Micro:Maqueen Robot Car(V2.0)

SKU: ROB0148

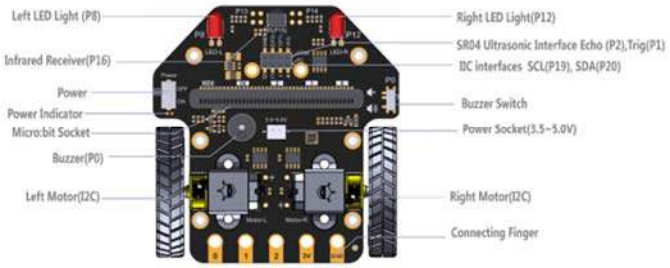
I am Maqueen

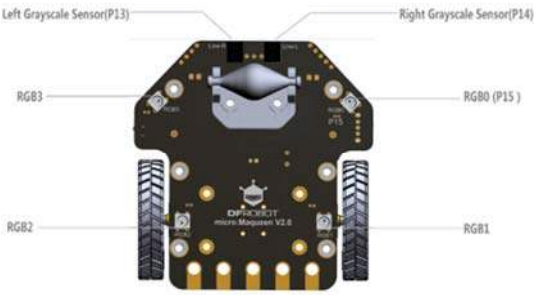
Hello, my name is Maqueen, is a graphical programming robot for STEM education, which inherits playability and simple operation of micro:bit. The Mini-body, interesting features and plug-and-play allow children to quickly learn graphic programming in entertaining, nurturing children's interest in science and logical thinking.

What are the features of Maqueen?

- Support for Makecode, will support Scratch and python later.
- Small size, flexible movement.
- All-metal miniature gear motor, good quality, strong driving force.
- Line patrol, ambient light, LED lights, ultrasonic interface, buzzer, I2C interface, mechanical expansion screw hole, etc. ... full-featured, highly expandable.
- Exclusive customized POM bearing wheel, flexible and reliable, strong obstacle crossing ability.
- Easy to install, easy to use.

Function Diagram





Specification

- Supply Voltage: 3.5V~5V DC (Three AAA batteries or 3.7V lithium battery)
- Infrared Grayscale Sensor(High-low level) x 2
- Buzzer x 1
- Infrared Receiver (NEC decoder) x 1
- LED Lights (High-low level control) x 2
- RGB Ambient Light (16 million colors) x 4
- SR04, SR04P Ultrasonic Interface
- IIC Interface (3.3V) x 1
- N20 All-metal Gear Motor x 2
- Motor Reduction Ratio: 1:150
- Maximum Rotate Speed: 133 rpm
- Motor Drive Mode: PWM motor drive
- Bracket and Protective Cover Extension M3 Screw Hole x 6
- Programming Method: Makecode graphical programming, Mind + graphical programming (based on Scratch 3.0)
- Dimension: 81mm x 85 mm x 44mm/3.19 x 3.35 x 1.73in
- Weight: 75.55g

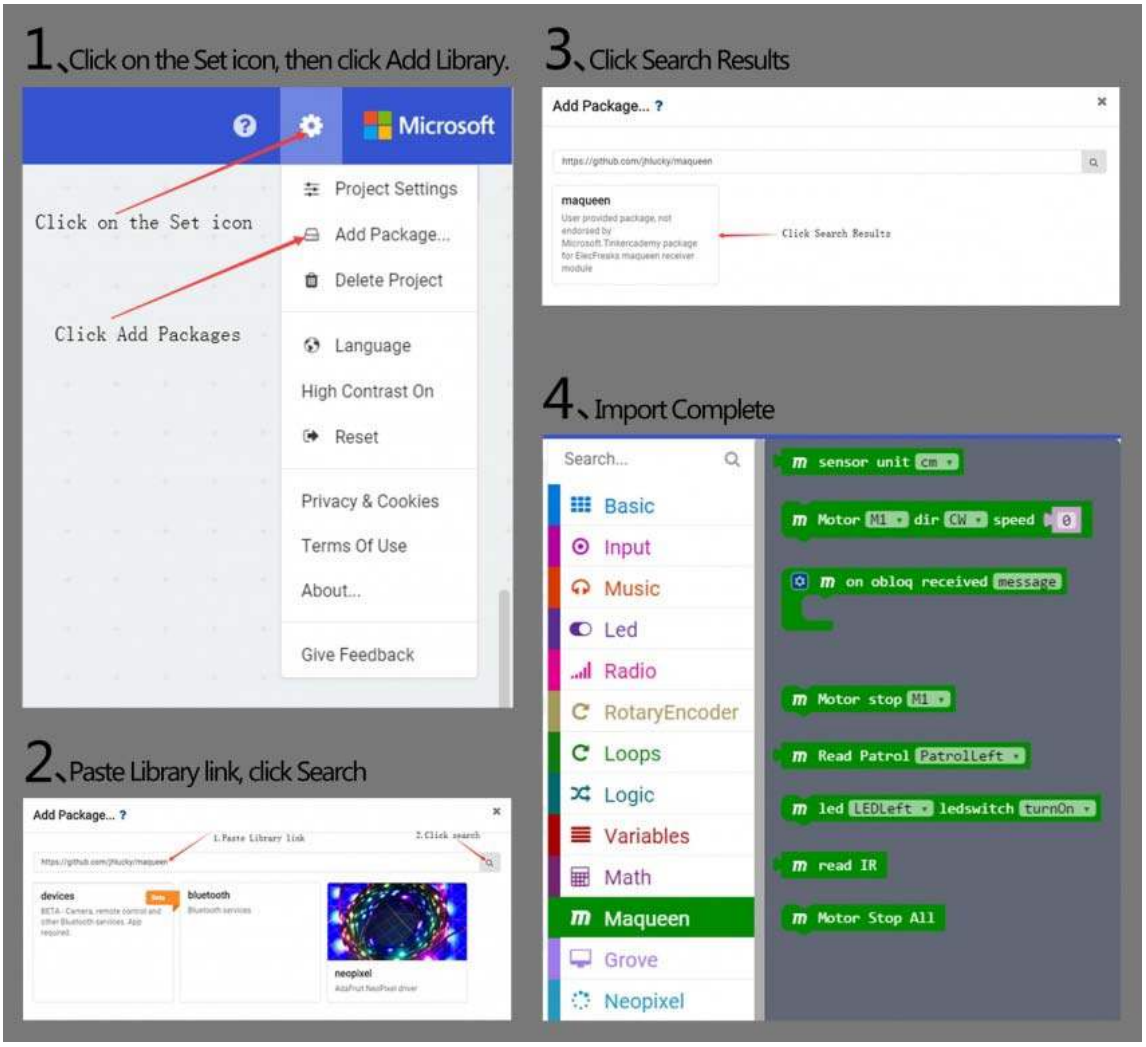
Product Configuration List

- Car Body x 1
- Wheel x 2
- Three AAA batteries Box x 1
- Double Sided Adhesive Tape x 1

Product Installation

Import the Makecode Graphical Library

1. Click the link: **makecode.microbit.org**, enter the makecode graphical online programming platform. (Note: Loading will be slow in the first time, please wait patiently)
2. Import the library: Copy they Maqueen library's address: https://github.com/jhlucky/maqueen
3. Import the library by following the steps.

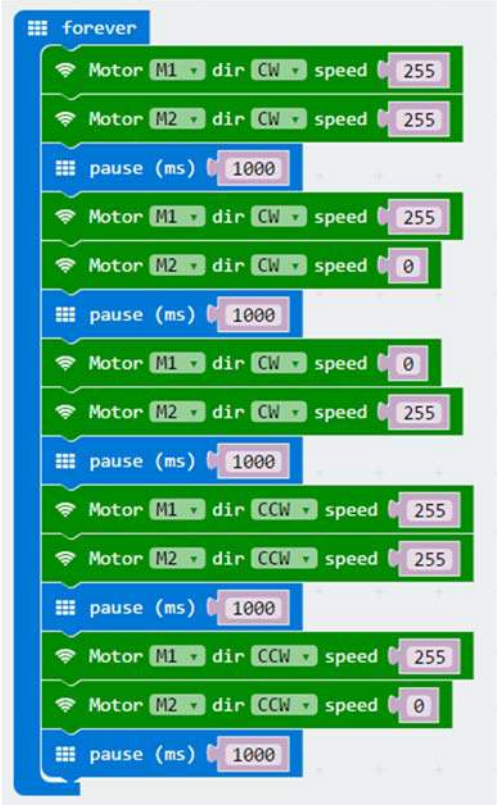


Makecode Programming Example

Motor Control

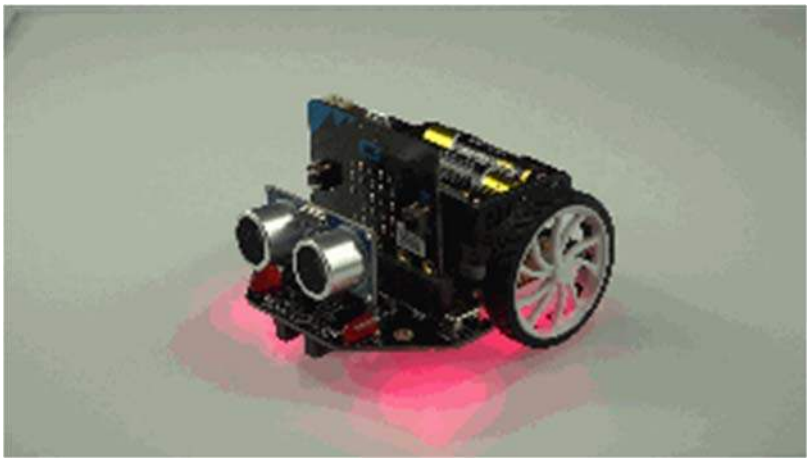
Learning Target: Mastering the basic method of motor control.
Effect: The car forward 1 second, right turn 1 second, left turn 1 second, back 1 second, back and right turn 1 second.

Makecode Program Link: https://makecode.microbit.org/_2Cc9gM5P5aDs
Screenshot of Makecode Graphical Program:

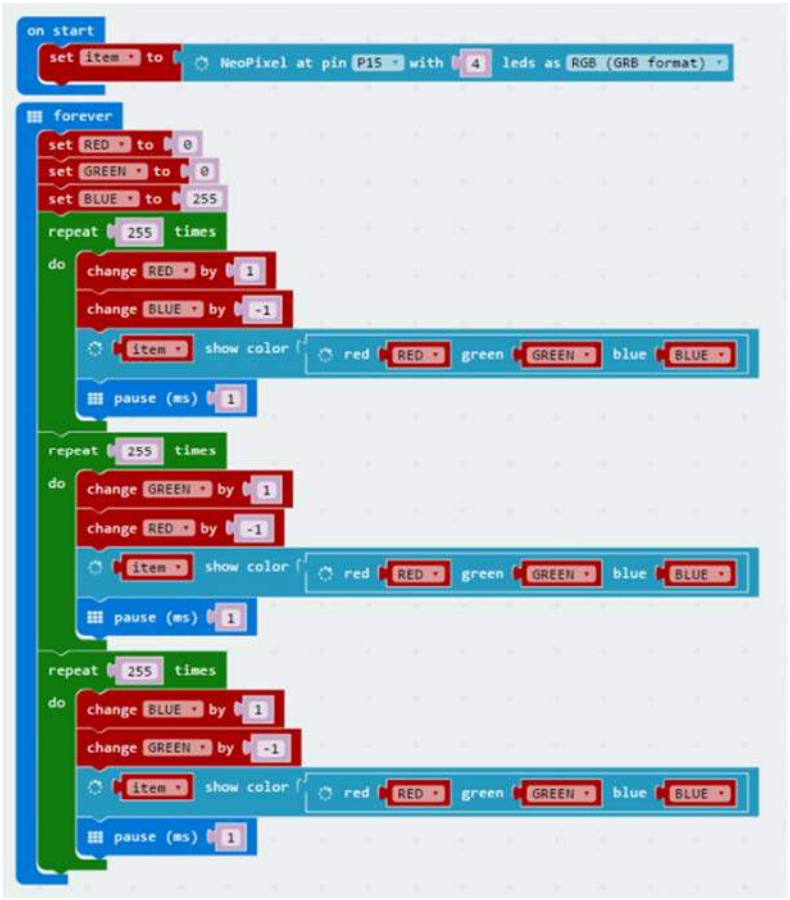


RGB Breathing Ambient Light

Learning Target: Learn the basic way of using ambient light.
Effect: The RGB ambient light at the bottom of the Maqueen shows a variety of colors and presents a gradient effect.

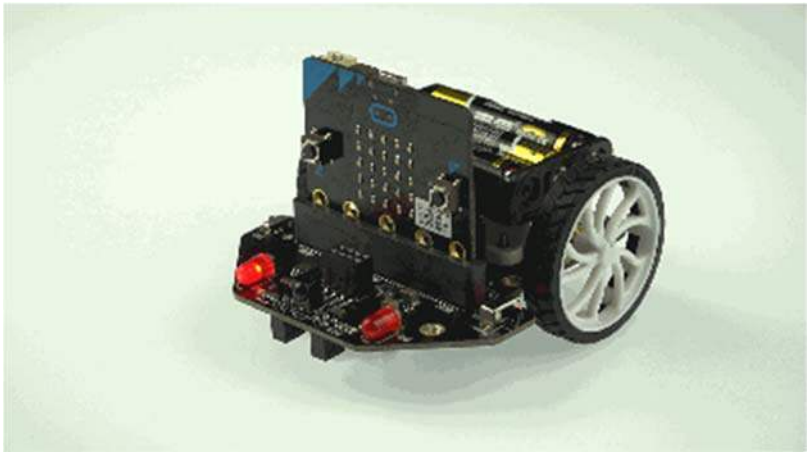


Makecode Program Link: https://makecode.microbit.org/_WkgPLpAotP3f
Screenshot of Makecode Graphical Program:



LED Light Flash

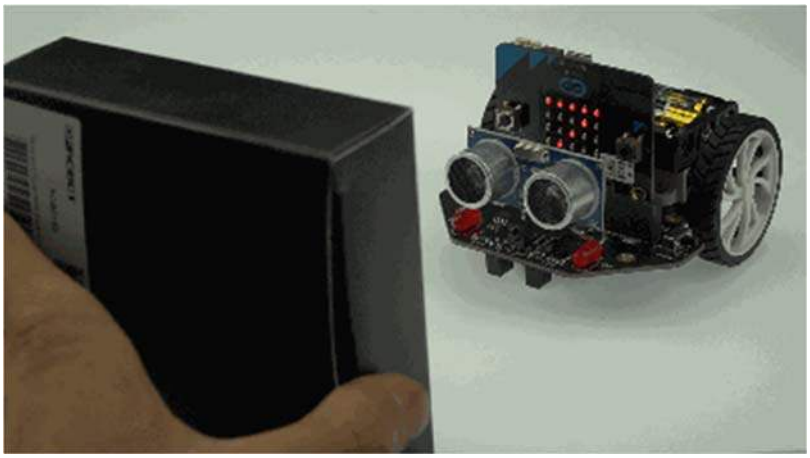
Learning Target: Learn the using way of LED light and buzzer.
Effect: The left and right LED lights flash alternately, and the buzzer emits two different tone frequencies at intervals of 500 milliseconds.



Makecode Program Link:https://makecode.microbit.org/_6gKRm1RVsDxY
Screenshot of Makecode Graphical Program:

Read Ultrasonic Distance

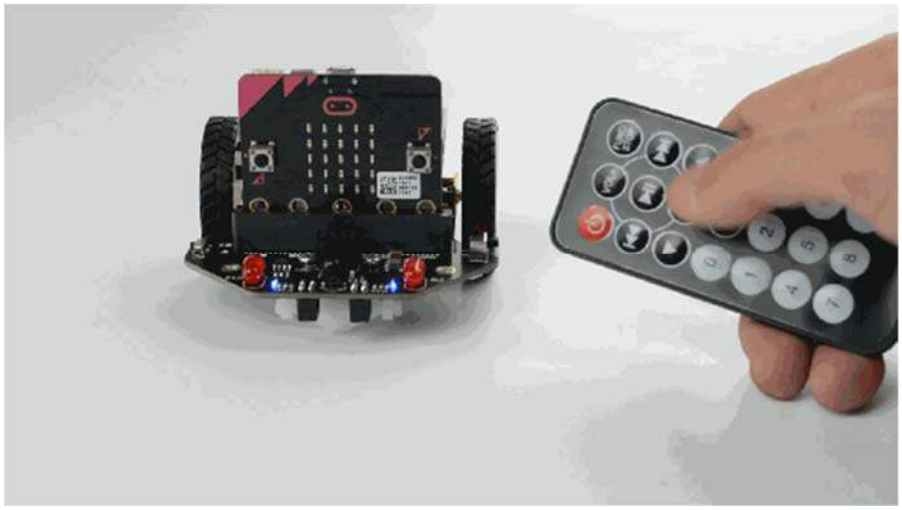
Learning Target: Learn to read the distance of ultrasound, so that later can be flexible use of these data.
Effect: The ultrasonic detects the obstruction in front and the distance will be displayed on the dot-matrix screen in centimeters.



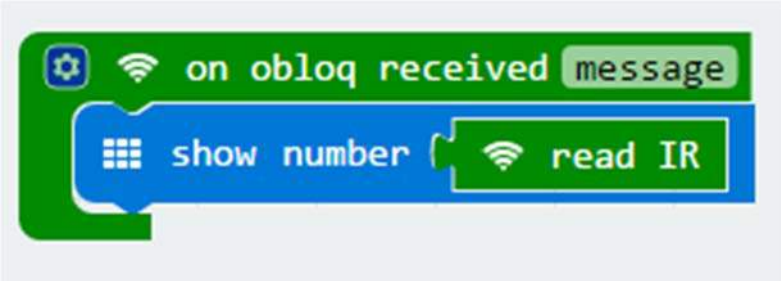
Makecode Program Link: https://makecode.microbit.org/_4gi4Dj7yTWgK
Screenshot of Makecode Graphical Program:

Read Infrared Key Assignments

Learning Target: Learn to read the key assignments of infrared, so that later can be flexible use of these data.
Effect: Put the the IR receiver toward the IR remote control, when you press any key on the IR remote control. The key assignments that corresponds to the pressed key will displayed on the dot matrix, in decimal notation the last two digits of the key assignments are displayed.



Makecode Program Link: https://makecode.microbit.org/_361V7bbp0UAg
Screenshot of Makecode Graphical Program:



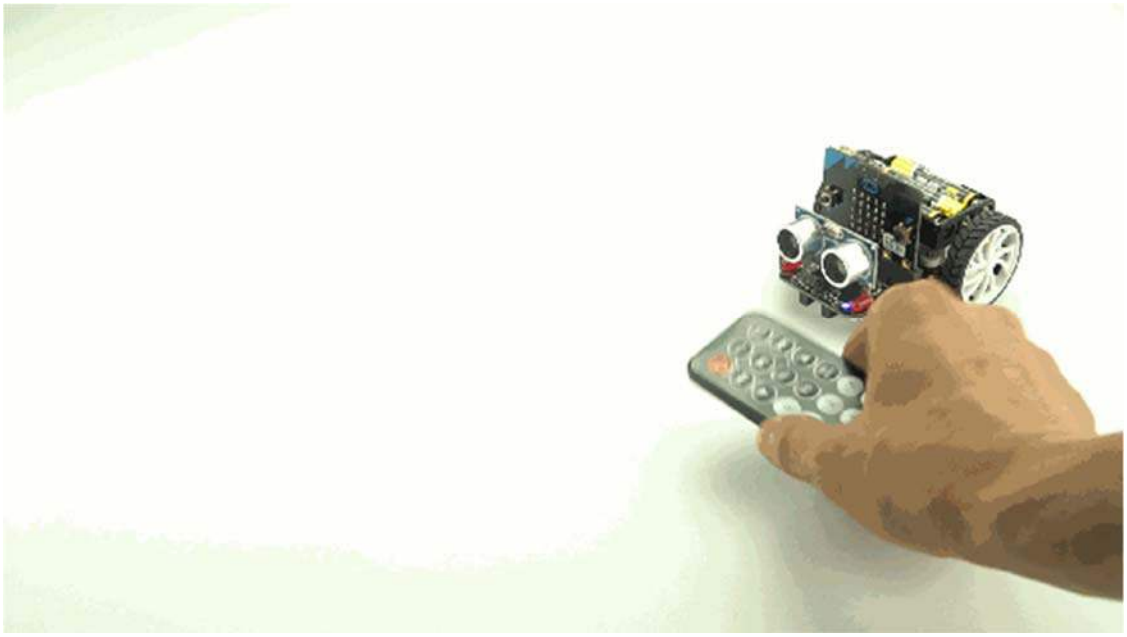
IR Remote Control and Its Key Assignments
The key assignments in the following table are in hexadecimal. In this product, we read the last two digits of the key assignments and automatically convert them to decimal data.

Key	Key Assignments
Power	0xff00
VOL+	0xfe01
FUNC/STOP	0xfd02
Left	0xfd04
Pause	0xfa05
Right	0xf906
Down	0xf708
VOL-	0xf609
Up	0xf50a
0	0xf30c
EQ	0xf20d
ST/REPT	0xf10e
1	0xef10
2	0xee11
3	0xfa05

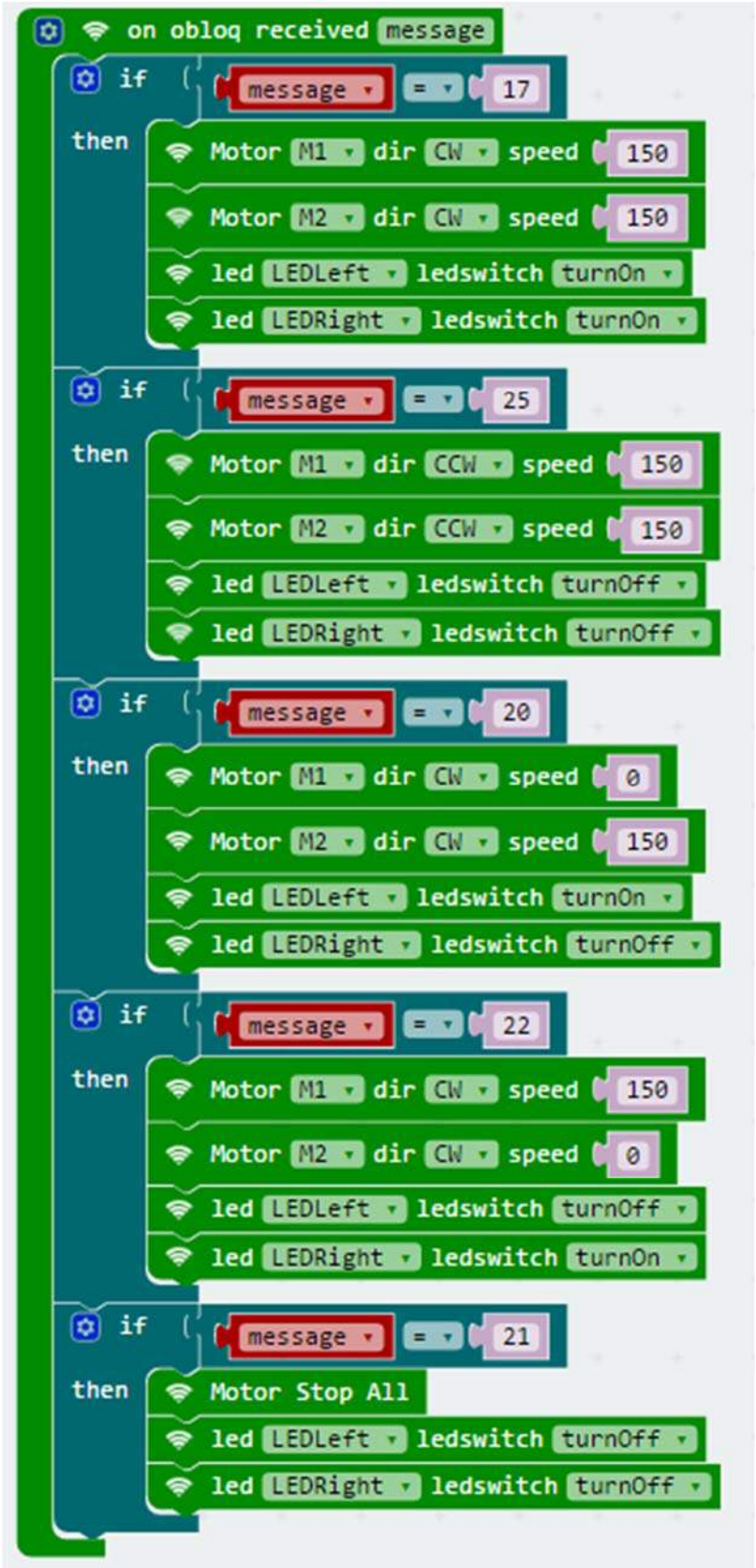
4	0xeb14
5	0xea15
6	0xe916
7	0xe718
8	0xe619
9	0xe51a

IR Remote Control

Learning Target：Learn to use the IR remote control to command the car.
Effect: Control car forward, left, right, back with 4 keys of IR remote control 2, 4, 6, 8.

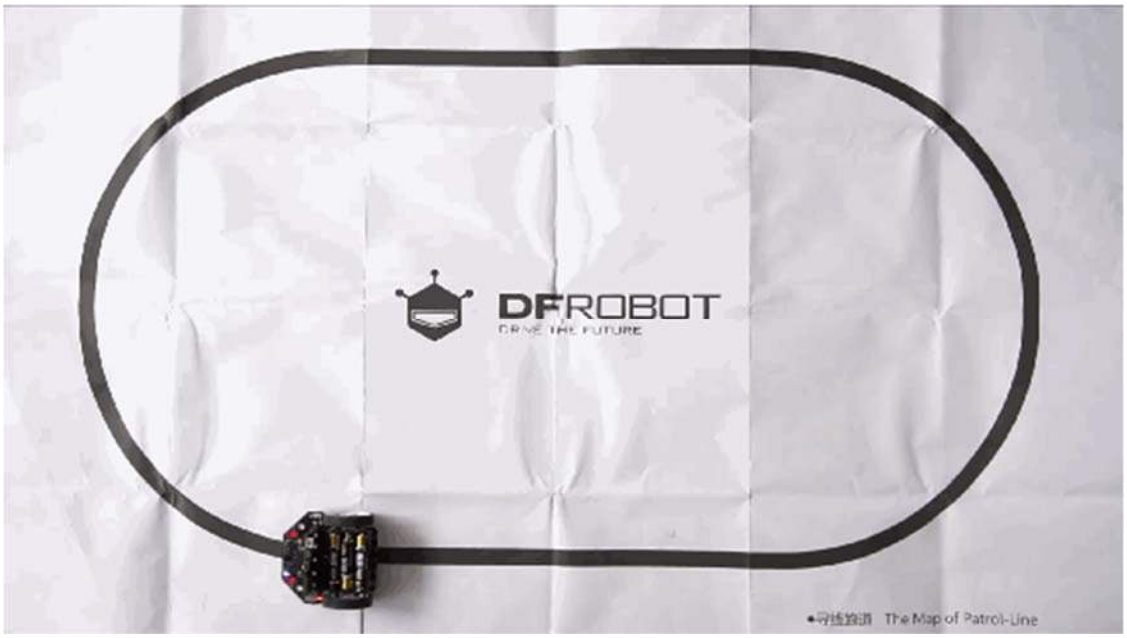


Makecode Program Link: https://makecode.microbit.org/_MfDXhX6MM35X
Screenshot of Makecode Graphical Program:

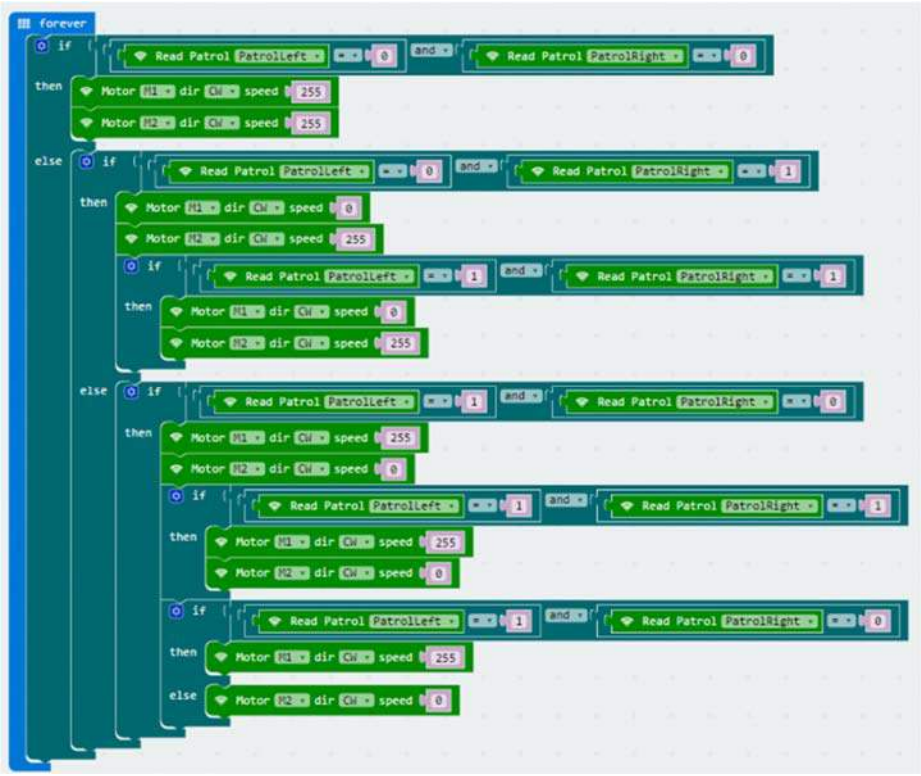

on obloq received message
if message = 17
then
Motor M1 dir CW speed 150
Motor M2 dir CW speed 150
led LEDLeft ledswitch turnOn
led LEDRight ledswitch turnOn
if message = 25
then
Motor M1 dir CCW speed 150
Motor M2 dir CCW speed 150
led LEDLeft ledswitch turnOff
led LEDRight ledswitch turnOff
if message = 20
then
Motor M1 dir CW speed 0
Motor M2 dir CW speed 150
led LEDLeft ledswitch turnOn
led LEDRight ledswitch turnOff
if message = 22
then
Motor M1 dir CW speed 150
Motor M2 dir CW speed 0
led LEDLeft ledswitch turnOff
led LEDRight ledswitch turnOn
if message = 21
then
Motor Stop All
led LEDLeft ledswitch turnOff
led LEDRight ledswitch turnOff

Line-tracking

Effect: The car is running along the black line.

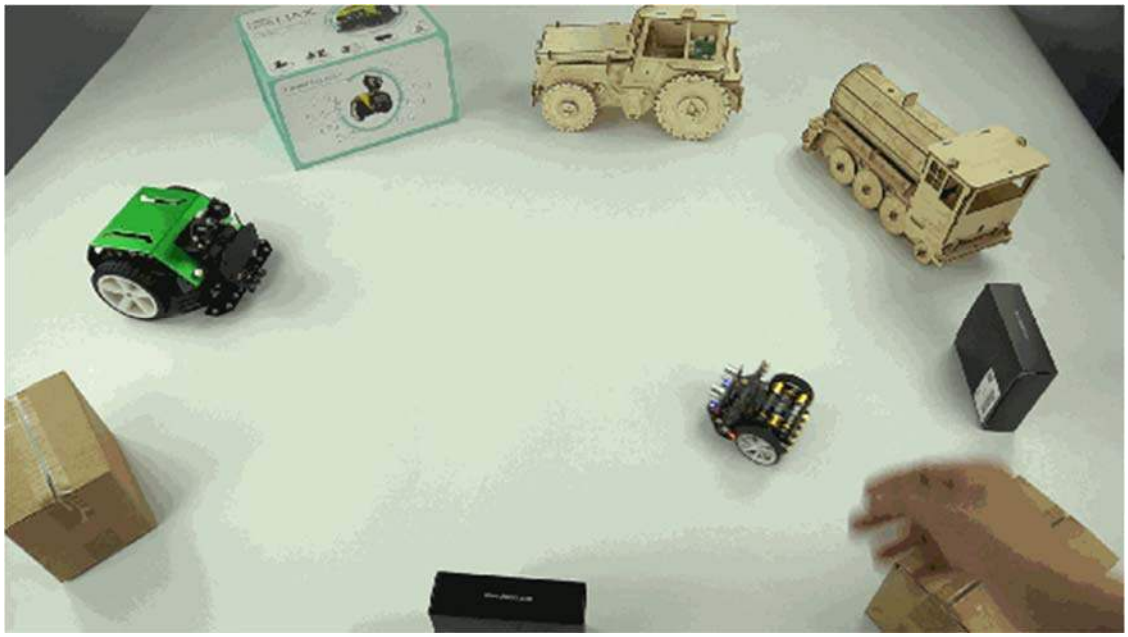


Makecode Program Link: https://makecode.microbit.org/_1VzX7LLAC3im
Screenshot of Makecode Graphical Program:

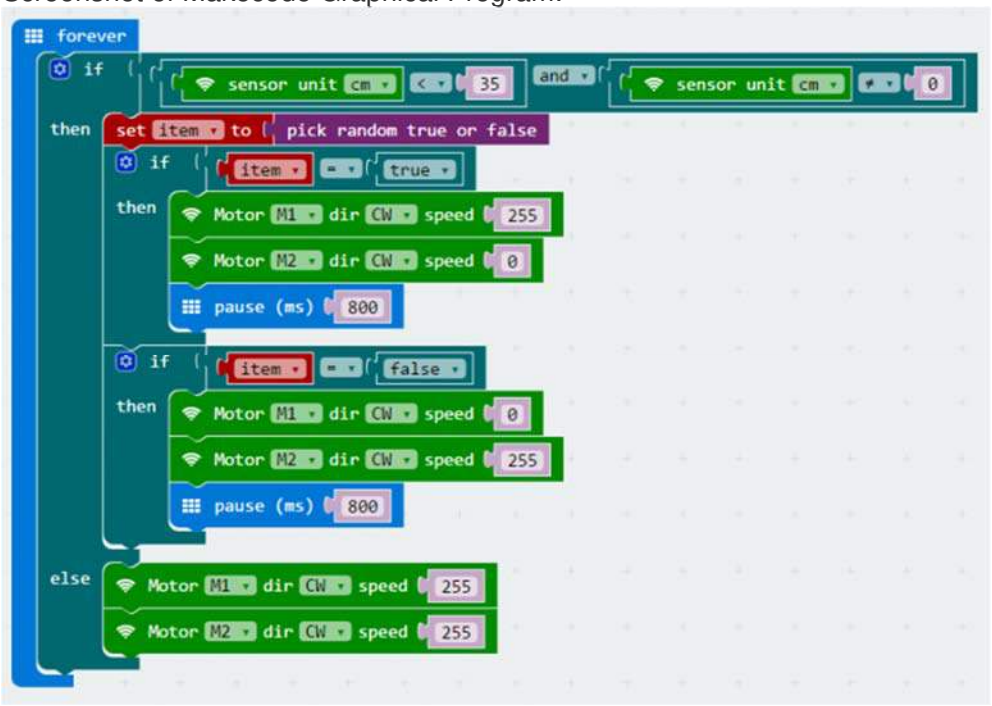


Ultrasonic Obstacle-avoiding

Effect: Ultrasonic detects the distance between the car and the obstacle in front of it. If the distance is less than 35cm, the car will randomly choose to turn left or right to avoid obstacles.
Fittings: SR04 Ultrasonic Module x 1 or SR04-P Ultrasonic Module x 1

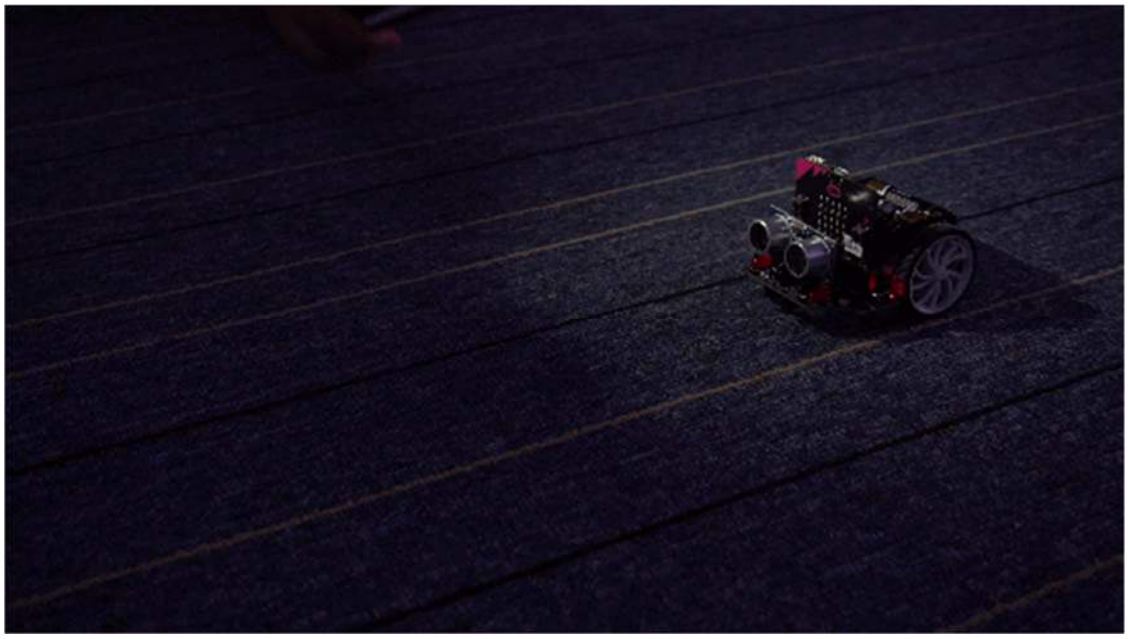


Makecode Program Link: https://makecode.microbit.org/_Fa4Ef3DwyXW7
Screenshot of Makecode Graphical Program:

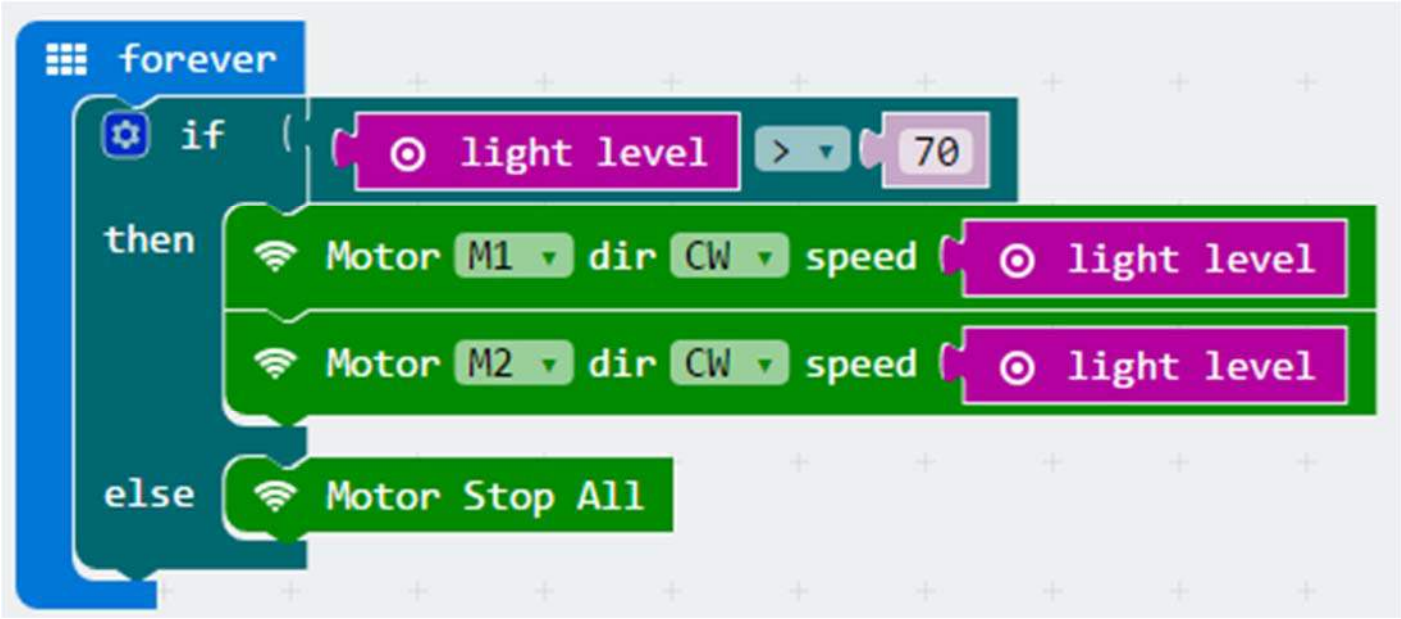


Light-operated Sprite

Effect: The car does not move in the darker light, and as the flashlight illuminates the LED, the vehicle's forward speed begins to increase as the intensity of the light increases.



Makecode Program Link: https://makecode.microbit.org/_fi6DWjCKeM9v
Screenshot of Makecode Graphical Program:

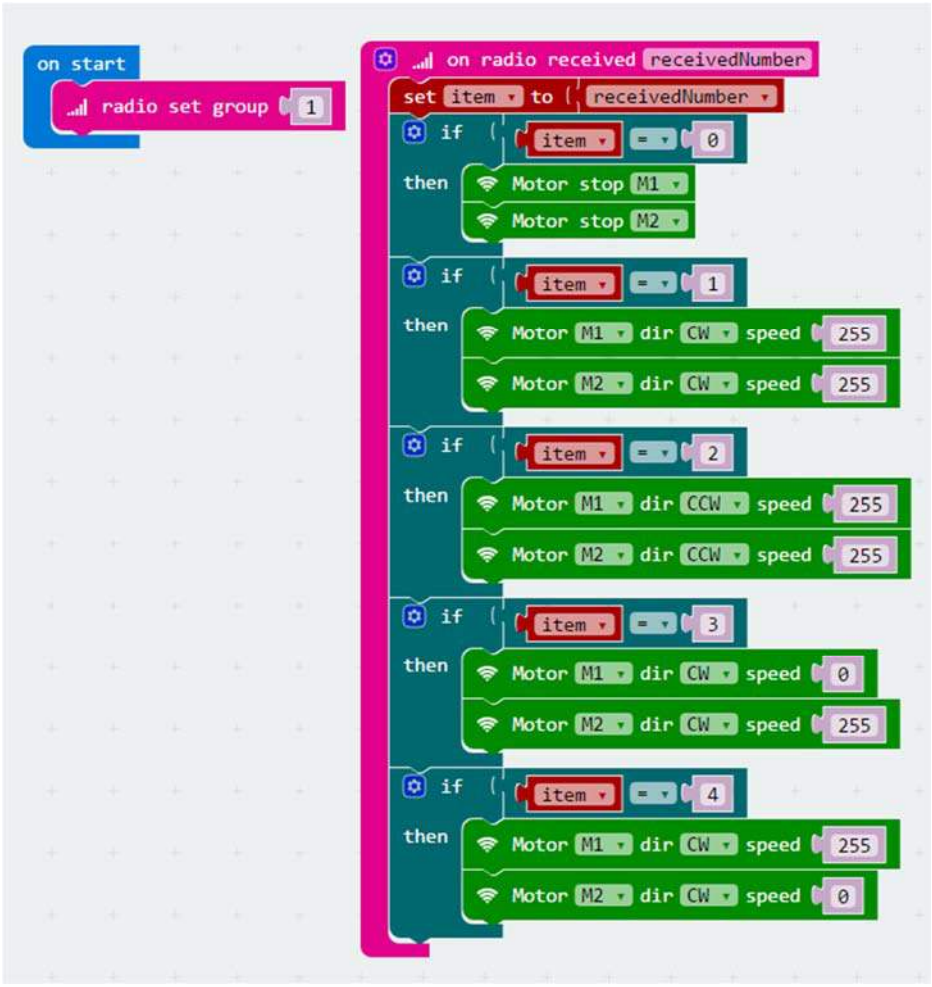


Wireless Remote Control

Learning Target: Learn the way of using micro:bit wireless.
Effect: Use gamepad to control the car's movement.
micro:bit Micro:bit Gamepad

Makecode Program Link of the Car:https://makecode.microbit.org/_ftMMb8WkwDV7
Makecode Program Link of the Gamepad: https://makecode.microbit.org/_gwK0A3JwEW0V
Screenshot of Makecode Graphical Program:

- Screenshot of Car's Makecode Graphical Program:



- Screenshot of Gamepad's Makecode Graphical Program: