Control Magic:car motor

Goal

In this lesson, we will learn to control the motor of the car Magic_Car to realize the forward, backward, left and right turn of the car

Programming method

(1) online programming: connect micro:bit with the computer through the USB cable, open my computer, find the MICROBIT memory disk and open it, double-click MICROBIT.HTM, and open the browser programming page. After creating a new project, click advanced, click expand, enter the address https://github.com/emakefun/pxt-magicbit.git of the extension package, and press enter or search and add the Microbit extension package. Then you can start programming and controlling the car motor.

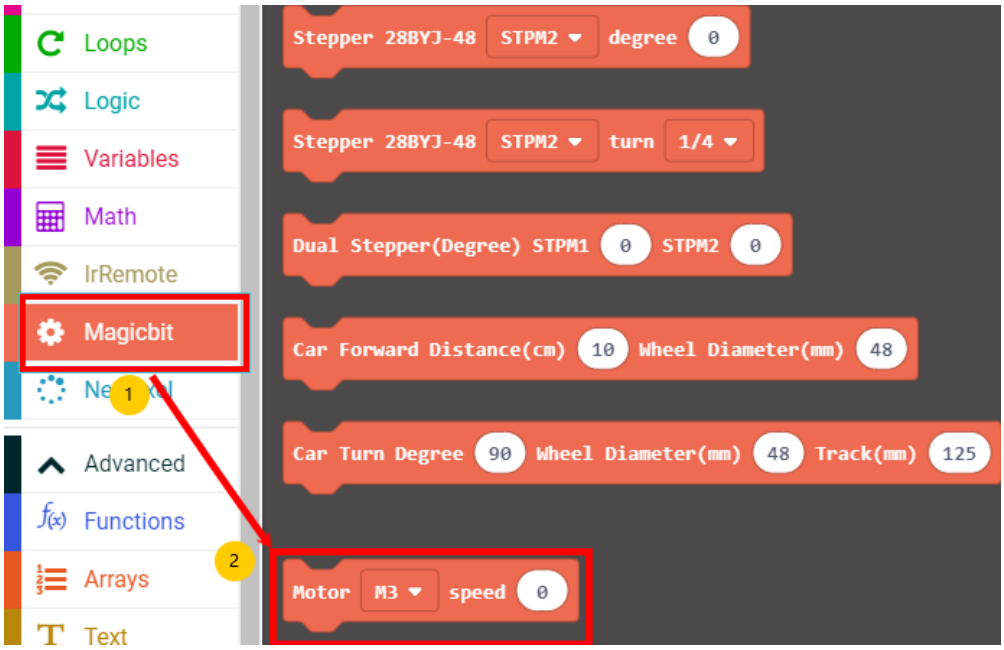
(2) offline programming: open the offline programming software, enter the programming interface, create a new project, click advanced, click expand, enter the address https://github.com/emakefun/pxt-magicbit.git of the extension package, and press enter or search, add the Microbit extension package, and then you can start programming to control the car motor.

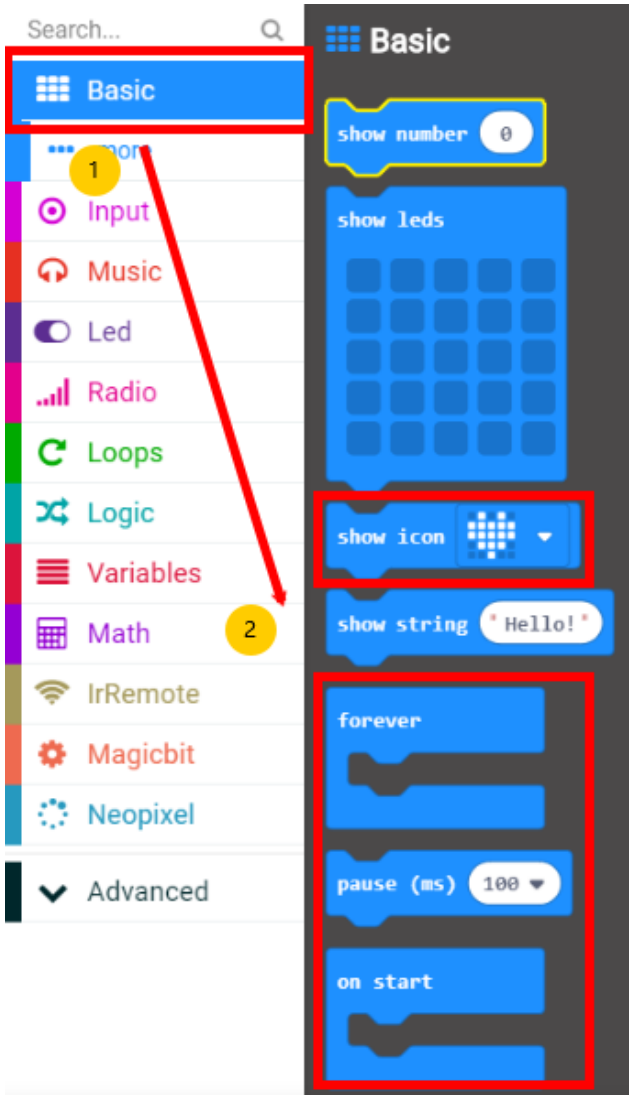
The control principle

Just as a waterwheel in a stream can convert the energy of water into mechanical energy, a motor can turn electrical flow into motion. What happens to the waterwheel if you change the direction of the current? It will change the direction of rotation. The same goes for dc motors. Each motor has two connections, one to the negative terminal of the dc power supply and the other to the positive terminal of the dc power supply. If the positive and negative connection direction of the motor joint is changed, the rotation direction of the motor will also change with the direction of the current.

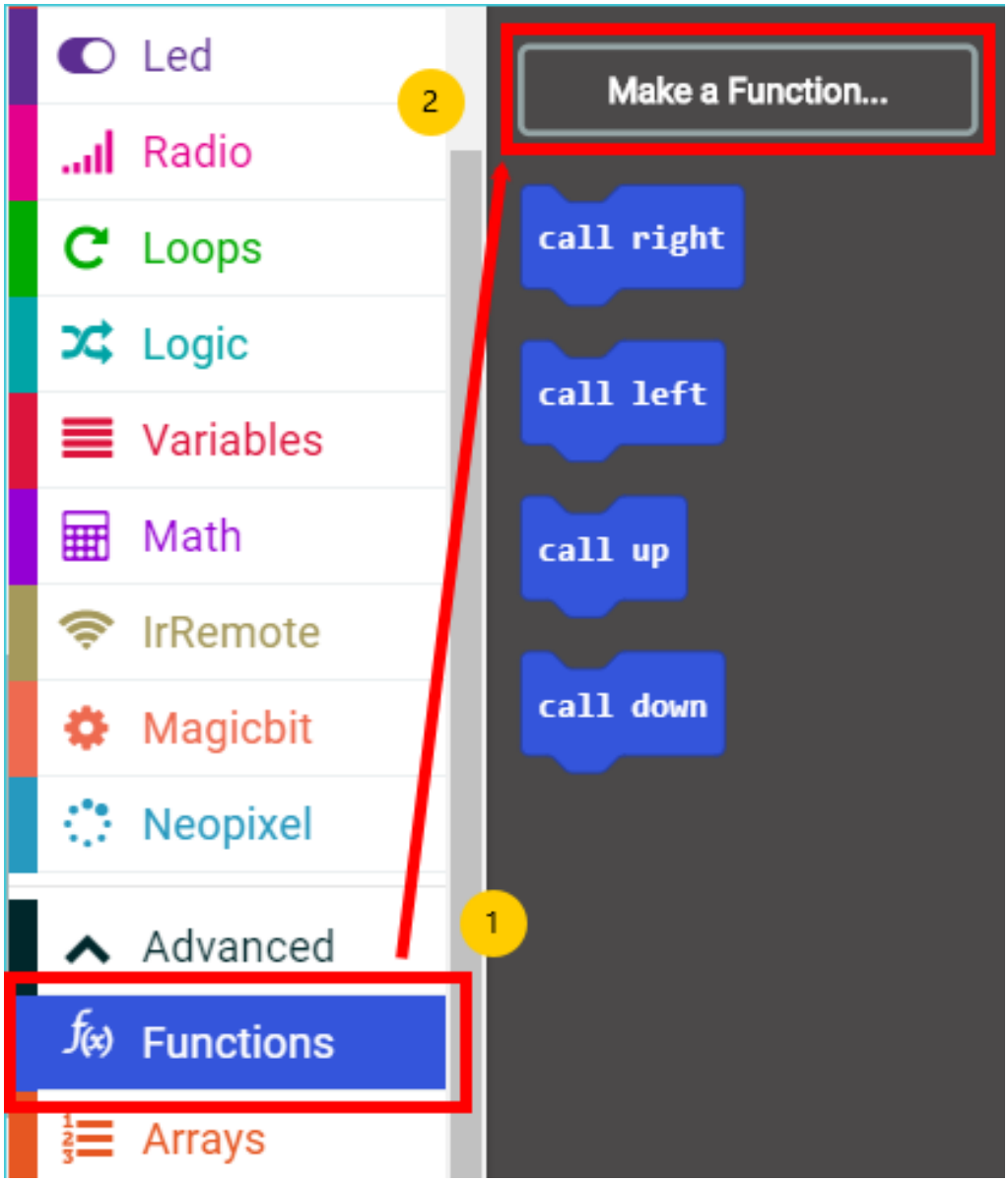
Block programming

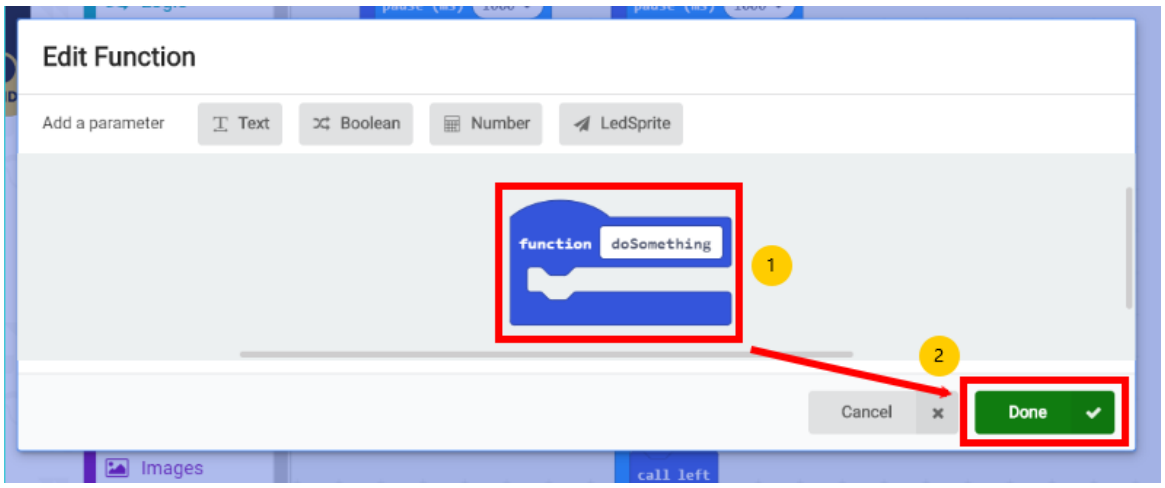
1、 Location of building blocks required


Loops
Logic
Variables
Math
IrRemote
Magicbit
Advanced
Functions
Arrays
Text
1
2
Stepper 28BYJ-48 STPM2 degree 0
Stepper 28BYJ-48 STPM2 turn 1/4
Dual Stepper(Degree) STPM1 0 STPM2 0
Car Forward Distance(cm) 10 Wheel Diameter(mm) 48
Car Turn Degree 90 Wheel Diameter(mm) 48 Track(mm) 125
Motor M3 speed 0

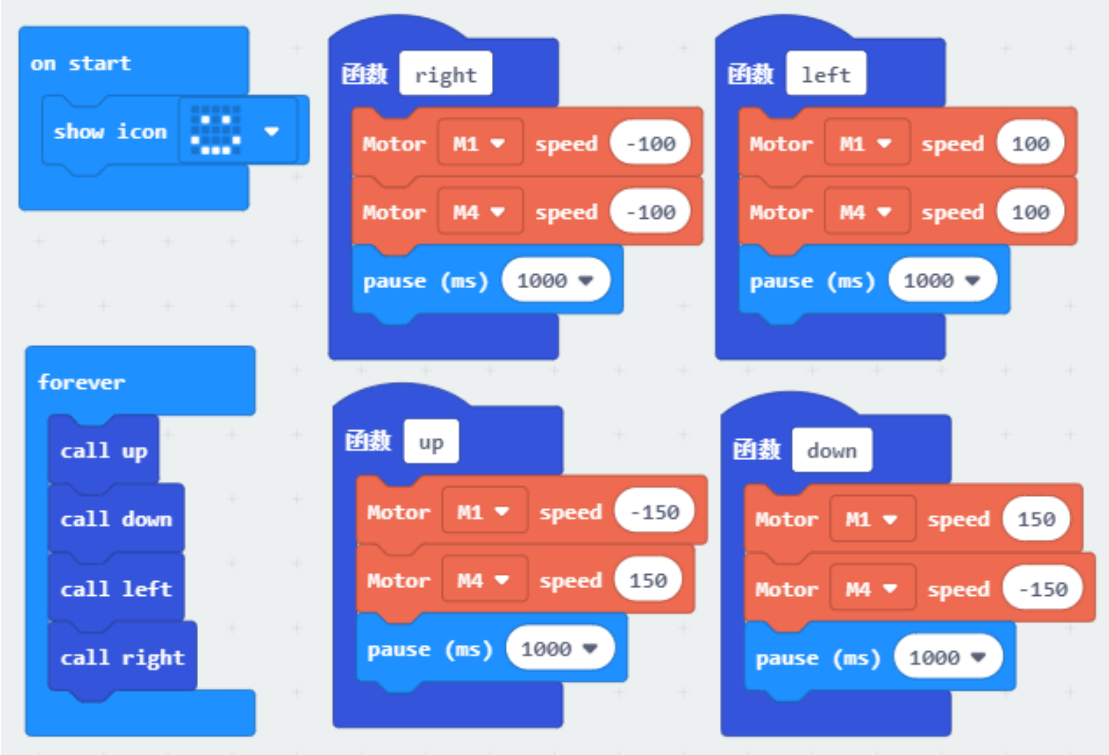

Search...
Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
IrRemote
Magicbit
Neopixel
Advanced
1
2
Basic
show number 0
show leds
show icon
show string "Hello!"
forever
pause (ms) 100
on start

2、Function creates





3、Final program building block combination



Wiring

The motor to the left of the car is connected to the extension board M4 interface
The motor to the right of the car is connected to the expanded M1 interface

The experimental results

After downloading the program to the microbit motherboard of Magic_Car car, open the main switch of the expansion board, microbit displays the smiley face, Magic_Car advances 1 second -- > recesses 1 second -- > turns left 1 second -- > turns right 1 second, and so on.