Microbit motherboard wireless remote control iron claw car

Goal

In this lesson, we will learn to use microbit motherboard to control Magic_Car iron claw car, which can realize forward, backward, left, right, left and right turn of the car, switch on-board RGB lights and headlights, and control the up and down of the steering gear of iron claw 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-clickMICROBIT.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, enter enter or search, add the Microbit extension package, and you can start programming control of the car motor.

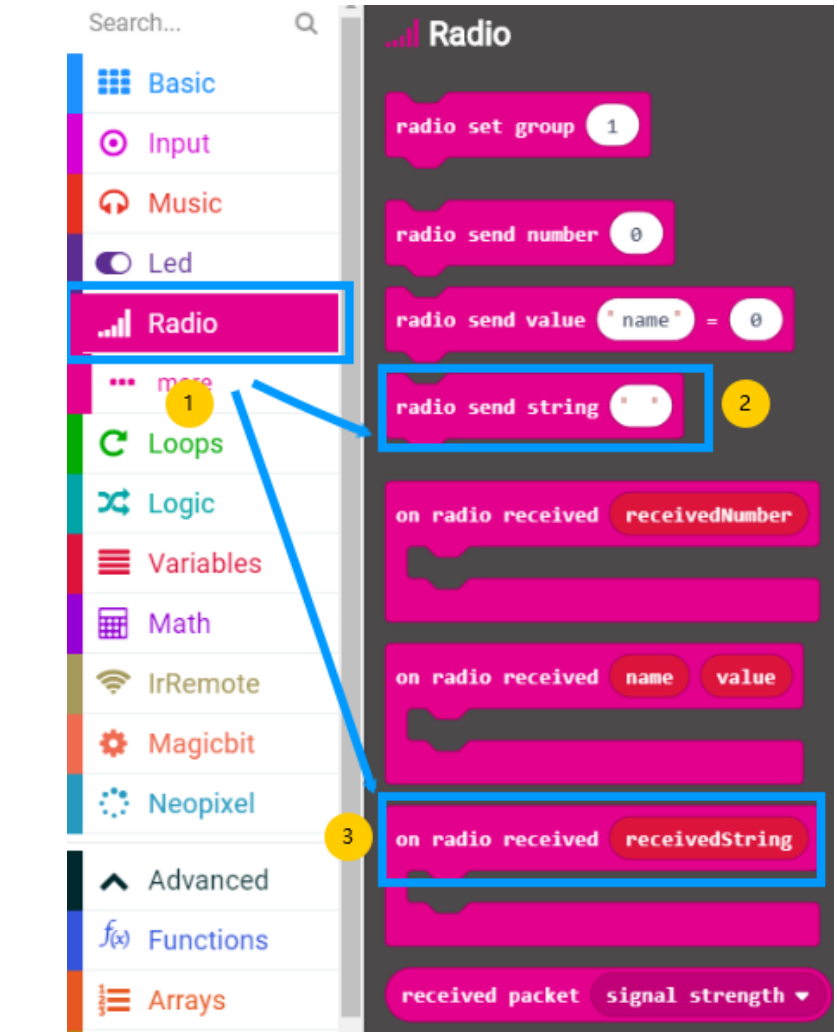
(2) offline programming: open the offline programming software, enter the programming interface, create a new project, click advanced, click expand, enter the address of the extension packagehttps://github.com/emakefun/pxt-magicbit.git, and press enter or search, add the Microbit extension package, and then you can start programming to 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
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more
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Logic
Variables
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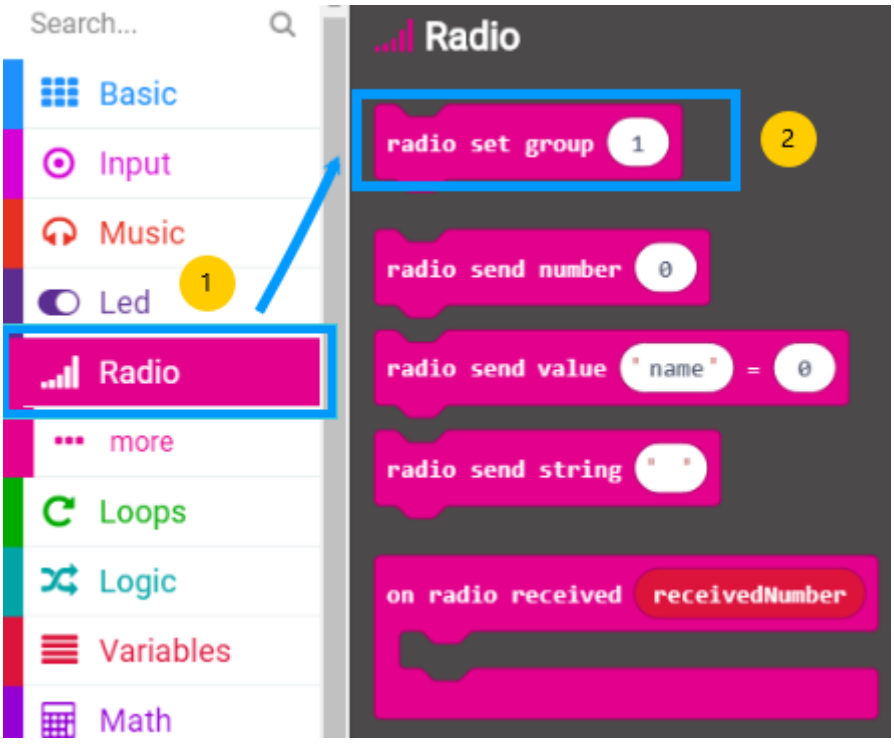
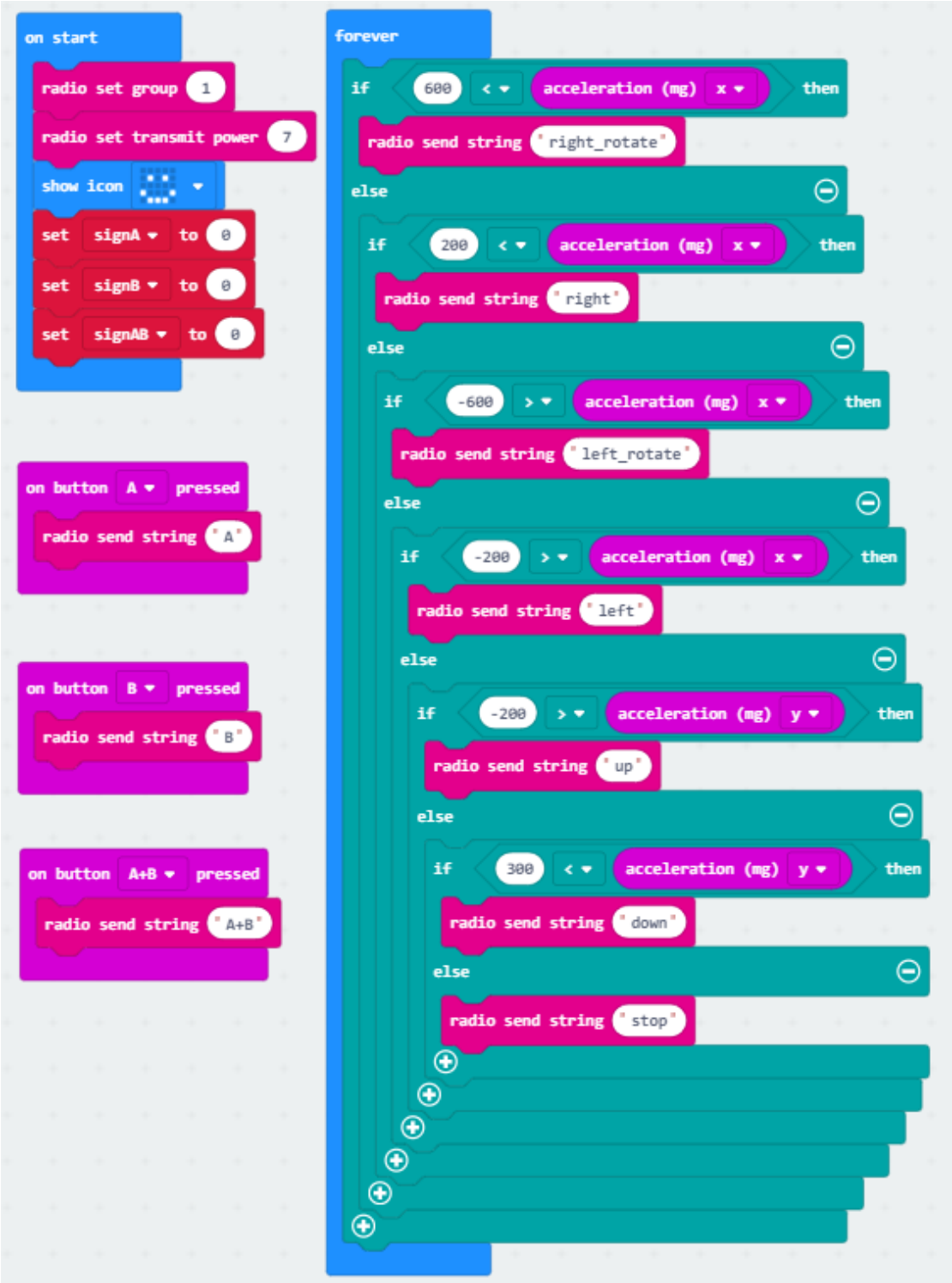
IrRemote
Magicbit
Neopixel
Advanced
Functions
Arrays
1
2
3
Radio
radio set group 1
radio send number 0
radio send value "name" = 0
radio send string " "
on radio received receivedNumber
on radio received name value
on radio received receivedString
received packet signal strength


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

2、 Final effect of building blocks



Wiring

1. Connection of steering gear;

The car steering gear is connected to the S1 pin of the PWM steering gear of the expansion board, in which the yellow line of the steering gear is connected to the blue

pin of the expansion board, the red line of the steering gear is connected to the red pin of the control board, and the brown line of the steering gear is connected to the black GND pin of the control board.

2. Motor connection;
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
3. 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.
4. The headlamp is connected to the pin P8, the red line of the lamp is connected to the red interface of the expansion board, and the other one is connected to the blue interface.

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 turn 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 turn to the right, when the inclination Angle is too large, it will turn to the right; 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 motherboard button B is pressed, the Angle of the steering gear will change up or down (the Angle of the steering gear must be adjusted according to the actual situation of assembly to achieve the best effect); When the key AB is pressed at the same time, the light will be turned off or on.