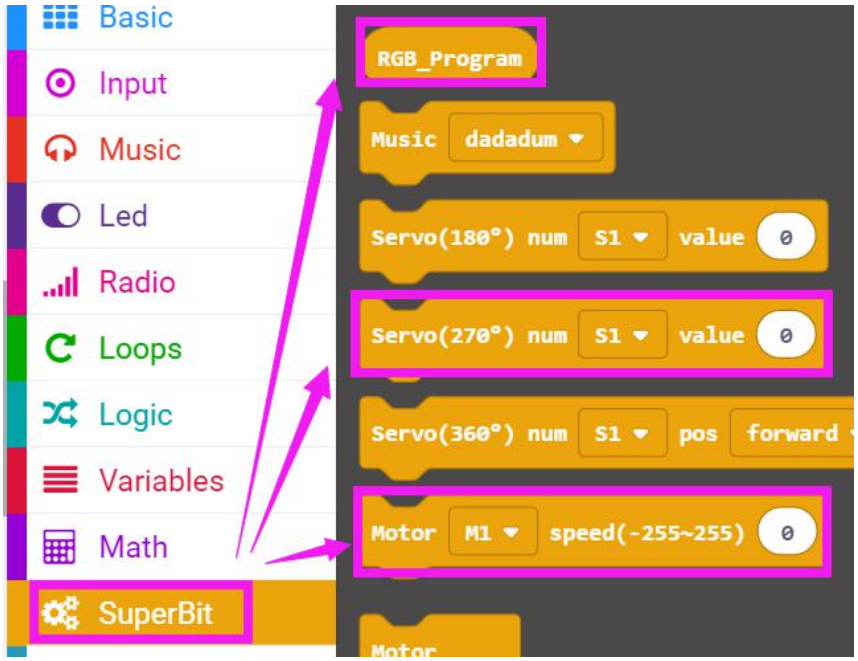
5.Looking for blocks

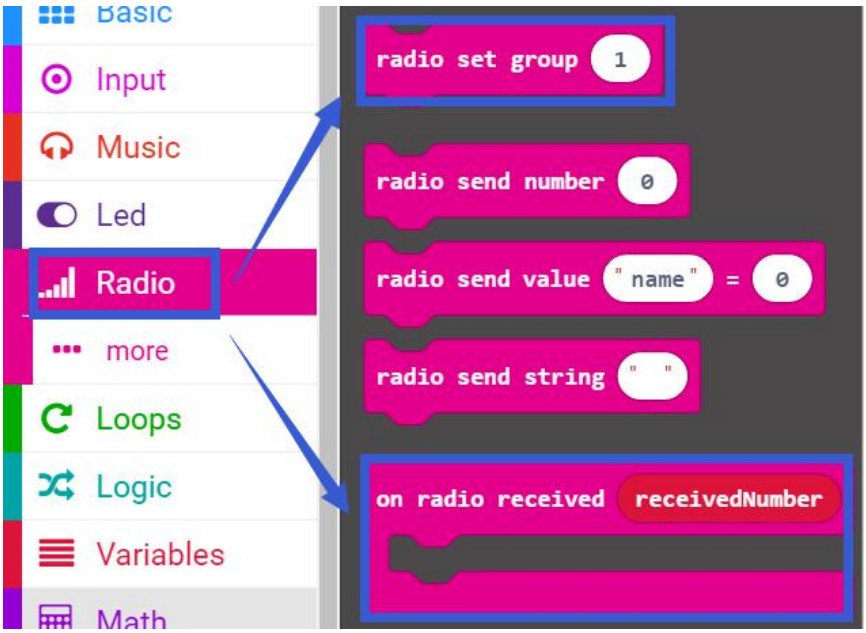
The following is the location of the building blocks required for this programming.

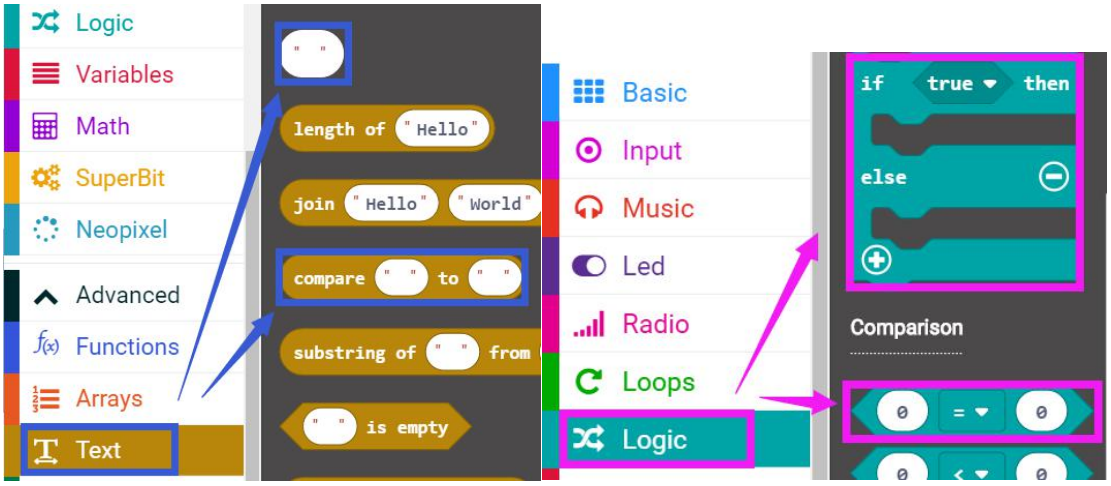


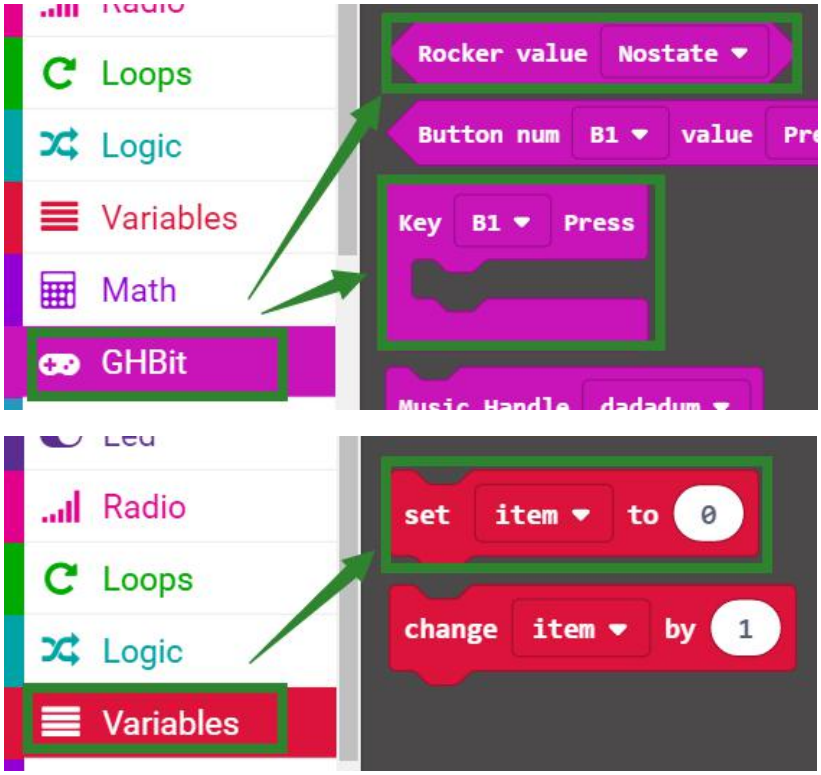



Input
more
Music
Led
Radio
on button A
on shake


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

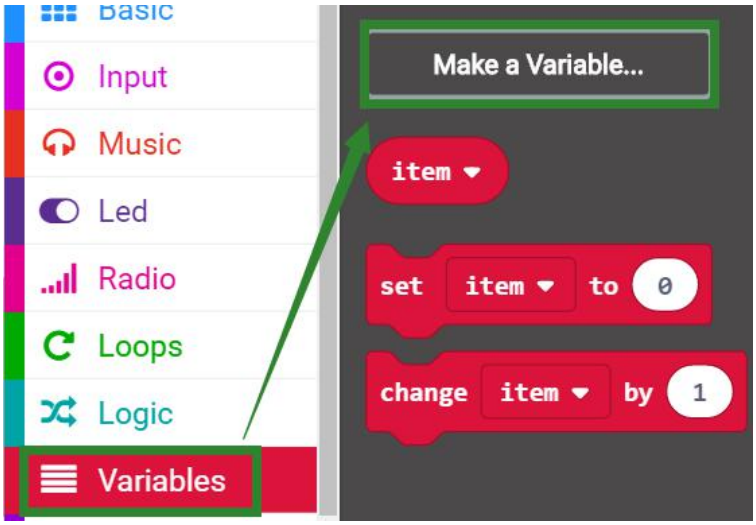

Basic
Input
Music
Led
Radio
more
Loops
Logic
Variables
Math
radio set group 1
radio send number 0
radio send value "name" = 0
radio send string ""
on radio received receivedNumber





How to create a new variable

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

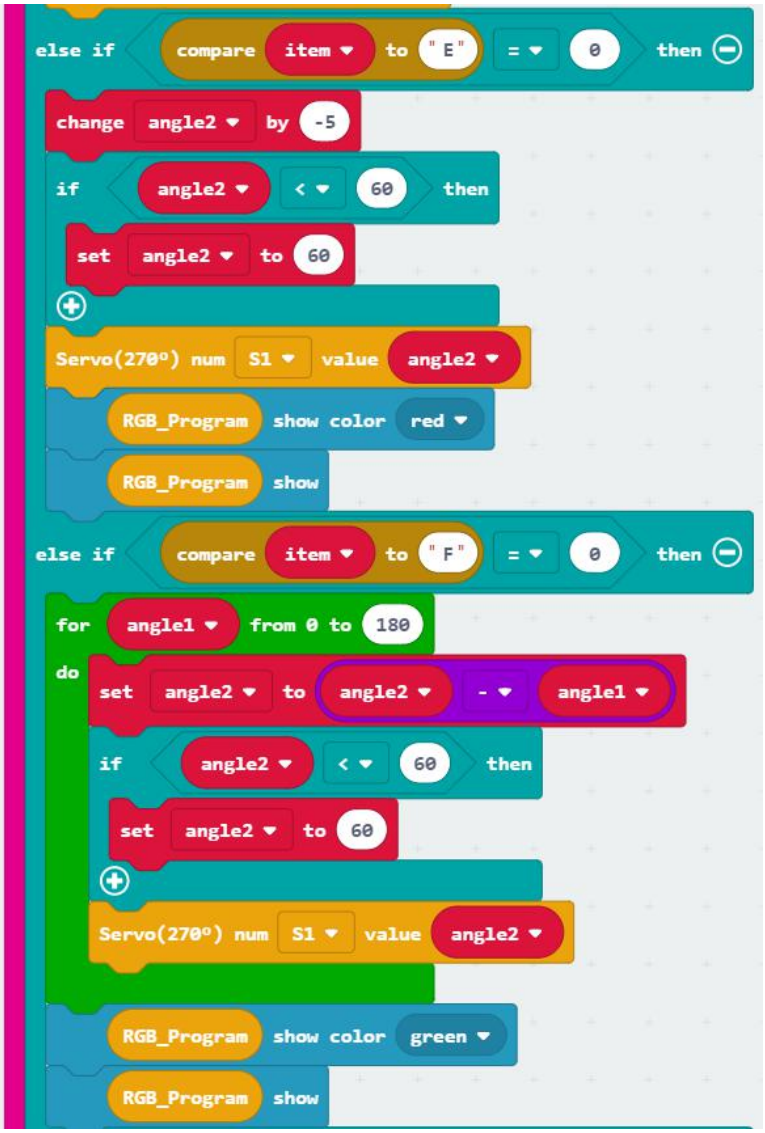


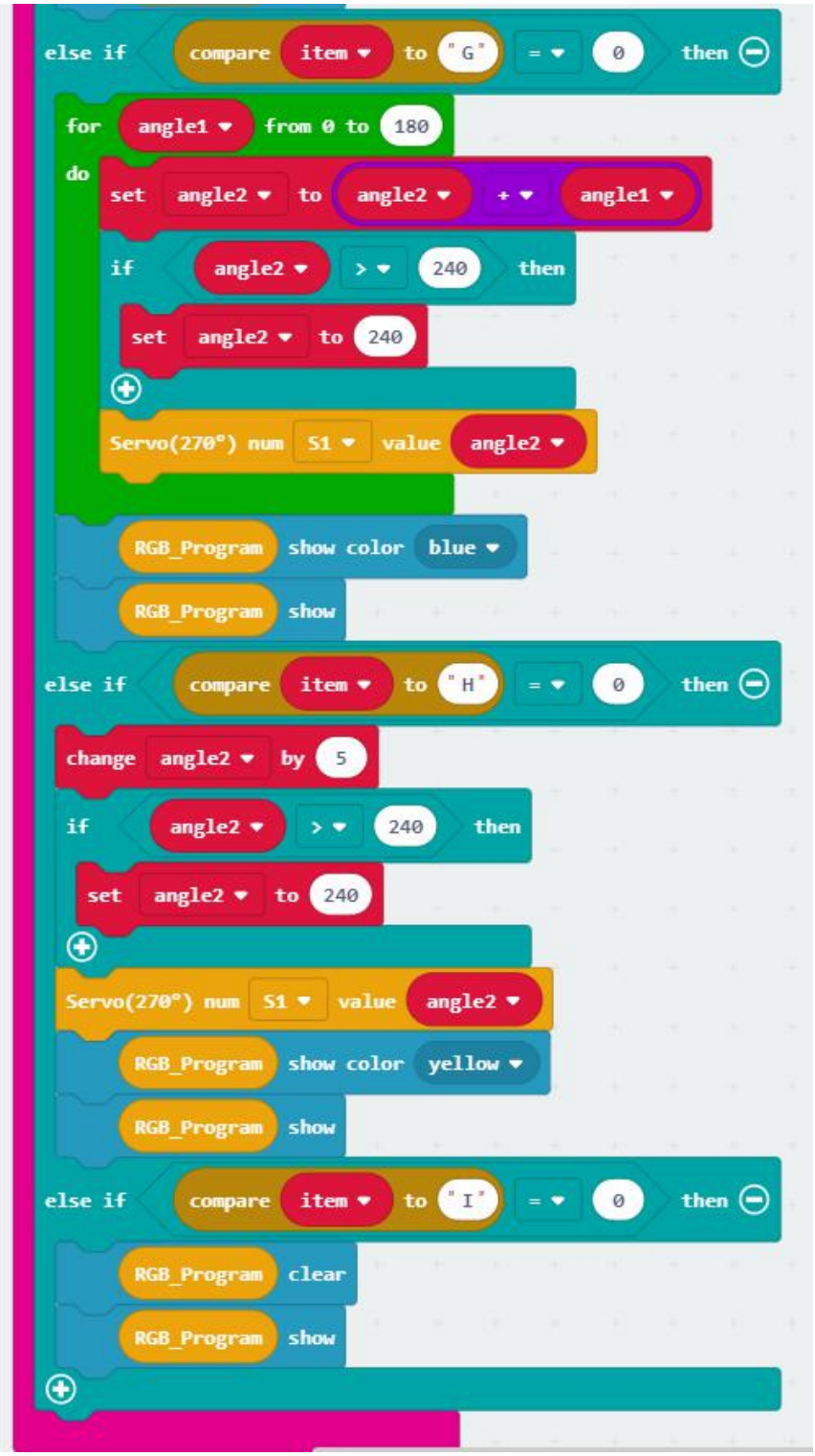
②Enter the name of variable to complete the new variable.

6.Combine block

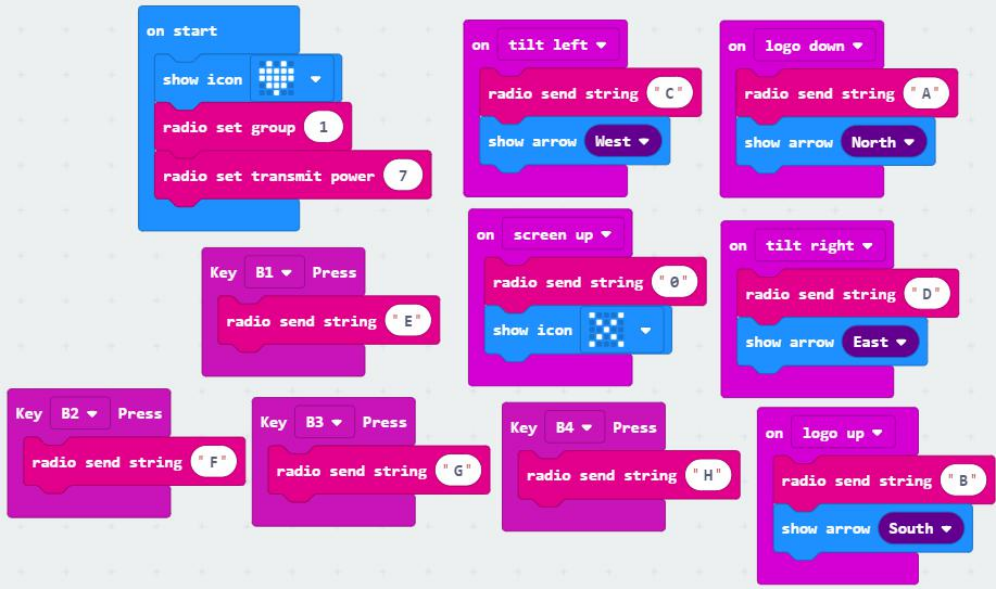
The Skip car program is shown below.


on radio received receivedString
set item to receivedString
if compare item to "A" = 0 then
Motor M1 speed(-255~255) 255
Motor M3 speed(-255~255) 255
else if compare item to "B" = 0 then
Motor M1 speed(-255~255) -255
Motor M3 speed(-255~255) -255
else if compare item to "C" = 0 then
Motor M1 speed(-255~255) -255
Motor M3 speed(-255~255) 255
else if compare item to "D" = 0 then
Motor M1 speed(-255~255) 255
Motor M3 speed(-255~255) -255
else if compare item to "0" = 0 then
Motor M1 speed(-255~255) 0
Motor M3 speed(-255~255) 0

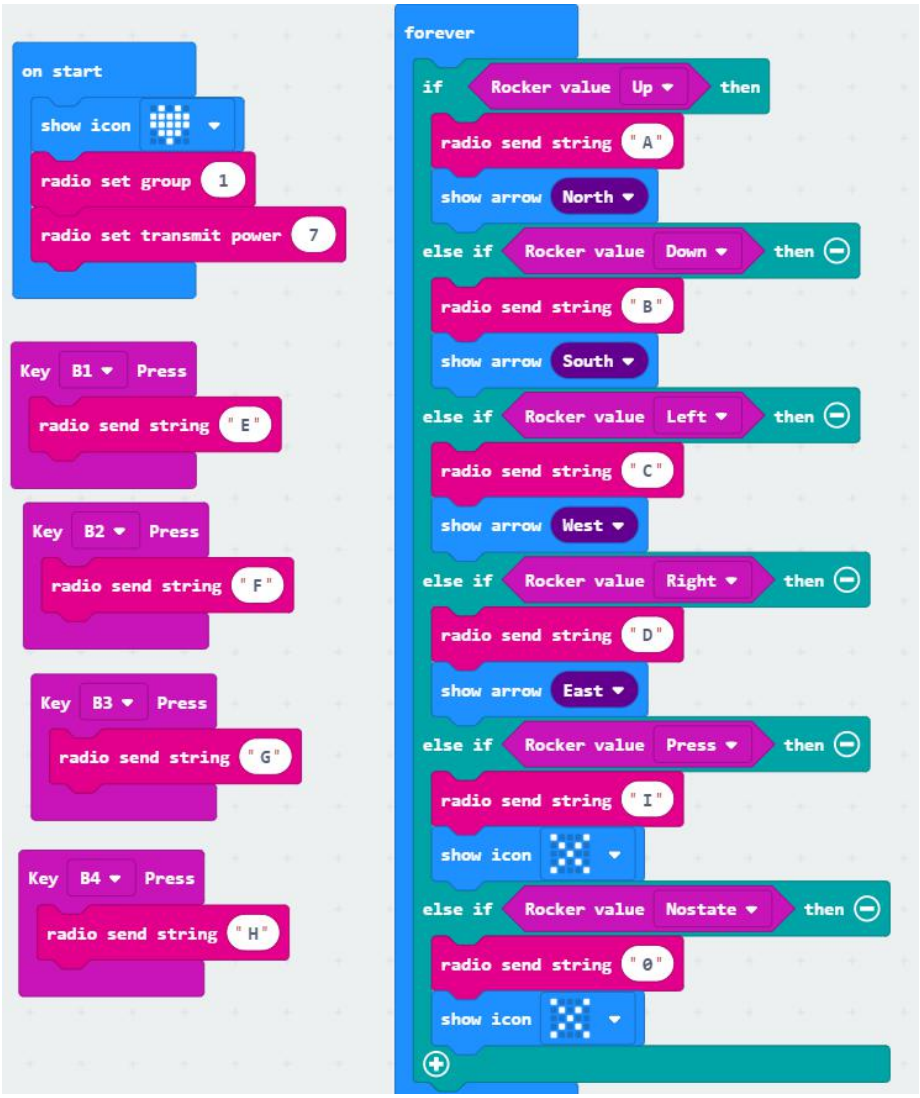

else if compare item to " E " = 0 then
change angle2 by -5
if angle2 < 60 then
set angle2 to 60
Servo(270°) num S1 value angle2
RGB_Program show color red
RGB_Program show
else if compare item to " F " = 0 then
for angle1 from 0 to 180
do
set angle2 to angle2 - angle1
if angle2 < 60 then
set angle2 to 60
Servo(270°) num S1 value angle2
RGB_Program show color green
RGB_Program show



Handle gravity control code, as shown below.



Handle rocker control code, as shown below.



7.Experimental phenomena

We need to download the Skip car code into the micro: bit board of the Skip car.

Open the power switch of the car, 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 Skip car by handle.

The handle functions are shown below.