Dancing shovel truck

Goal

In this lesson, we will learn to control the steering gear, motor and RGB lamp of the Magic_Car shovel truck to realize the dancing movement of the shovel truck

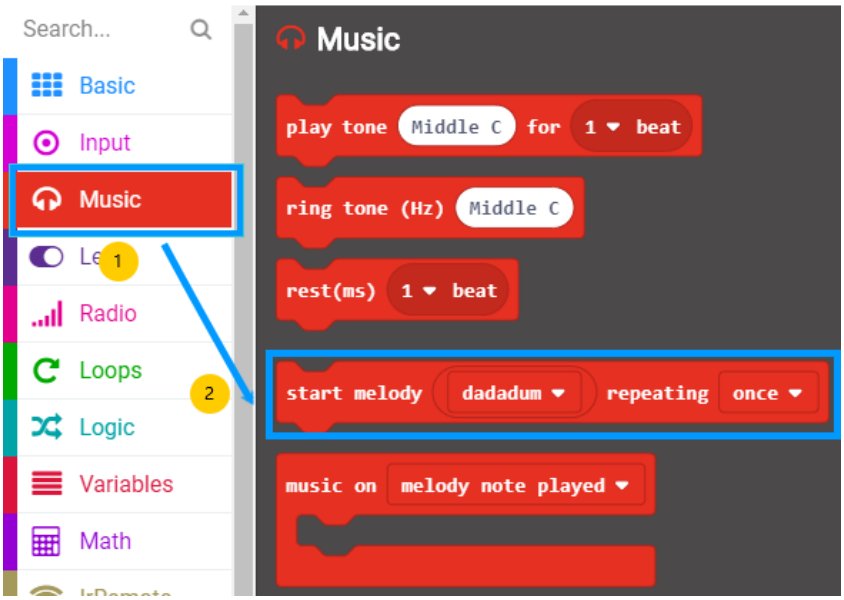
Programming method

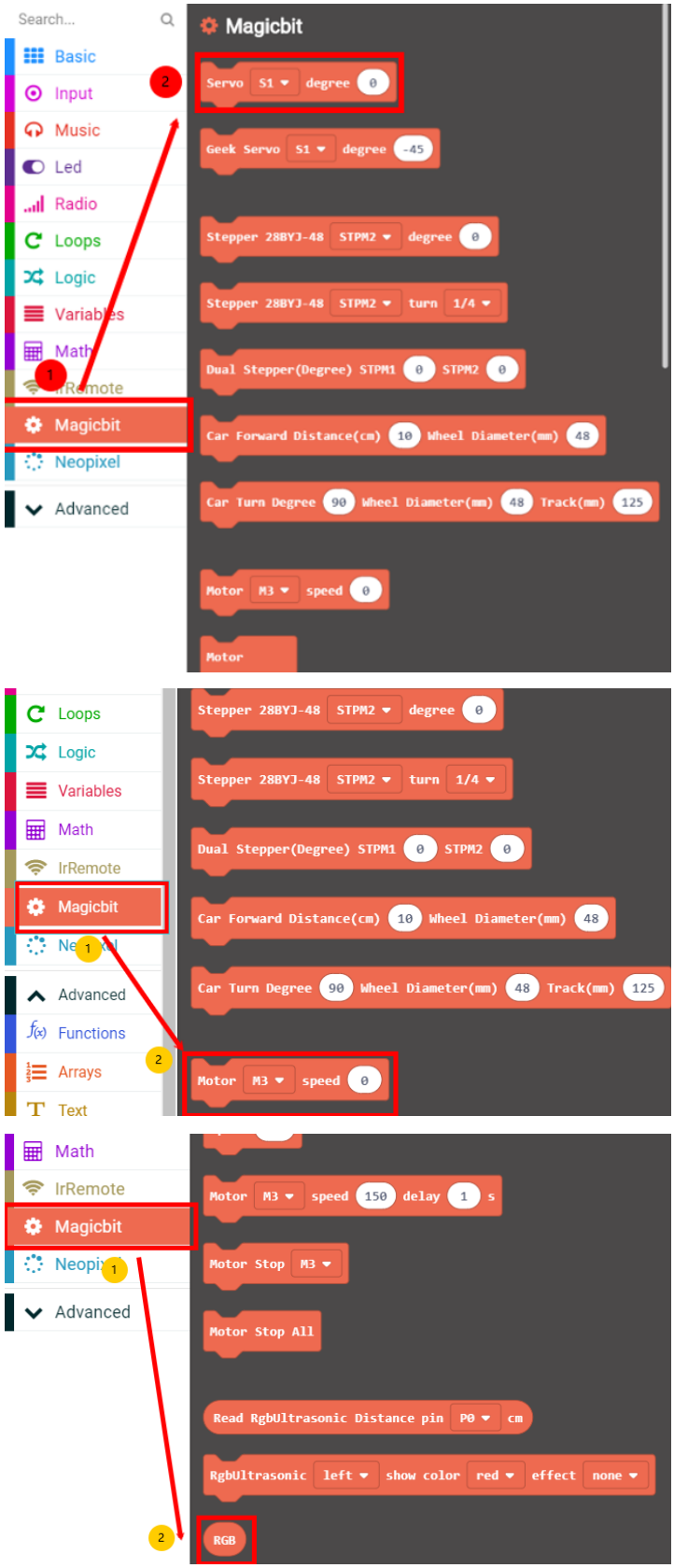
(1) online programming: connect micro:bit with the computer through the USB cable, open my computer, find the MICROBIT memory disk and open it, double-click MICROBIT.HTM, and open the browser programming page. After creating a new project, click advanced, click expand, enter the extension package address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

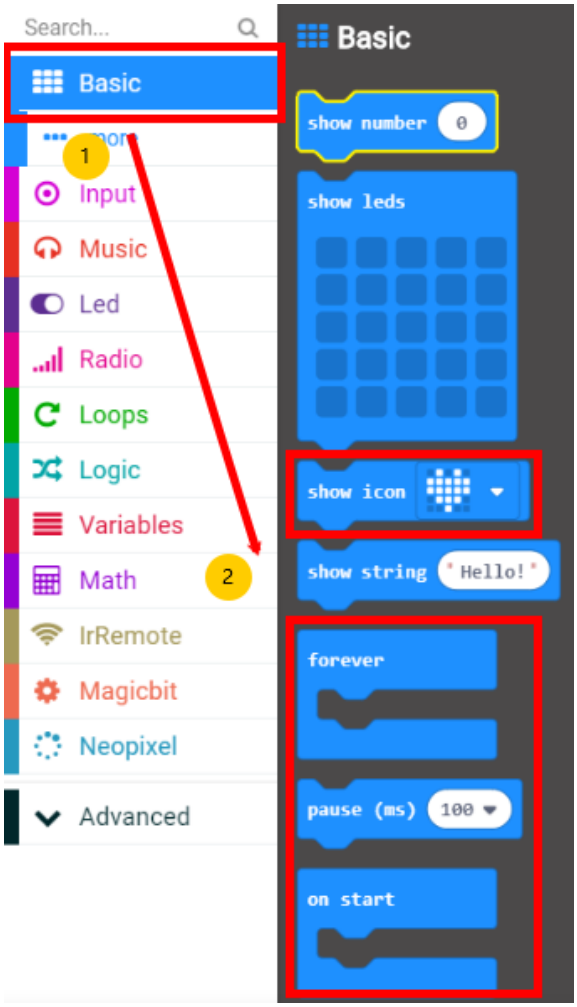
(2) offline programming: open the offline programming software, enter the programming interface, create a new project, click advanced, click expand, enter the address of the extension package https://github.com/emakefun/pxt-magicbit.git, and press enter or search, add the Microbit extension package,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

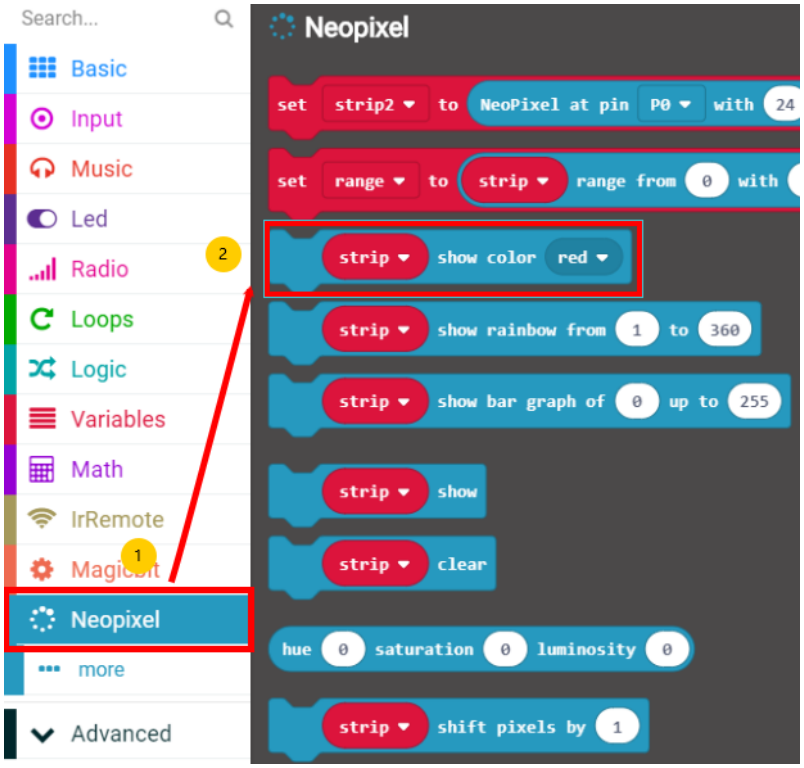
Programming method

1、 Location of building blocks required

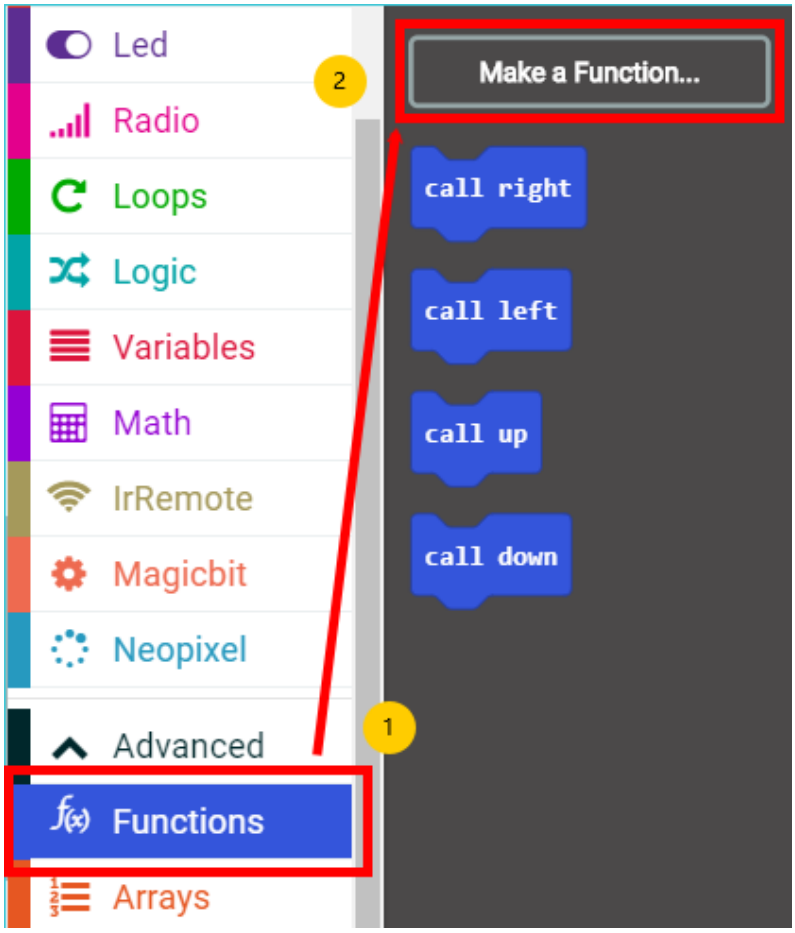


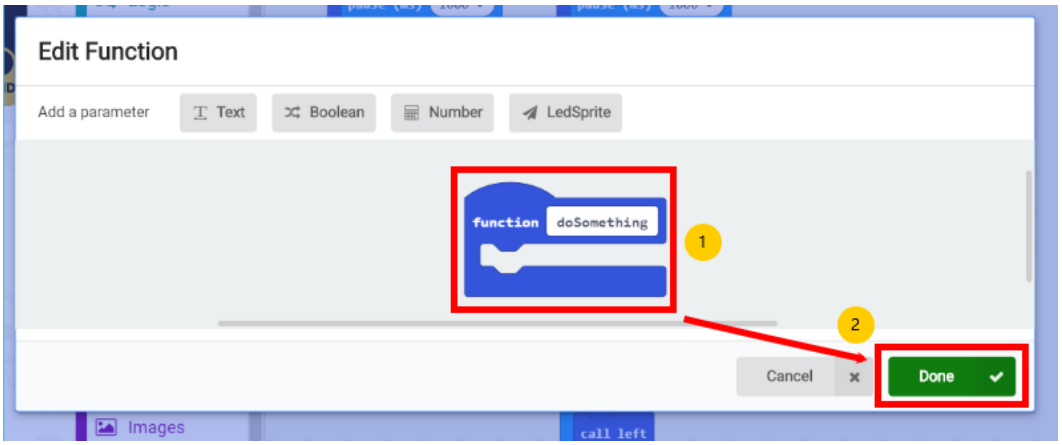

Search...
Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
IrRemote
Magicbit
Neopixel
Advanced
Magicbit
Servo S1 degree 0
Geek Servo S1 degree -45
Stepper 28BYJ-48 STPM2 degree 0
Stepper 28BYJ-48 STPM2 turn 1/4
Dual Stepper(Degree) STPM1 0 STPM2 0
Car Forward Distance(cm) 10 Wheel Diameter(mm) 48
Car Turn Degree 90 Wheel Diameter(mm) 48 Track(mm) 125
Motor M3 speed 0
Motor
1
2
Loops
Logic
Variables
Math
IrRemote
Magicbit
Advanced
Functions
Arrays
Text
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
1
2
Math
IrRemote
Magicbit
Advanced
Motor M3 speed 150 delay 1 s
Motor Stop M3
Motor Stop All
Read RgbUltrasonic Distance pin P0 cm
RgbUltrasonic left show color red effect none
RGB
1
2


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

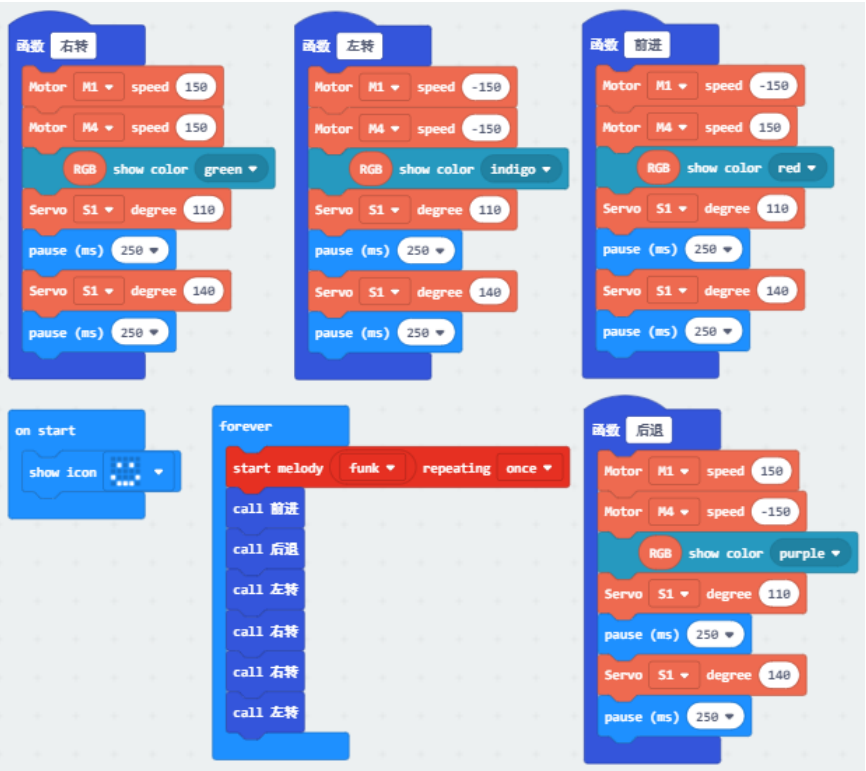

Search...
Basic
Input
Music
Led
Radio
Loops
Logic
Variables
Math
IrRemote
Magicbit
Neopixel
more
Advanced
1
2
Neopixel
set strip2 to NeoPixel at pin P0 with 24
set range to strip range from 0 with
strip show color red
strip show rainbow from 1 to 360
strip show bar graph of 0 up to 255
strip show
strip clear
hue 0 saturation 0 luminosity 0
strip shift pixels by 1

2、Create function blocks





3、Final program building block combination



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 on the left side of the car is connected to the M3 interface of the expansion board

The motor to the right of the car is connected to the expanded M1 interface

The experimental results

Download program to Magic_Car car microbit motherboard, open expansion board master switch, microbit show smiling face, buzzer will play a funk, and then Magic_Car shovel car forward, backward, turn left, turn right, turn right, turn left again, in the process of shovel loader mobile RGB will change color, shovel under mobile front end shovel also meeting, so cycle. (note: during the actual operation, the Angle of the steering gear and the speed of the motor can be adjusted according to the actual situation to achieve the best effect)