Arm_dance

1. Learning goal

On this course, we mainly learn to combine LED:bit programming blocks, micro:bit building blocks for playing tones, and building blocks for controlling the servo.

Play music by the buzzer on the Basic:bit, while the LED:bit shows the dynamic expression with a open_mouth, at the same time, two servos will rotate different degree.

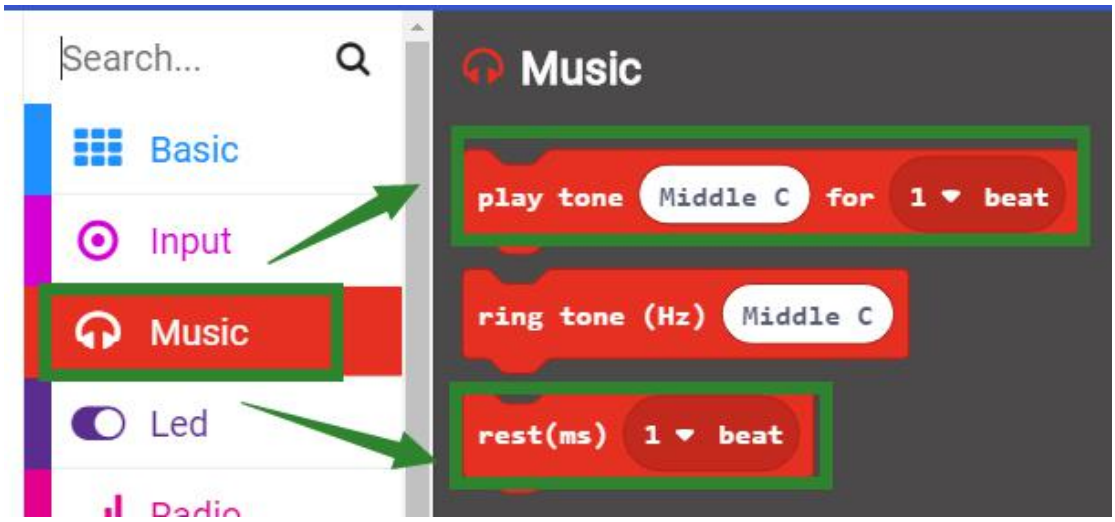
2.Programming method

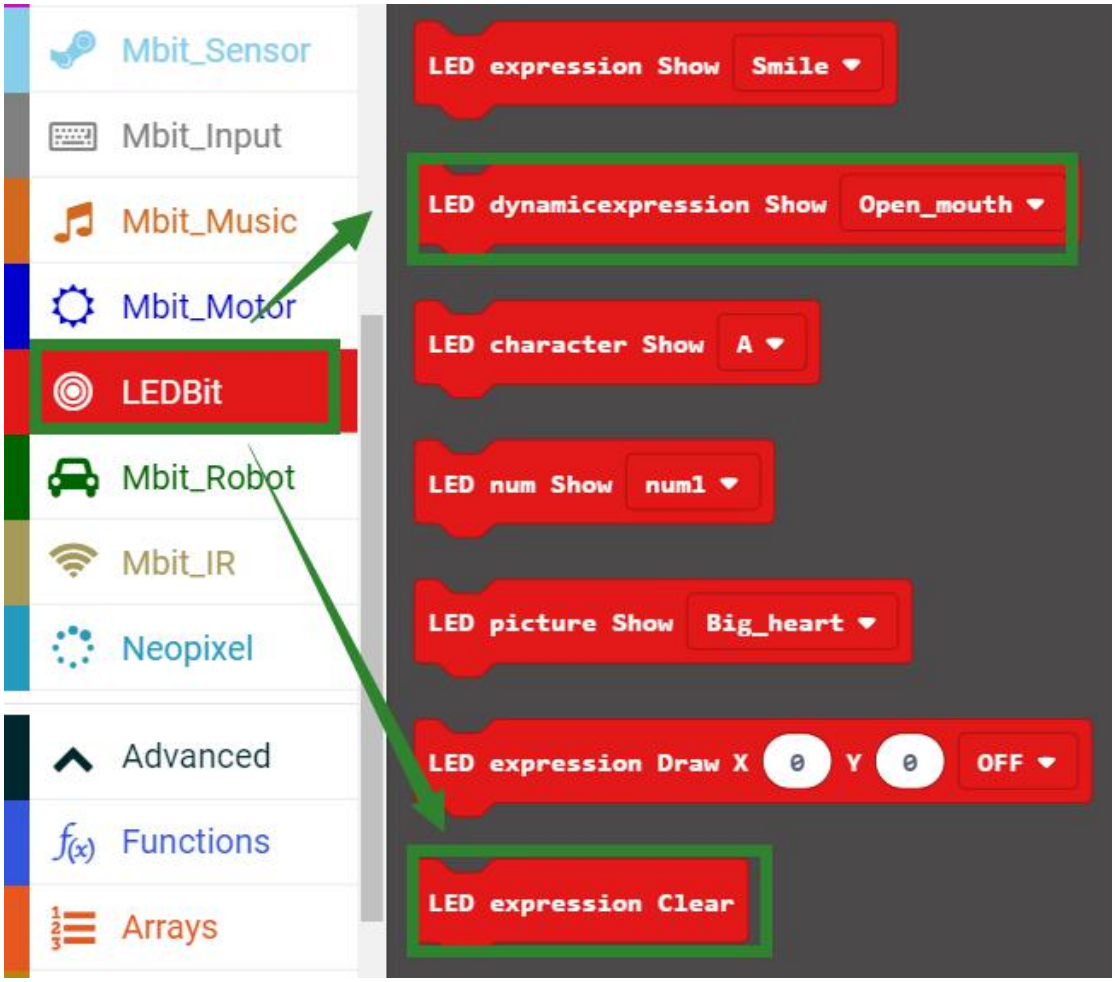
Mode 1 online programming: First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive: **http://microbit.org/** to enter the programming interface. Add the Yahboom package **https://github.com/lzty634158/LED-Bit** to program.

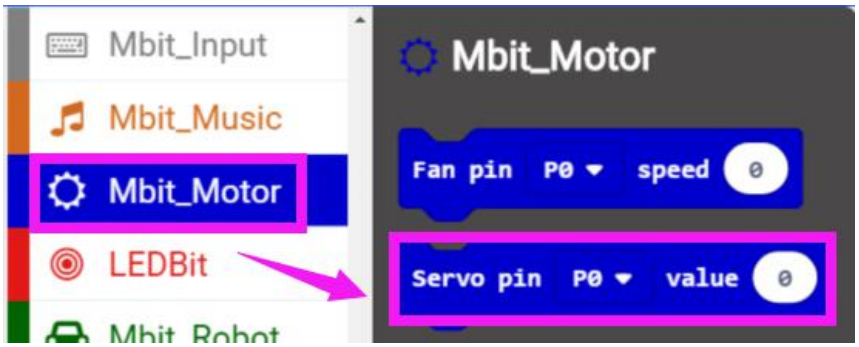
Mode 2 offline programming: We need to open the offline programming software. After the installation is complete, enter the programming interface, click【New Project】, add Yahboom package: **https://github.com/lzty634158/LED-Bit**, you can program.

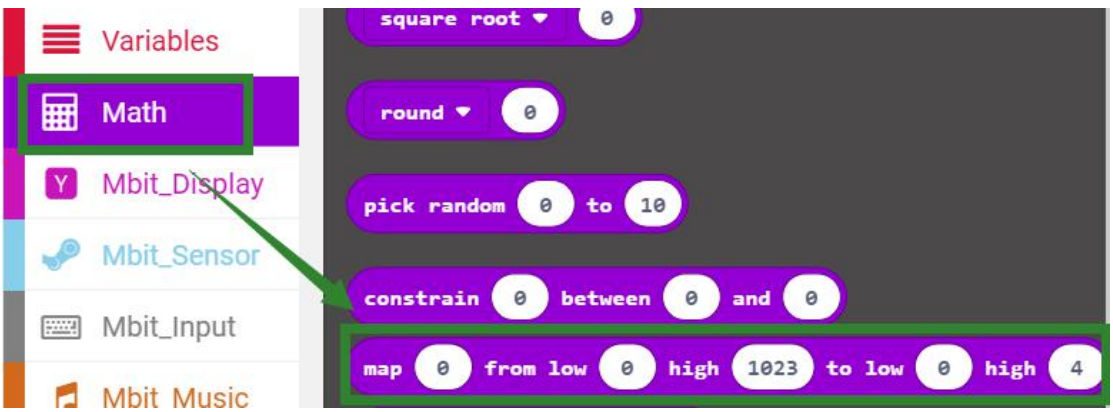
3.Looking for blocks

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




Mbit_Sensor
Mbit_Input
Mbit_Music
Mbit_Motor
LEDBit
Mbit_Robot
Mbit_IR
Neopixel
Advanced
Functions
Arrays
LED expression Show Smile
LED dynamicexpression Show Open_mouth
LED character Show A
LED num Show num1
LED picture Show Big_heart
LED expression Draw X 0 Y 0 OFF
LED expression Clear

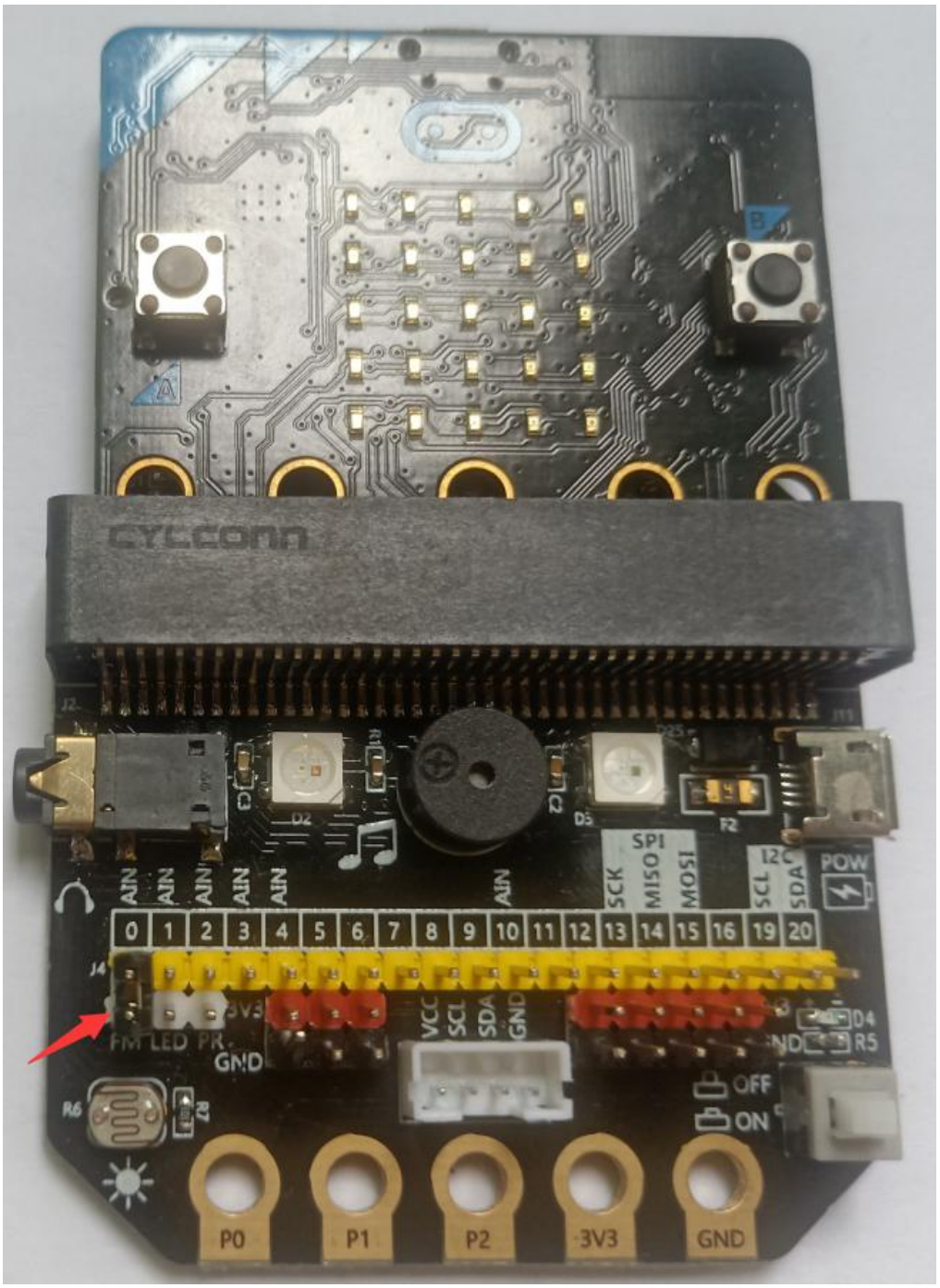

Mbit_Input
Mbit_Music
Mbit_Motor
LEDBit
Mbit_Motor
Fan pin P0 speed 0
Servo pin P0 value 0


Variables
Math
Mbit_Display
Mbit_Sensor
Mbit_Input
Mbit_Music
square root 0
round 0
pick random 0 to 10
constrain 0 between 0 and 0
map 0 from low 0 high 1023 to low 0 high 4

4.Combine building block

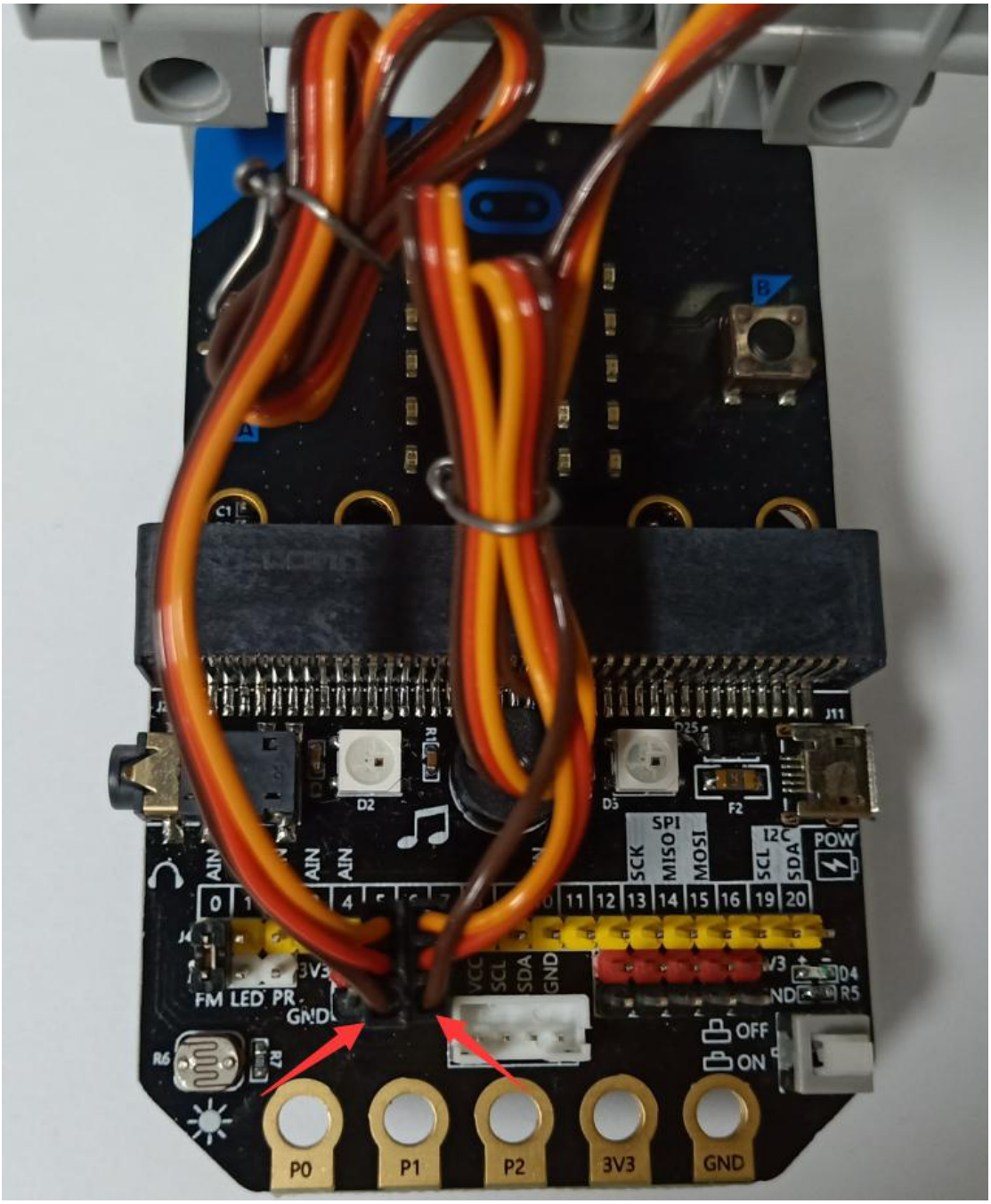
The summary program is shown below:

Note: The jumper cap needs to be removed to the P0 and FM pins. As shown below.



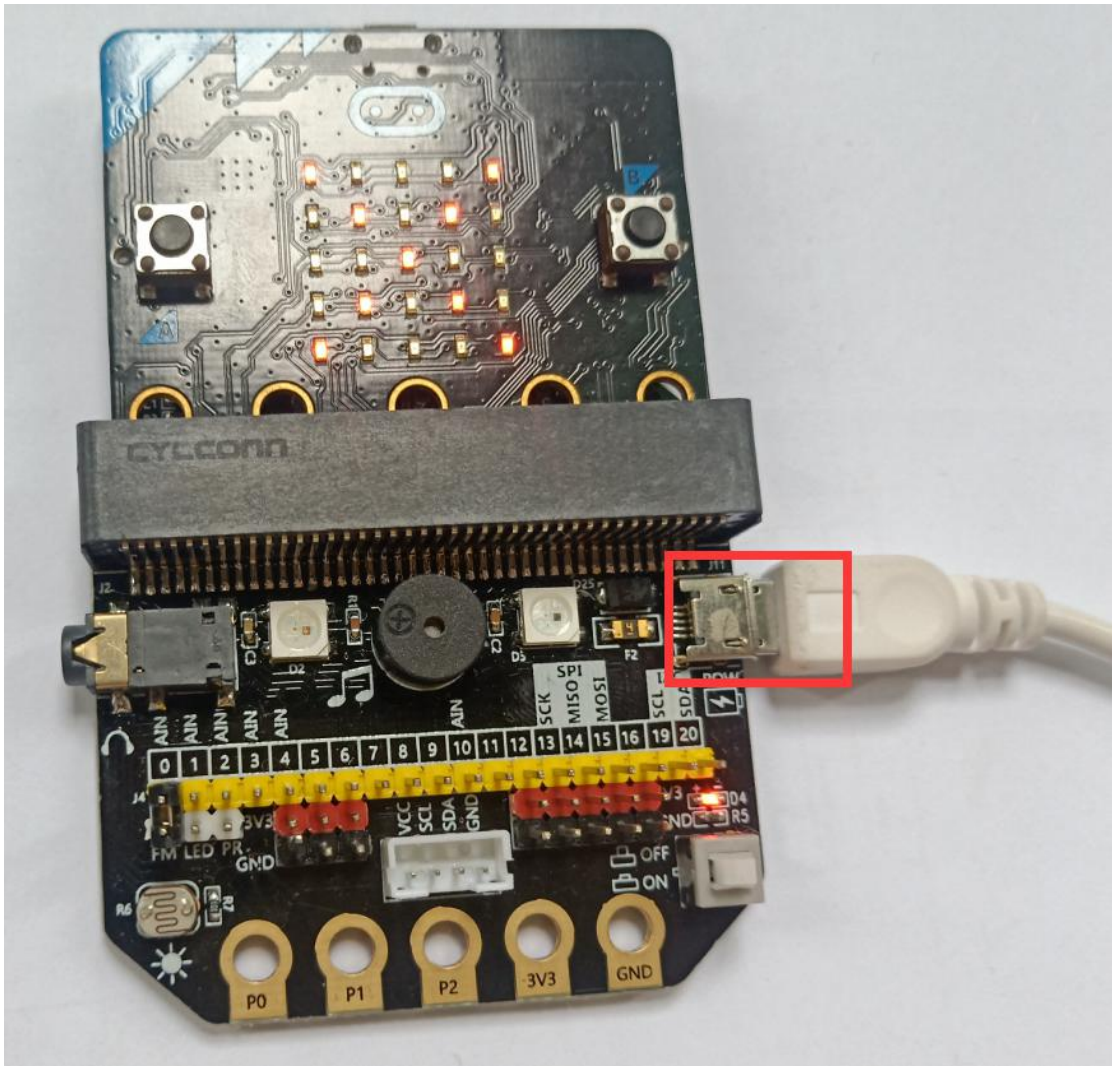
Tow servos are connected to the P5,P6 pin of the Basic:bit.

! ! ! Note: The wiring of the servo, the orange wire is connected to the yellow pin header, the red wire is connected to the red pin header, and the brown wire is connected to the black pin header.



5. Experimental phenomena

! ! ! Note: This experiment requires USB data cable for power supply. You need to insert the data cable into the LED:bit matrix expansion board, as shown in the figure below.



After the program is successfully downloaded, the micro:bit dot matrix displays a music pattern, then the buzzer on the Basic:bit expansion board starts to play the music, and the two servos will rotate to different degree, and we can see dynamic expression with a Open_mouth on the LED:bit.