

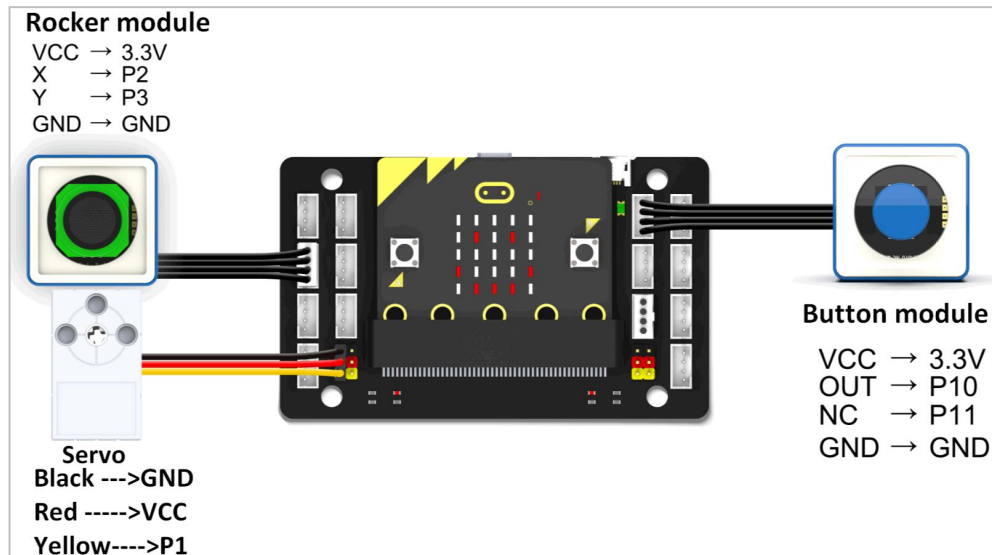
Smart wiper

1. Learning target

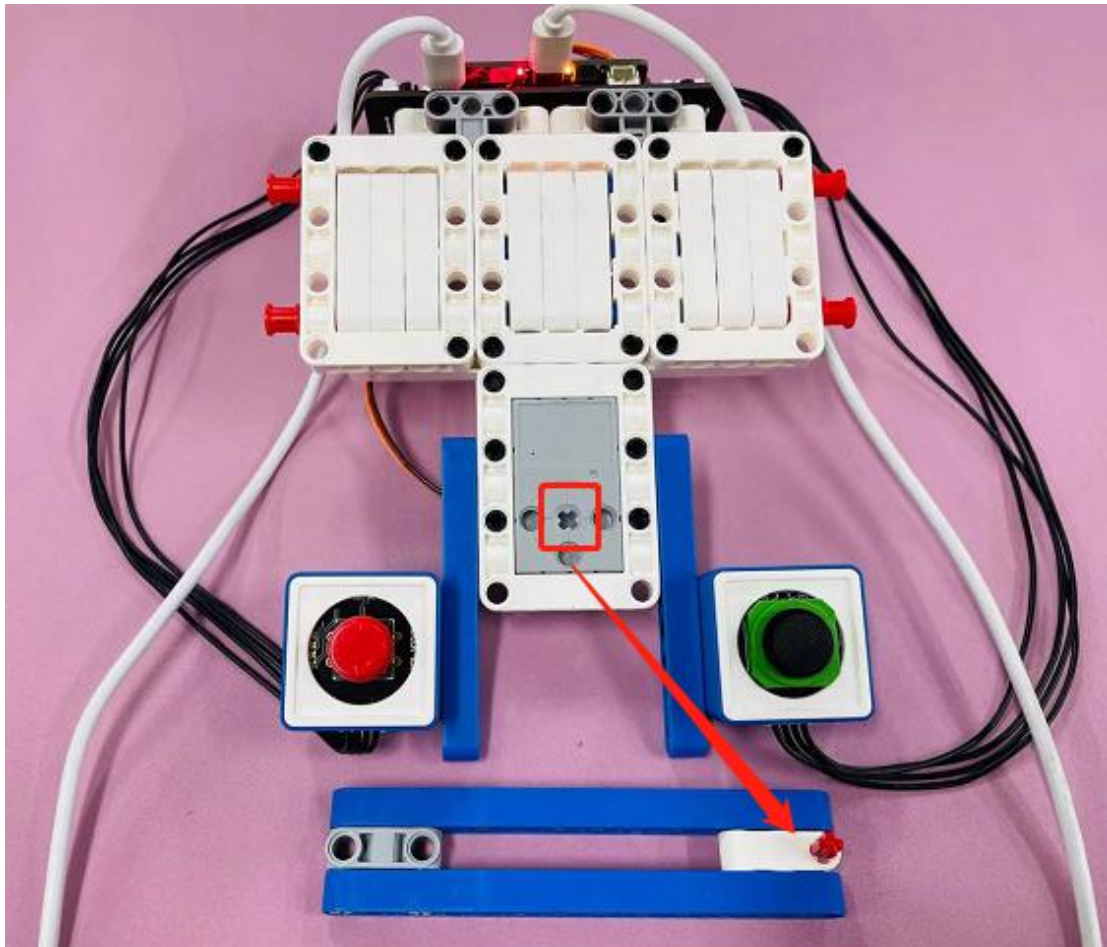
In this course, we will learn how to use Micro:bit, Temperature humidity module and digital tube module to read the current ambient temperature and humidity.

2. Preparation

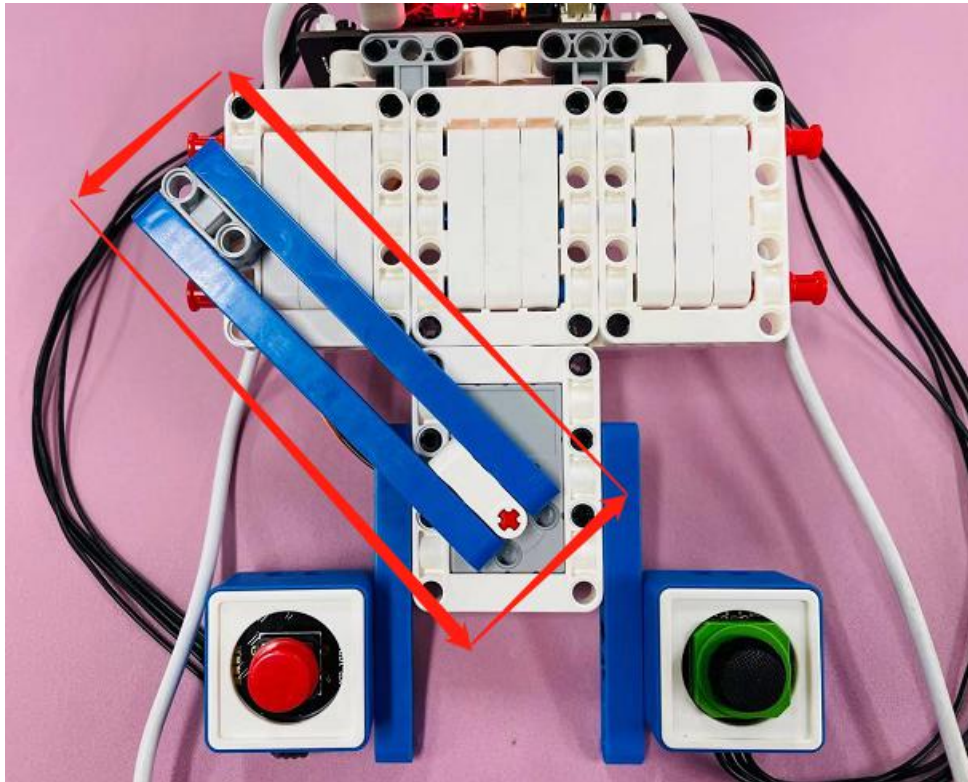
Connect the module to Micro:bit board by expansion board, as shown below.



Note: Please make sure that the servo is installed correctly, as shown below.



Please make sure that the wiper shaft is installed correctly, as shown below.



3. Programming method

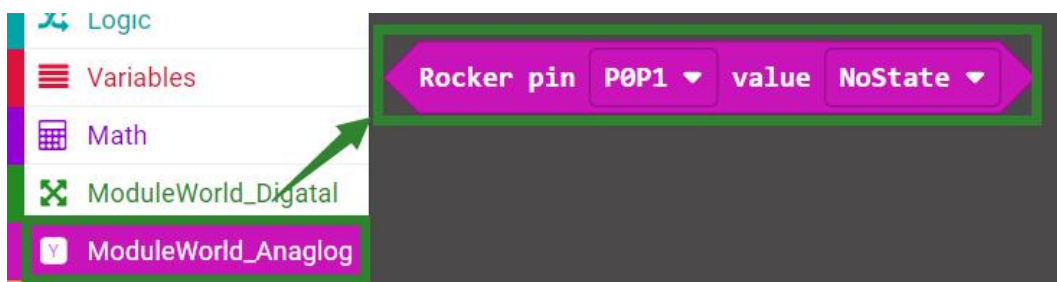
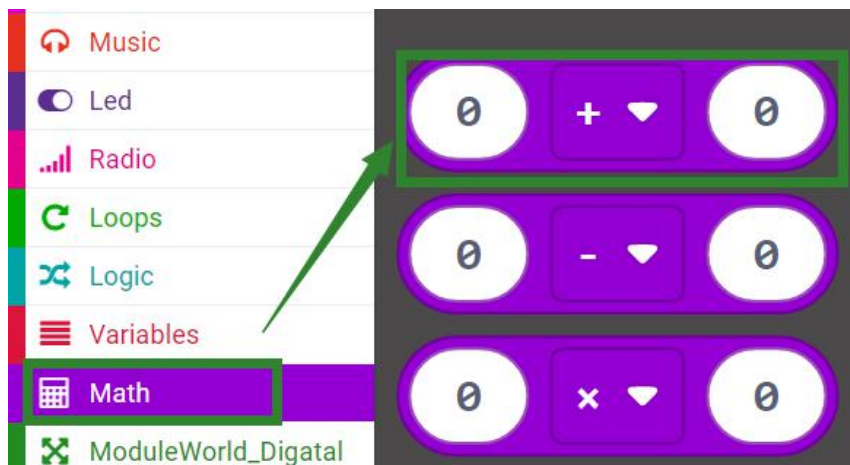
Mode 1 online programming: First, we need to connect the micro:bit to the computer by USB cable. The computer will pop up a USB flash drive and click on the URL in the USB flash drive: <http://microbit.org/> to enter the programming interface. Add the Yahboom package <https://github.com/YahboomTechnology/Module-World>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

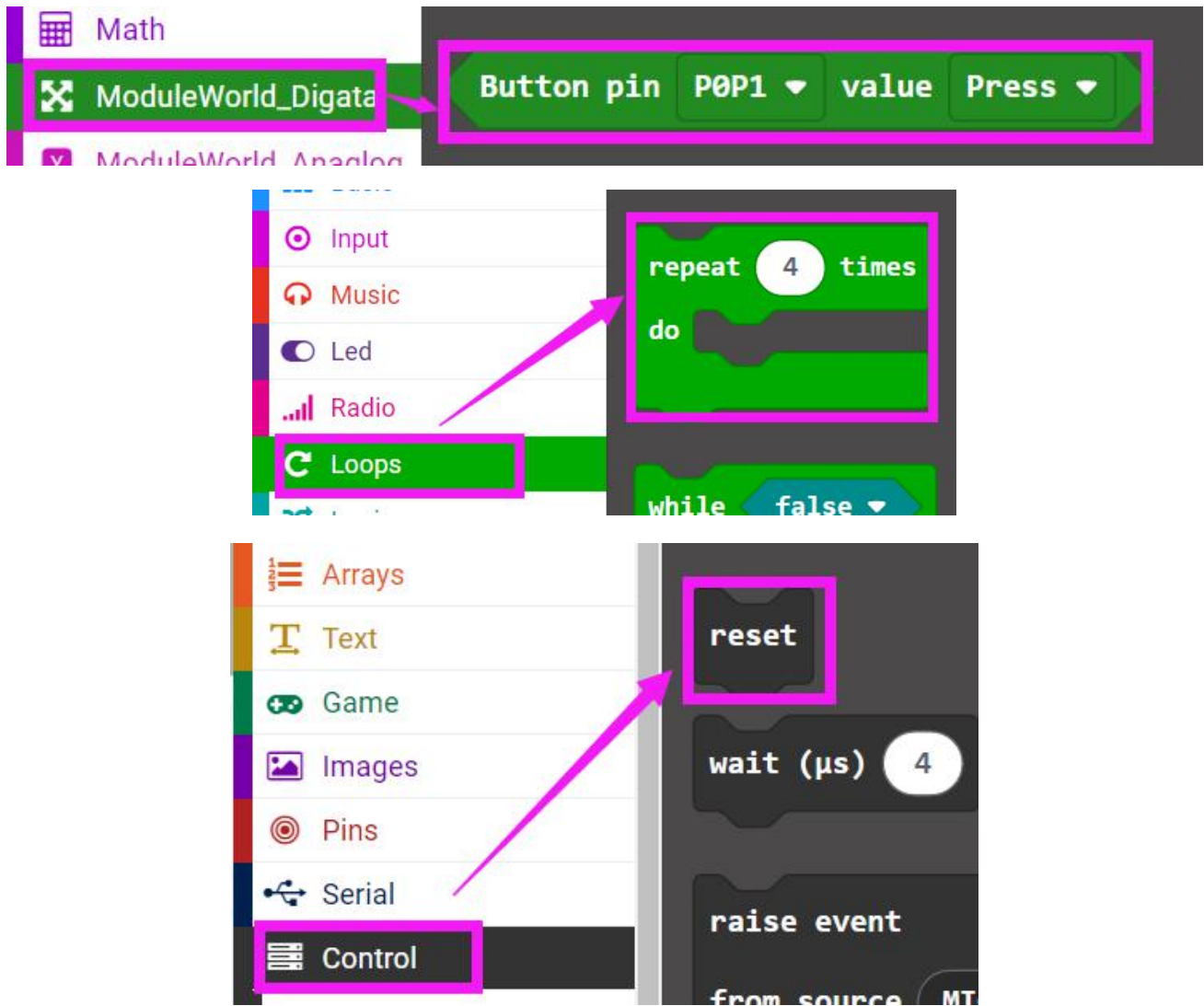
Mode 2 offline programming: We need to open the offline programming software. After the installation is complete, enter the programming interface, click 【New Project】 , add Yahboom package: <https://github.com/YahboomTechnology/Module-World> , you can start programming.

4. Looking for blocks

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







5.Combine block

The summary program is shown below.


```

on start
  led enable false
  set temp to 0
  set X to 230
  Servo(360) pin P1 value X

```

```

forever
  Servo(360) pin P1 value X
  if Rocker pin P2P3 value Up then
    set X to X - 4
  else if Rocker pin P2P3 value Down then
    set X to X + 4
  else if Rocker pin P2P3 value Left then
    set X to X + 4
  else if Rocker pin P2P3 value Right then
    set X to X - 4
  if X < 130 then
    set X to 130
  else if X > 230 then
    set X to 230
  if Button pin P10P11 value Press then
    pause (ms) 500
    if Button pin P10P11 value Press then
      repeat 2 times
        do
          Servo(360) pin P1 value 130
          pause (ms) 500
          Servo(360) pin P1 value 230
          pause (ms) 500
      reset
  repeat 2 times
    do
      Servo(360) pin P1 value 130
      pause (ms) 300
      Servo(360) pin P1 value 230
      pause (ms) 300

```

5. Phenomenon

After the program is downloaded successfully. We can turn the joystick to control the rotation of the servo to simulate the effect of the wiper on the car.

We can also press the button to make the wiper work automatically. Long press the button and the servo wiper rotates slowly, and press it quickly. Release the button and the wiper of the servo rotates quickly.