6.Double watch interaction

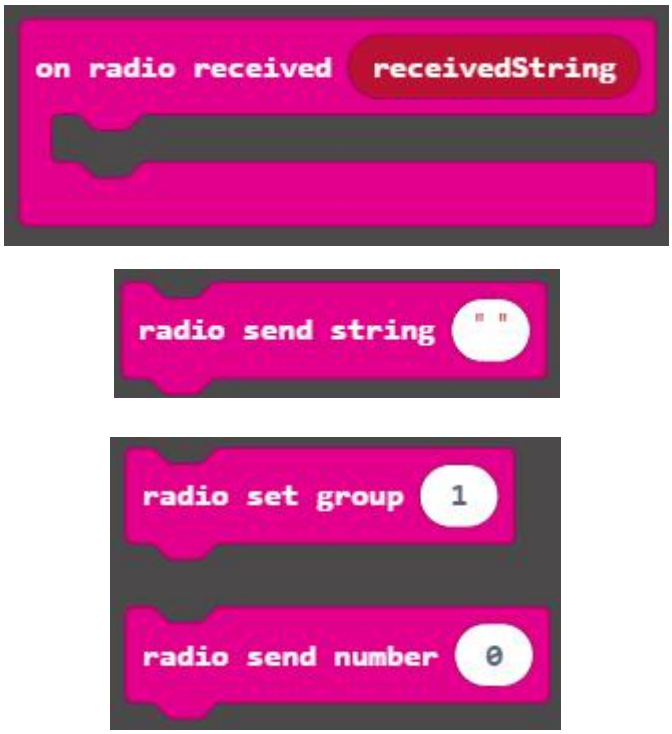
1. Learning goals

In this lesson, we will learn to use micro:bit and Wrist:bit make Double watch interaction.

2. Working principle

This course mainly uses the networking function of micro:bit to realize communication between two micro:bit motherboards. The two microbits need to be set in the same group, and the receivedStrings of the two receive the characters from the other to communicate.

In this course, we mainly use the building blocks shown in the figure below.



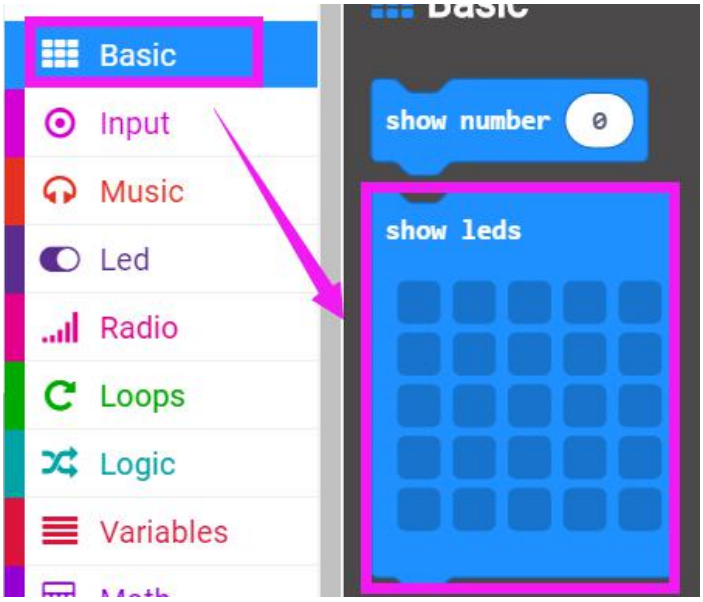
3. Programming method

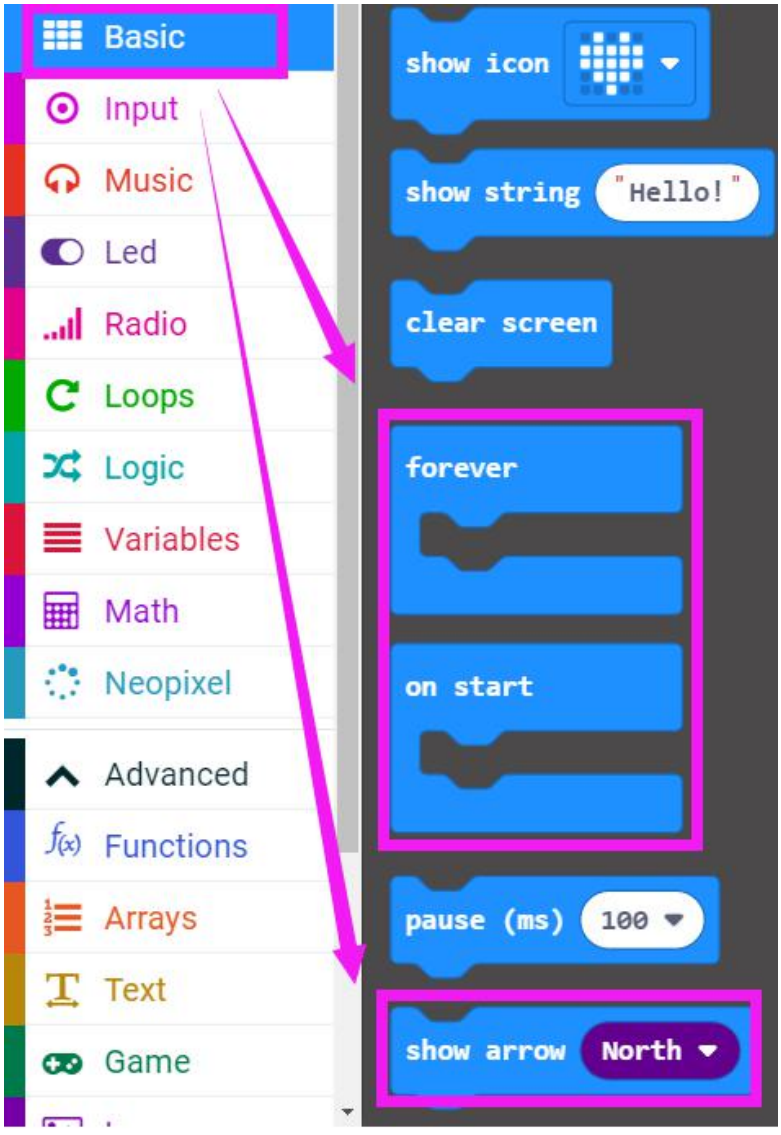
Mode 1 online programming: First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive: http://microbit.org/ to enter the programming interface to program.

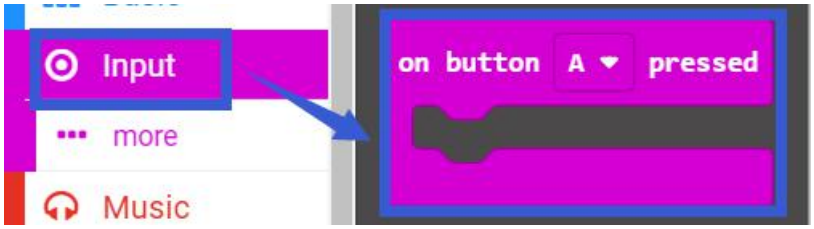
Mode 2 offline programming: We need to open the offline programming software. After the installation is complete, enter the programming interface, click【New Project】, you can program.

4. Looking for blocks

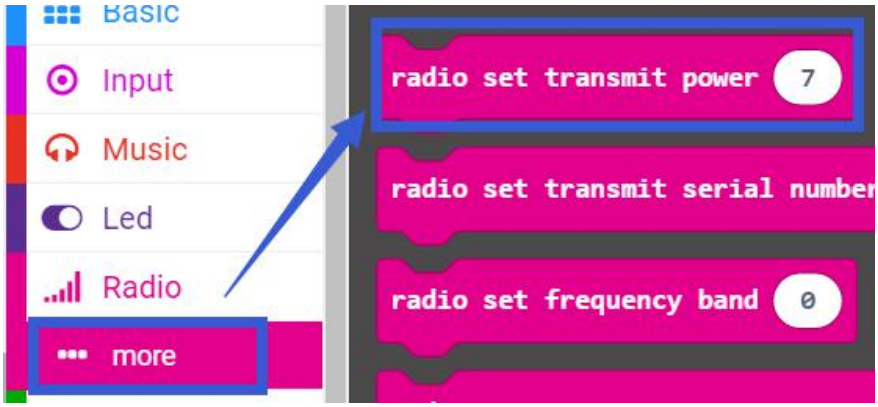
The following is the location of the building blocks required for this programming.

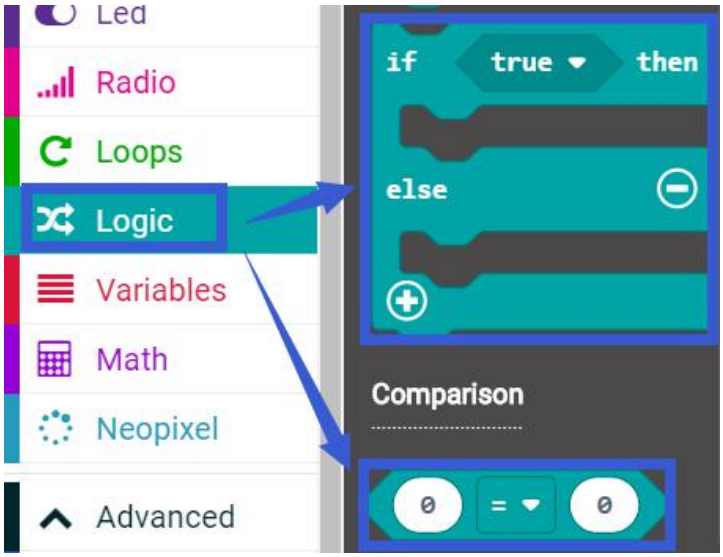

Basic
Input
Music
Led
Radio
Loops
Logic
Variables
show number 0
show leds

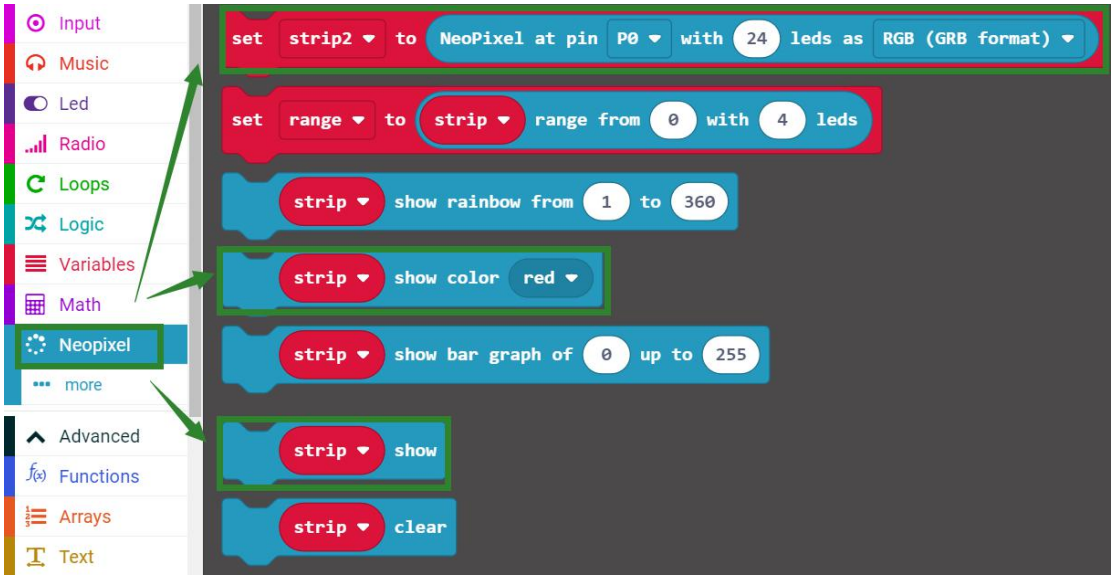

Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
Neopixel
Advanced
Functions
Arrays
Text
Game
show icon
show string "Hello!"
clear screen
forever
on start
pause (ms) 100
show arrow North

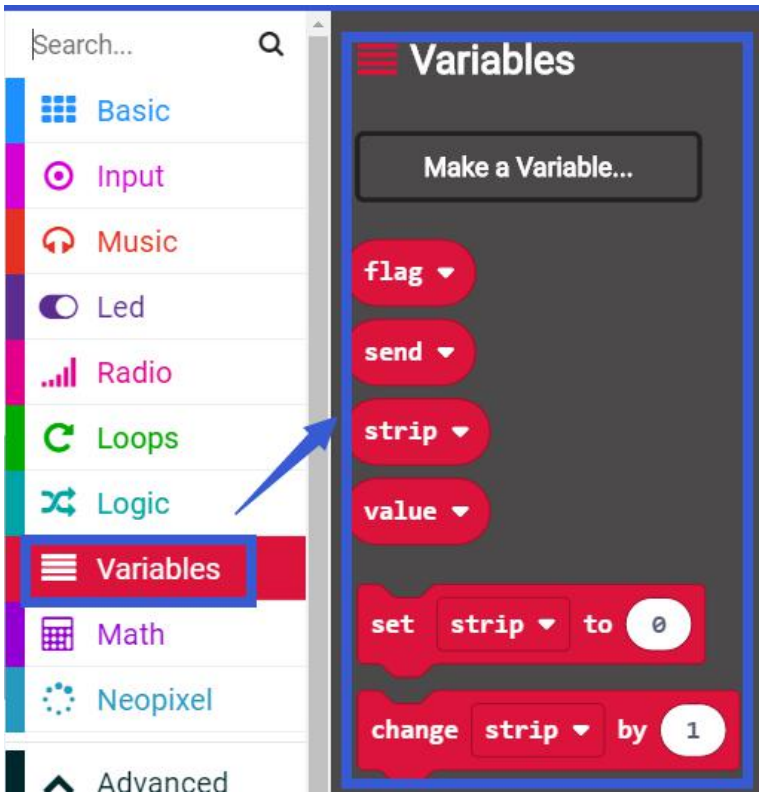

Input
more
Music
on button A pressed

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


Basic
Input
Music
Led
Radio
more
radio set transmit power 7
radio set transmit serial number
radio set frequency band 0

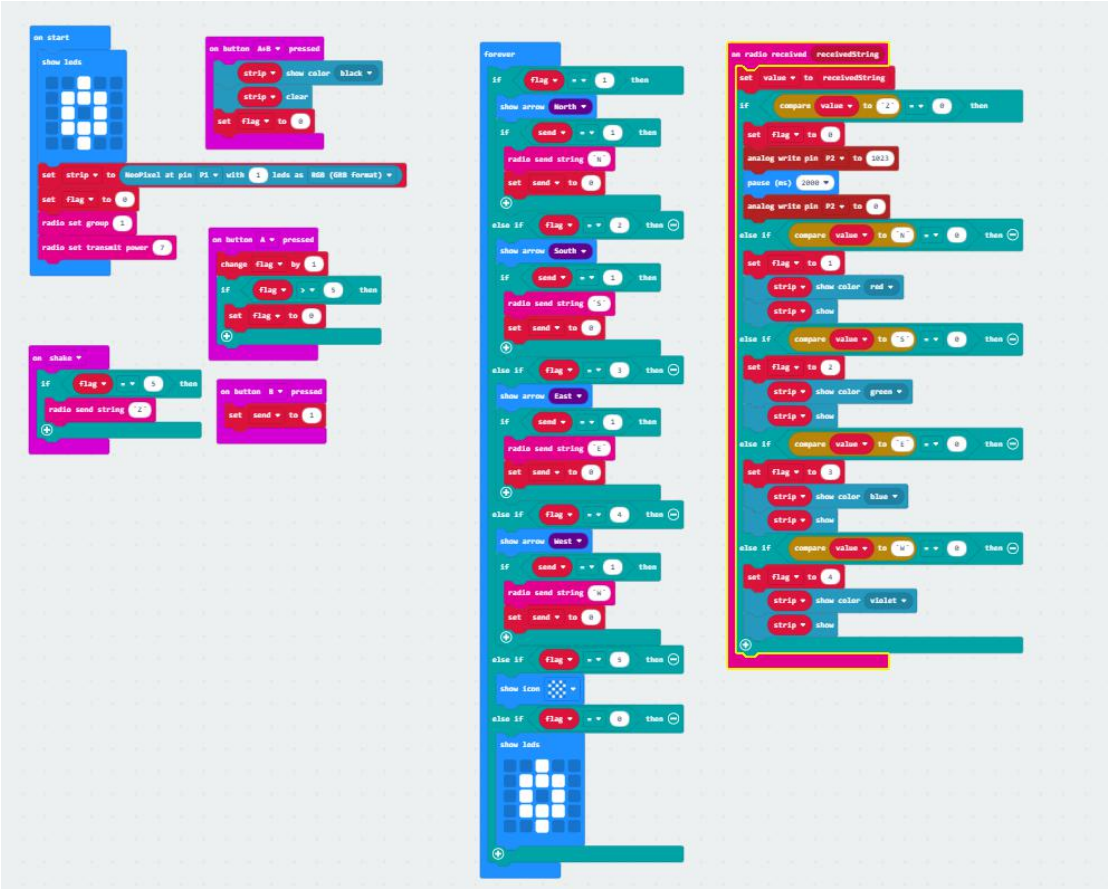

Led
Radio
Loops
Logic
Variables
Math
Neopixel
Advanced
if
true
then
else
Comparison
0
=
0


Input
Music
Led
Radio
Loops
Logic
Variables
Math
Neopixel
more
Advanced
Functions
Arrays
Text
set strip2 to NeoPixel at pin P0 with 24 leds as RGB (GRB format)
set range to strip range from 0 with 4 leds
strip show rainbow from 1 to 360
strip show color red
strip show bar graph of 0 up to 255
strip show
strip clear



4. Combine block

The summary program is shown below.



Due to RGB is connected to the P1 pin of the micro:bit on the hardware circuit, and there is one RGB light on the bitmotion:kit expansion board, the RGB light pin needs to be set to P1, and the number of LEDs is also set to 1.

Due to motor is connected to the P2 pin of the micro:bit on the hardware circuit.
If you need to control the vibration motor, you only need to write the P2 pin digitally to 1 or use P2 to write the analog quantity.
In this course, we use the analog quantity control the speed of the motor.

5. Experimental phenomena

After downloading the program, the micro:bit dot matrix displays the watch pattern.
Press the A key to switch different direction and chess board pattern.
When we press B key, the direction pattern can be sent to the another wrist:bit and be display on dot matrix. And RGB light of another watch will be light up.
When your wrist:bit display chess board pattern, if you shaking wrist:bit, another wrist:bit will shock.