

## Control\_180°\_servo

### 1.Learning goals

In this lesson, we mainly learn how to control 180° servo by micro:bit and Super:bit expansion board.

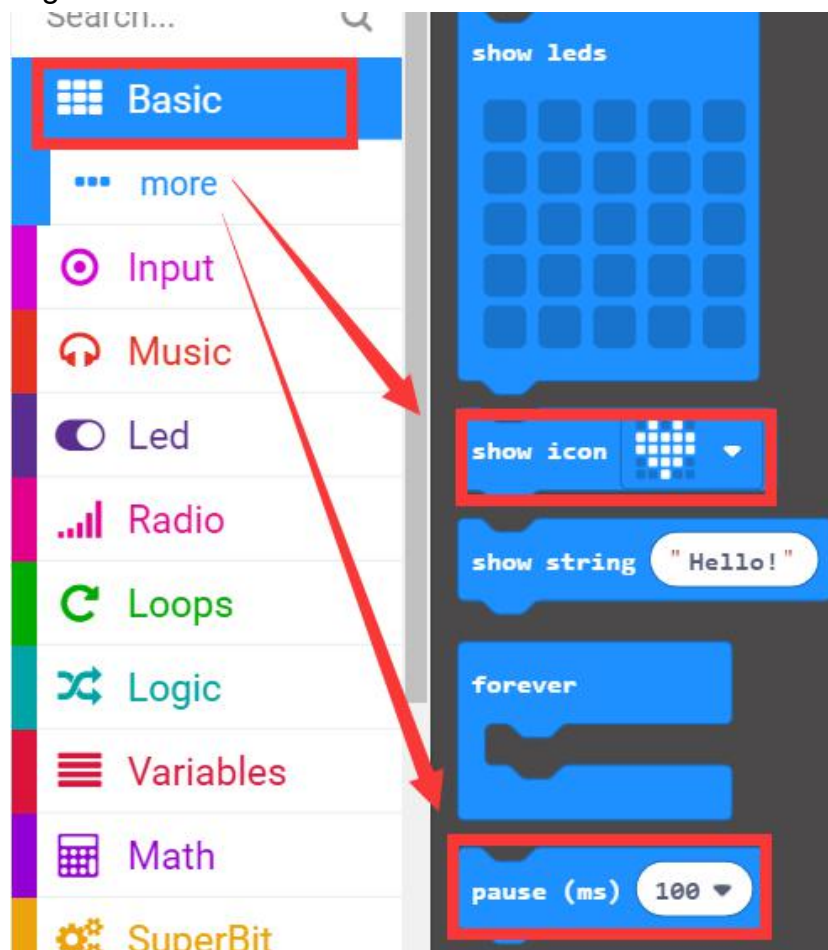
### 2.Programming method

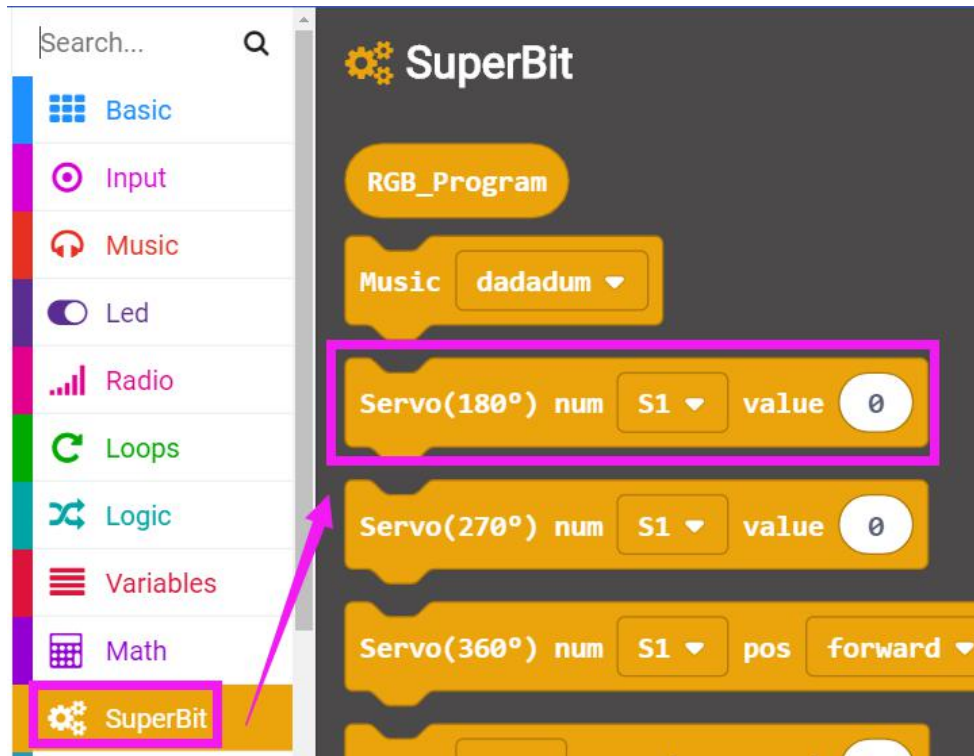
**Mode 1 online programming:** First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive: <http://microbit.org/> to enter the programming interface. Add the Yahboom package <https://github.com/lzty634158/SuperBit>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

### 3.Looking for blocks

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

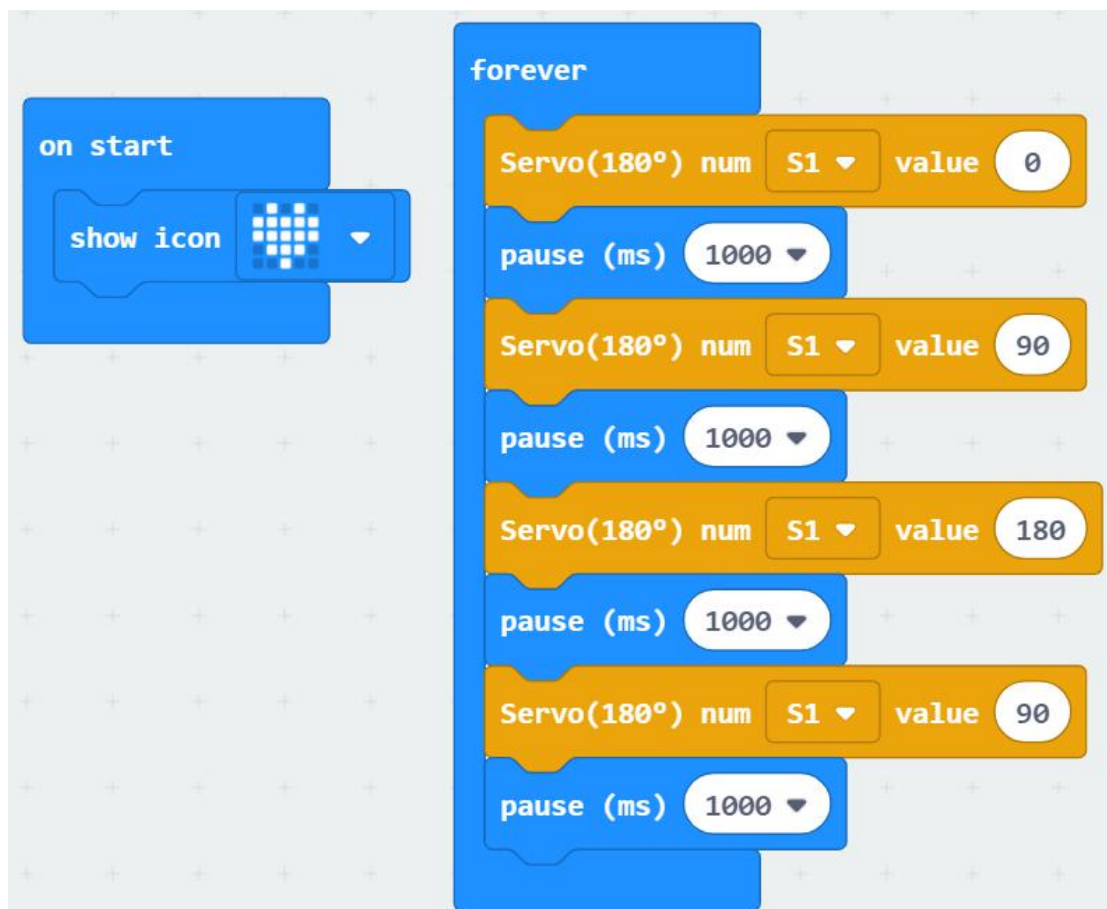




#### 4. Combine building block

The summary program is shown below:

#### Control one 180° servo



### Control four 180° servos

The image shows a Scratch script designed to control four 180-degree servos. The script is organized into two main sections: an 'on start' block and a 'forever' loop.

**on start**

- show icon (with a grid icon)

**forever**

- Servo(180°) num S1 value 0
- Servo(180°) num S2 value 0
- Servo(180°) num S3 value 0
- Servo(180°) num S4 value 0
- pause (ms) 1000
- Servo(180°) num S1 value 90
- Servo(180°) num S2 value 90
- Servo(180°) num S3 value 90
- Servo(180°) num S4 value 90



The image shows a Scratch script for controlling four servo motors. The script is organized into three distinct sections, each starting with a 1000 ms pause block. The first section sets all four servos (S1, S2, S3, S4) to 180 degrees. The second section sets all four servos to 90 degrees. The third section is partially visible, starting with another 1000 ms pause block.

```
pause (ms) 1000
Servo(180°) num S1 value 180
Servo(180°) num S2 value 180
Servo(180°) num S3 value 180
Servo(180°) num S4 value 180
pause (ms) 1000
Servo(180°) num S1 value 90
Servo(180°) num S2 value 90
Servo(180°) num S3 value 90
Servo(180°) num S4 value 90
pause (ms) 1000
```

## Hardware connection

### Control one 180°servo

Connect the 180°servo to the S1 interface of the Super:bit expansion board. The orange wire of the 180°block servo is connected to the yellow pin of S1, the red wire of the 180°block servo is connected to the red pin of S1, and the brown wire of the 180°block servo is connected to the black pin of S1.

### Control four 180° servo

Connect the 180° block servo to the S1 interface of the Super:bit expansion board. The orange wire of the 180° block servo is connected to the yellow pin of S1-S4, the red wire of the 180° block servo is connected to the red pin of S1-S4, and the brown wire of the 180° block servo is connected to the black pin of S1-S4.

## 5. Experimental phenomena

After the program is successfully downloaded, the micro:bit dot matrix will display the heart pattern and control the 180° servo rotation.

The servo will return to 0° at the beginning,

Then the rotation angle: 0°->90°->180°->90°->0°, the time interval is 1 second.

If you need to start over, press the reset button on the back of the micro:bit board.