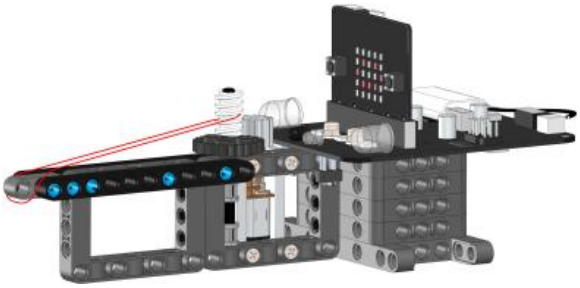
Lesson3 of Building:bit Sniper---“micro:bit handle remote control”



1.Experimental phenomena

After downloading the program, open the power switch of the Sniper and the power switch of the micro:bit handle, they will be automatically paired. When you press the micro:bit handle remote control button, the Sniper will have the corresponding action. The button on the right side of the remote control is used to control the color of the lights, and pressing the joystick down to turn off the light. Pushing the rocker forward,backward is to control the direction of the motor rotation to eject rubber band.

2.Preparation before class

We needs to be ready:
Building Block Sniper *1
micro:bit handle *1
USB data cable *1

2-1.Two programming methods:

Online programming:

First,we need to connect the micro:bit to the computer by USB data cable, the computer will pop up a USB flash drive.Then, click on the URL in the USB flash drive: http://microbit.org/ to enter the edit process interface, click to 【Extensions】, and copy the package URL: https://github.com/lzty634158/yahboom_mbit_en to the input field, and you can use the building blocks of the Yahboom software package.

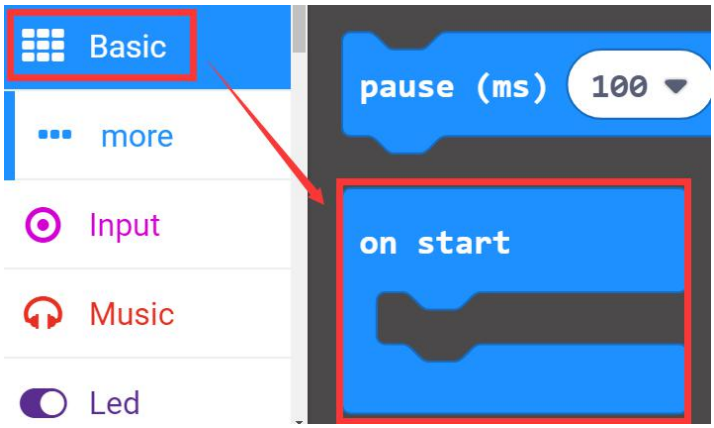
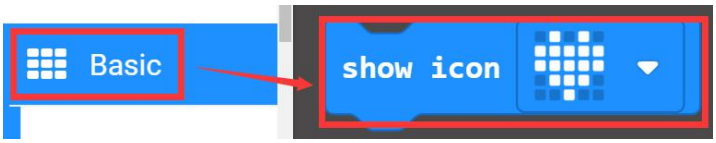
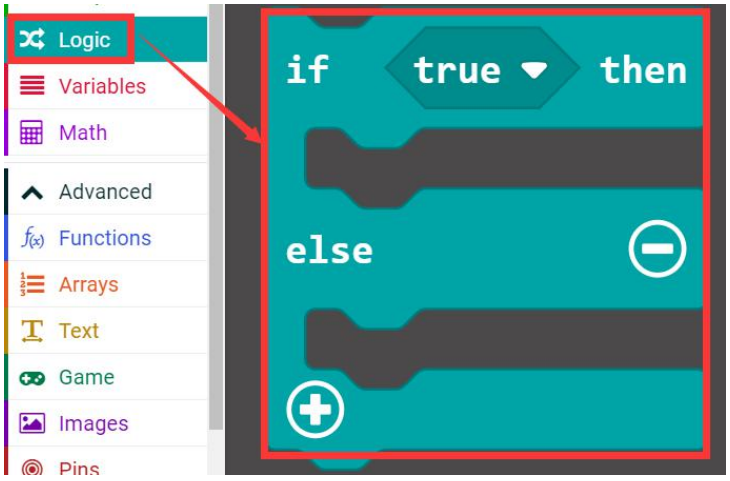
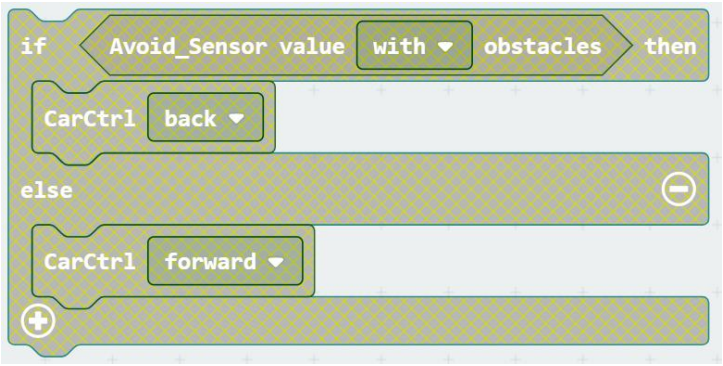
Offilne programming:

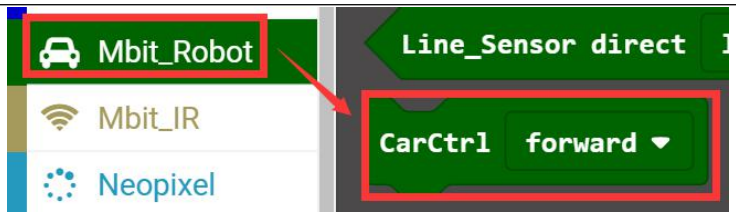
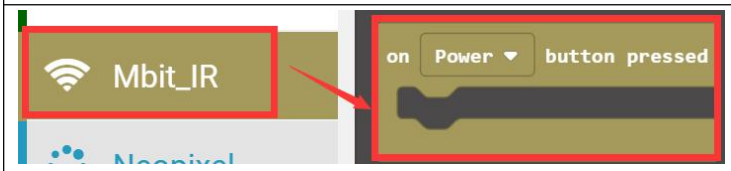
Open the offline programming software 

, click to 【Extension】 and copy the package URL: https://github.com/lzty634158/yahboom_mbit_en to the input field, and you can use the building blocks of the Yahboom software package.

For detailed programming, please read the documentation before class 【1. Preparation before class】----【Introduction of programming method】. We use micro:bit official website for online programming in here.

3.Studying block

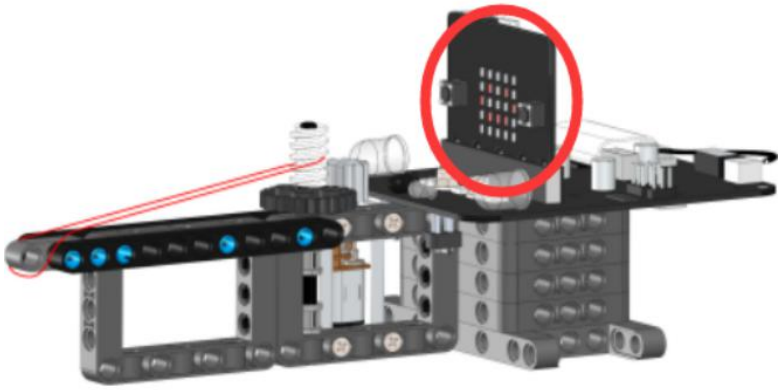
Blocks	Instruction
	Executed at boot time, the code is only executed once.
	Display image on the lattice of micro:bit.
	If it is true then execute. If it is false, it will not be executed.
	If there is an obstacle in front, then the car will back, otherwise the car will forward.
	The program pauses for 100 milliseconds and the time can be modified by yourself.
	The car control forward represents the

	motor rotates in the positive direction and the car control back represents and the motor rotates in the opposite direction.
	When the power button on the remote controller is pressed, the code inside will be executed, and the button can be customized.
	Set the infrared remote control receiving pin. In this experiment, the receiving pin is P8, so you must select P8, otherwise you will not receive the signal.
	Select the color of the lights.
	Can play different tones.

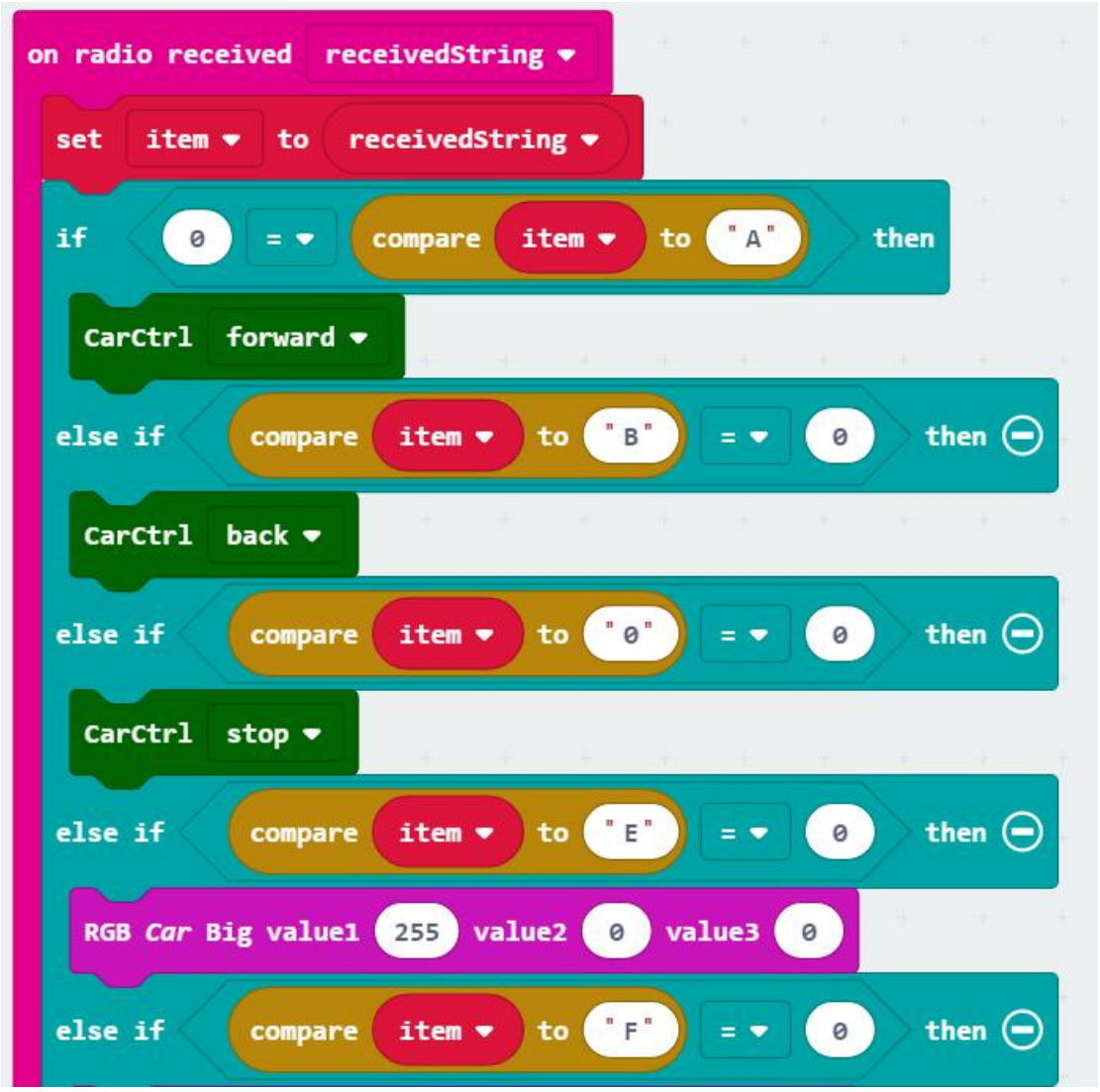
4. Programming

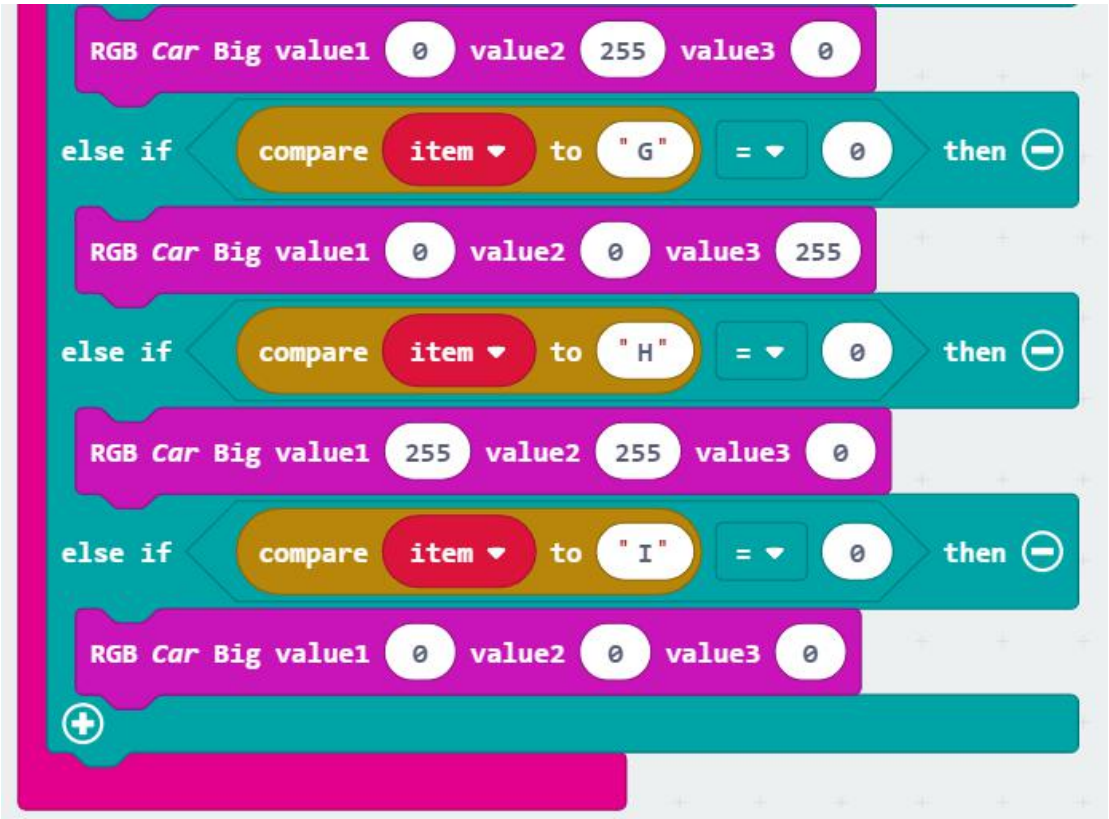
Sniper programming:

Next, we started to write the program for the building block Sniper. After the writing, we need to download the program to the micro:bit board of the building block Sniper.



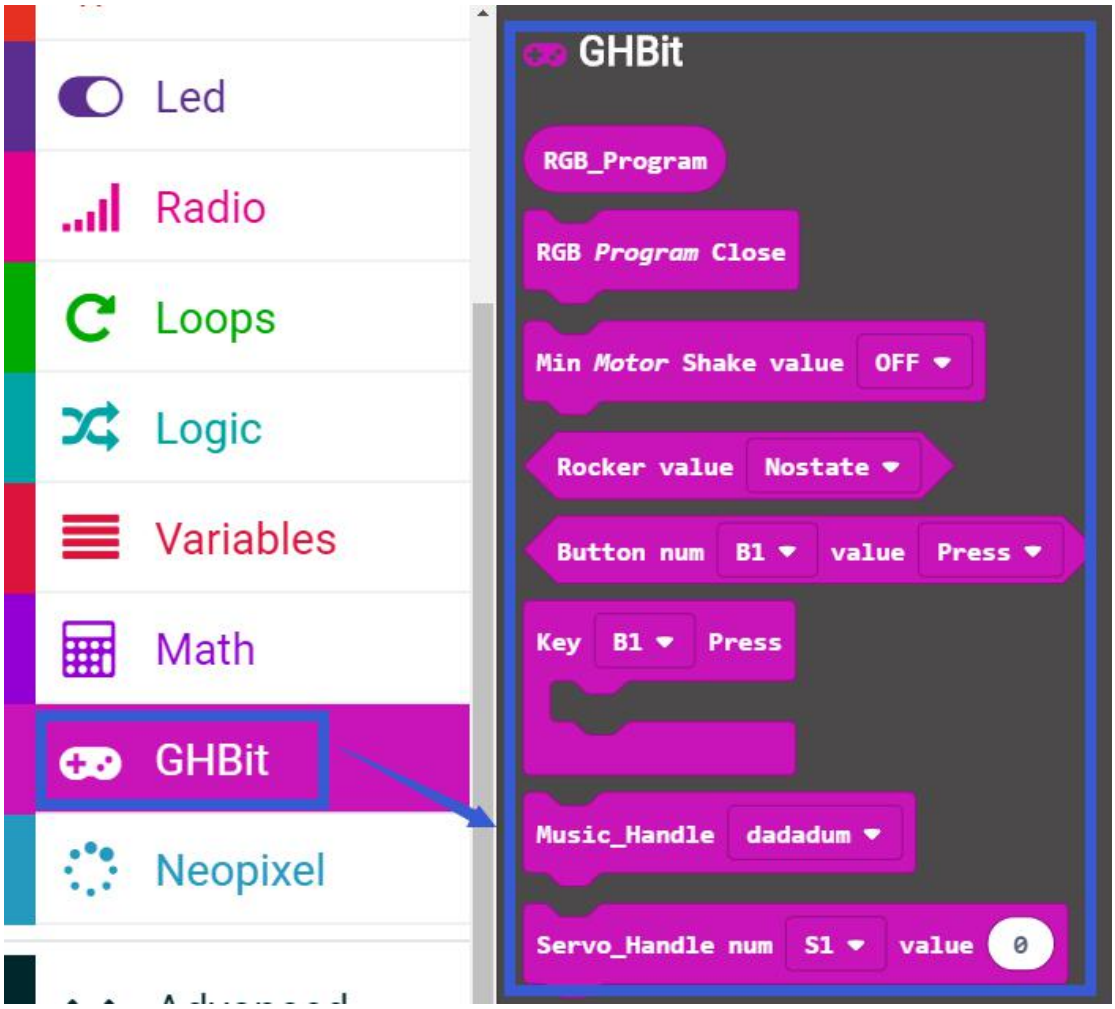
The program is shown below:




RGB Car Big value1 0 value2 255 value3 0
else if compare item to "G" = 0 then
RGB Car Big value1 0 value2 0 value3 255
else if compare item to "H" = 0 then
RGB Car Big value1 255 value2 255 value3 0
else if compare item to "I" = 0 then
RGB Car Big value1 0 value2 0 value3 0

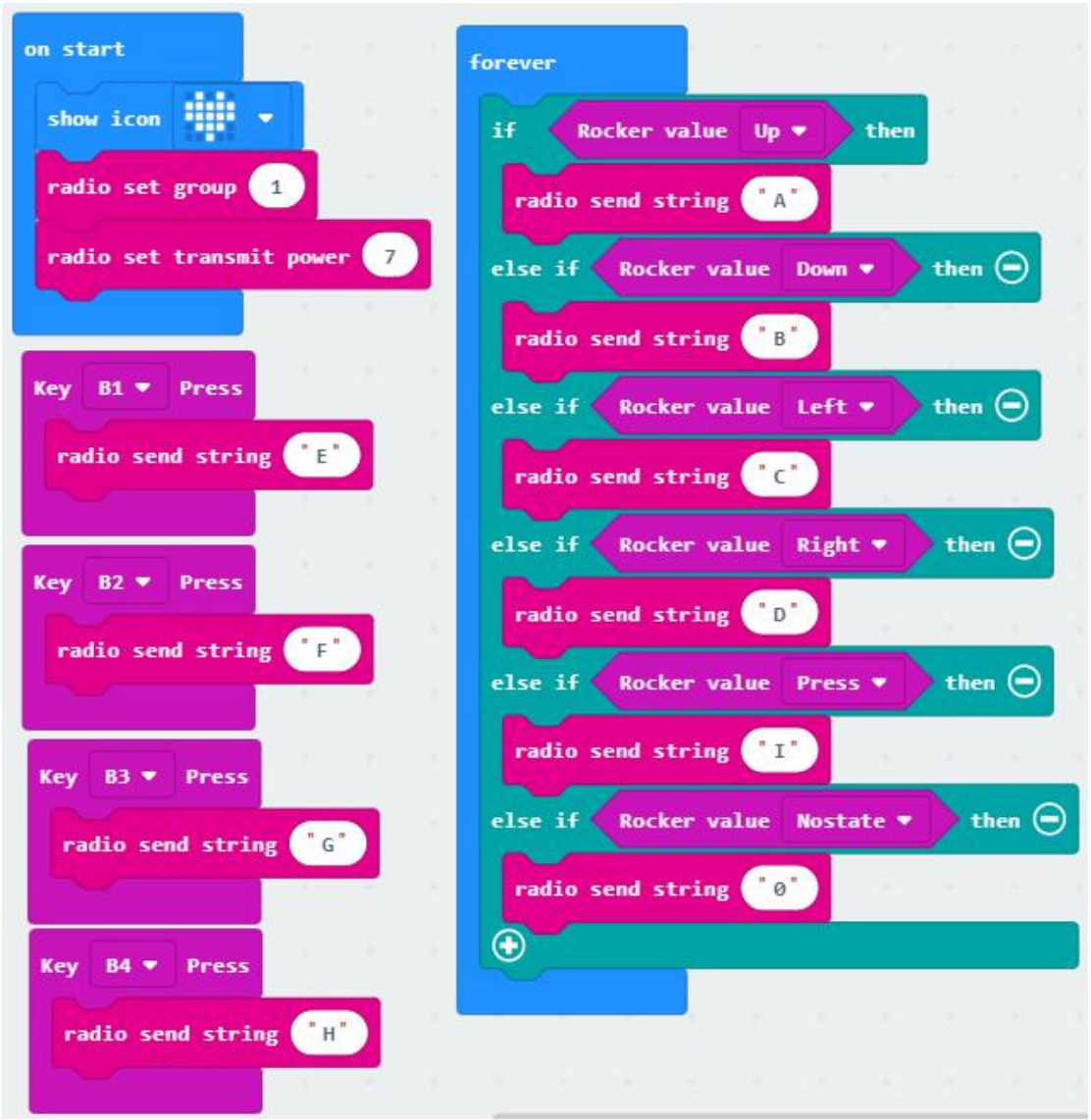
Handle joystick control program:

After adding the https://github.com/lzty634158/GHBit package, we can see the Yahboom handle blocks in the left side of the building block, as shown below:



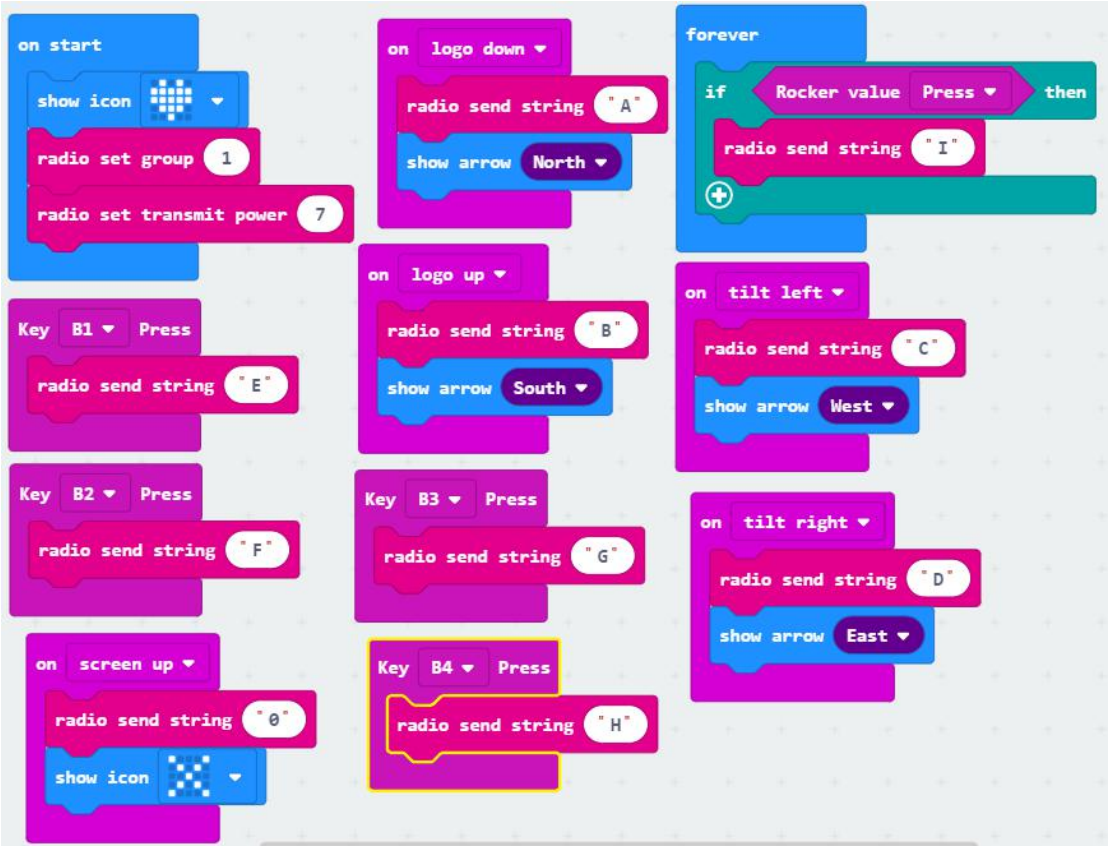
Next, we started to write the joystick control program. After writing, we need to download the program to the micro:bit board of the handle.

The program is shown below:



We also offer another way to control the Sniper, that is Handle gravity sensing control.

Handle gravity sensing control program is shown below:



The above three programs, which we have provided. They are in the course directory.
If you want to use the program we provide directly, Please read the following carefully:

1. You should download the Sniper-program.hex in the Sniper code folder to the micro:bit board of the Sniper.

2. You should download the Handle-rocker-program.hex in the bit handle code folder to the micro:bit board of the handle.

3. If you want to use the handle gravity sensing to control the Sniper, you should download the Handle-gravity-sensing-program.hex in the bit handle code folder to the micro:bit board of the handle.

After the program is downloaded, the handle and the car are powered up normally, they will be automatically paired, the two micro:bit board LED dots will show a heart on it, you can start to control.