Microbit motherboard wireless remote control

Goal

In this lesson, we will learn to use microbit motherboard to control Magic wheel car, which can move forward, backward, left, right, left and right, switch on-board RGB lights and headlights, and control the buzzer.

Programming method

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

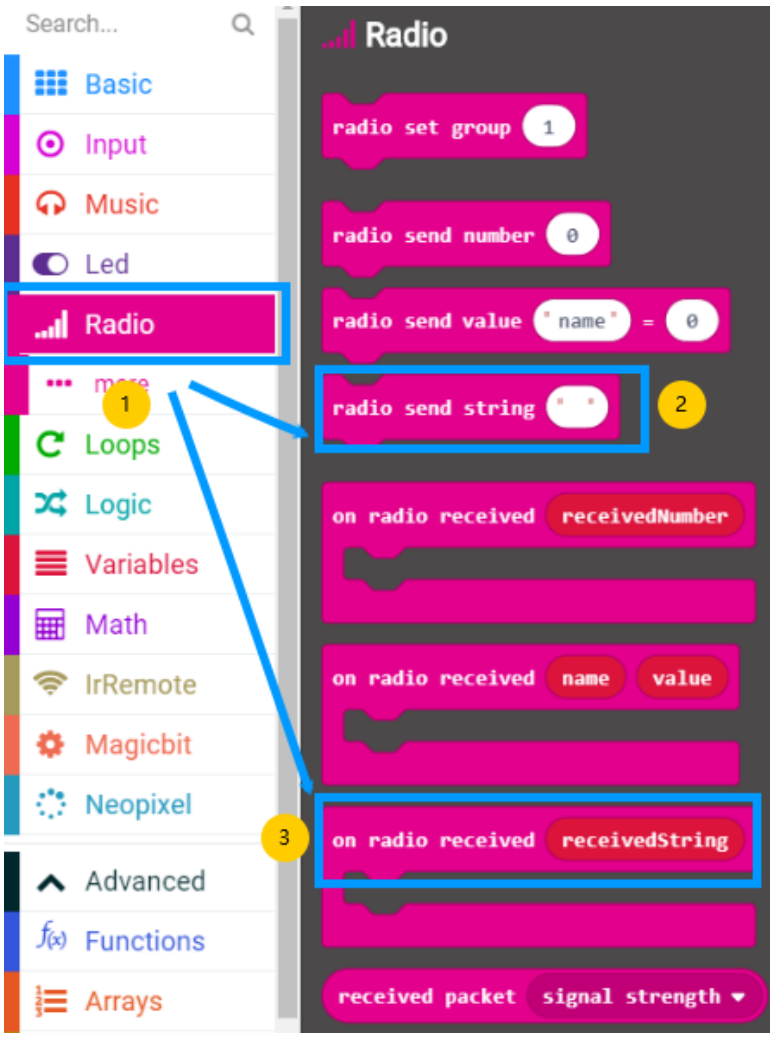
(2) offline programming: open the offline programming software, enter the programming interface, create a new project, click advanced, click expand, enter the address https://github.com/emakefun/pxt-magicbit.git of the extension package, press enter or search, add the Microbit extension package, and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

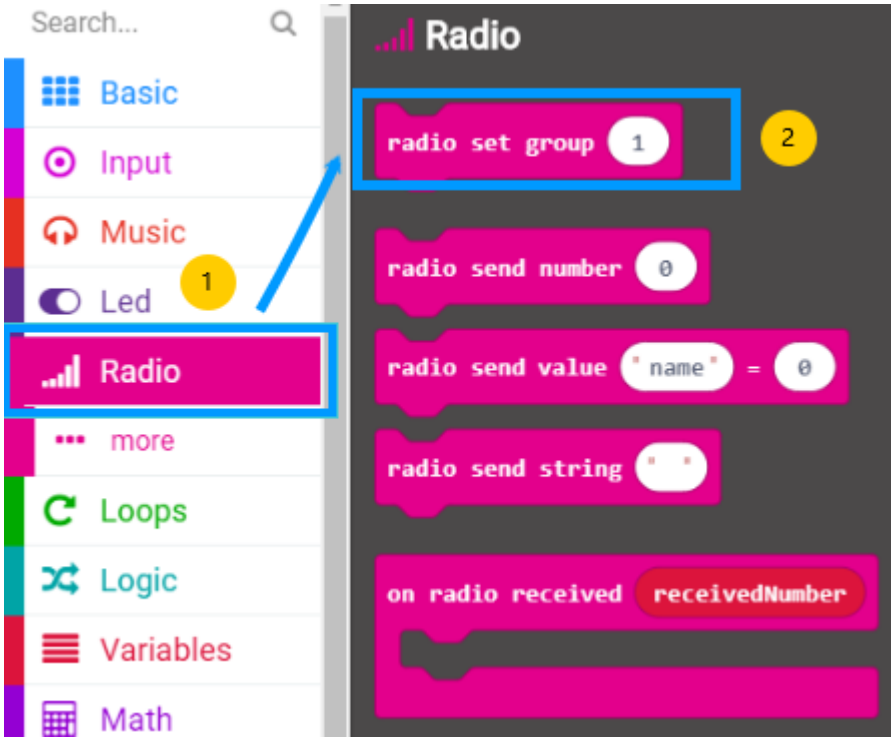
The control principle

Microbit motherboards can communicate with each other in the form of wireless broadcast. When the program of Microbit motherboards "wireless setting" is the same digital password, Microbit motherboards can achieve simple communication through corresponding command line.

Block programming

1. Through the previous study. Now that you know where some of the building blocks are, let's show you the new building block program for this lesson


Search...
Basic
Input
Music
Led
Radio
more
Loops
Logic
Variables
Math
IrRemote
Magicbit
Neopixel
Advanced
Functions
Arrays
1
2
3
Radio
radio set group 1
radio send number 0
radio send value "name" = 0
radio send string " "
on radio received receivedNumber
on radio received name value
on radio received receivedString
received packet signal strength


Search...
Basic
Input
Music
Led
Radio
more
Loops
Logic
Variables
Math
1
2
Radio
radio set group 1
radio send number 0
radio send value "name" = 0
radio send string " "
on radio received receivedNumber

Wiring

1. Motor connection;
The motor of the car's left front wheel is connected to the extension plate M3 interface
The motor of the car's left rear wheel is connected to the extension plate M4 interface
The motor of the car's right front wheel is connected to the extended version M2 interface
The motor of the right rear wheel of the car is connected to the expanded M1 interface
2. Connection of microbit mainboard;
The microbit motherboard of the car is the receiving motherboard, and the other motherboard is the sending motherboard, which is powered by USB cable.
3. Connection of headlights;
The two multi-colored lights of the car can freely switch the color of the round gusset plate according to the needs of the scene, thus changing the color of the light. The red line of the colored lights is connected to the 3.3v red pin of the extension board, and the black line is connected to the blue IO pins P8 and P12 of the extension board.

The experimental results

The microbit motherboard of the Magic_Car car downloads the receiving program, and the other microbit motherboard downloads the sending program. When the program is downloaded and both microbit motherboards are powered, when the command sending motherboard tilts forward, the car advances; When the motherboard sending the command tilts back, the car will fall back; When the main board sending the command tilts to the left, the car will move to the left, when the inclination Angle is too large, it will turn to the left in place; When the main board sending the command tilts to the right, the car will move to the right, when the inclination Angle is too large, it will turn to the right in place; When the button "A" on the motherboard that sends the command is pressed, the RGB color light will be turned on or off. When the button B on the main board that sends the command is pressed, the buzzer will sound; When the key AB is pressed at the same time, the light will be turned off or on.