### Introduction



(https://www.dfrobot.com/product-1711.html)

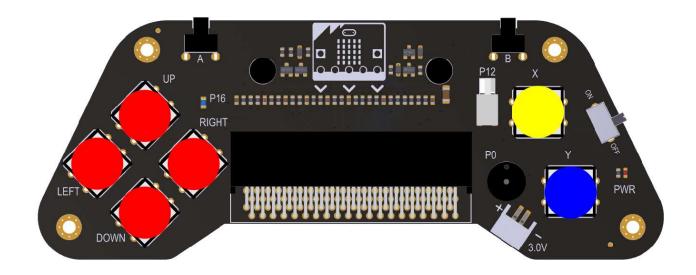
Micro:bit gamepad is an expansion gamepad based on micro:bit. You only need to plug in the micro:bit, it will turn into a wireless remote controller or a wireless game console. This product packaged with acrylic plate, that giving it a good feel and no longer feels like a bare circuit board. The gamepad has a total of 8 buttons, the left side have up, down, left, right four buttons, the right side has X, Y two buttons, and two buttons A, B are in the front of the gamepad. The gamepad also has programmable built-in vibration motor, buzzer, and LED. Using graphical programming, it will turn into a multimedia vibration controller or multimedia interactive game console instantly. The programming platform supports MakeCode graphical programming and python. It is a very suitable tool for both beginners and masters.

## **Specification**

- Operating Voltage: 3VDC (2 AAA batteries)
- Number of Buttons: Up, Down, Left, Right, X, Y, A, B Total 8 programmable buttons
- Onboard Vibration motor × 1
- Onboard LED × 1
- Onboard Buzzer × 1
- Acrylic Floor x 1
- Acrylic Panel × 1
- Battery Box with Cover × 1
- Velcro × 2
- Copper Cylinder × 4
- Screw × 8
- Big Button ×6
- Small Button × 2

• Dimension:148x57(mm)/ 5.83\*2.24in

## **Board Overview**



| Function          | Description                |
|-------------------|----------------------------|
| LED               | Control pin P16            |
| Vibration Motor   | Control pin P12            |
| Buzzer            | Control pin P0             |
| PWR               | Power Indicator            |
| Switch            | Turn off the power         |
| Opearting Voltage | 3V~3.7V (2x AAA batteries) |
|                   |                            |

## **Tutorial**

# **MakeCode Graphical Programming**

The basic tutorial of MakeCode:

- The library of gamepad: https://github.com/DFRobot/pxt-gamePad (https://github.com/DFRobot/pxt-gamePad)
- 1. Enter MakeCode (https://makecode.microbit.org/)
- 2. Find Advanced > Add package
- 3. Copy the library link and paste it in the option box
- 4. Click the gamepad, and you can find a new icon on the right.

## The programming of event trigger

```
on button X button is pressed

Vibrator motor switch Vibration

LED on

on button X button is released

Vibrator motor switch stop

LED off
```

Result: When the X is pressed, the vibration motor vibrates and the LED lights up; when the X is released, the vibration motor stops and the LED turns off.

```
on button X button is click

ON Vibrator motor switch Vibration

ON LED on V

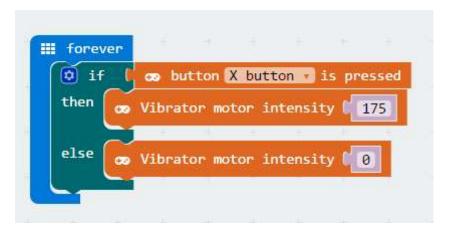
ON on button Y button is click

ON Vibrator motor switch stop

ON LED off
```

Result: When the X is pressed, the vibrating motor vibrates and the LED lights up; when the Y is pressed, the vibrating motor stops and the LED turns off.

## The Programming of Cyclic Query



kesuit: when the  $\lambda$  is pressed, the vibration motor vibrates at the strength of 175, and when the X is released, the vibration motor stops vibrating.

### **Rock-Paper-Scissors**

Graphical source program: Rock-Paper-Scissors (https://makecode.microbit.org/87049-10298-77800-67660)

```
on button D-PAD left is click
 set name to [ 1
  ___ radio send number name •
  Play tone ( ○ Middle C for ( ○ 1 * be
    show leds
on button D-PAD down is click
 set name to 2
  al radio send number name
  op play tone ( o Middle C for ( o 1 + bea
  ## show leds
     🔯 📶 on radio receiveditem
 set value v to ( item v
  al radio set group 1
on button D-PAD right is click
 set name v to ( 3
  _m radio send number name •

→ Middle C for ()

  oplay tone
                                  1 .
```

```
and v name v = v 2
    value v = 1
m show ico
              Middle C for [
set name • to [ 0
set value - to 0
    (value v = v 1
                      and I name I = I 3
o play tone ( o Middle C for (
set name • to [ 0
set value • to 0 0
    value v = v 1 and v name v = v 1
show ico
o play tone b
              Middle C for ( @ 1 .
set name • to [ 0
   value v = 2 and v name v = 1
              Middle C for C
set name • to [ 0
set value to [ 0
    value v = v 2
                     and v name v = v 3
⊋ play tone C → Middle C for C → 1 * beat
set name • to 0 0
set value v to [ 0
    value v = v 2 and v name v = v 2
∰ show ico
              Middle C for C
set name • to [ 0
set value • to [ 0
    value • = • 3
                            name - = 1 1
-
o play tone o Middle C for o
set name • to [ 0
set value v to 0 0
    (value v = v 3 and v name v = v 2
O play tone 🕻 🕜 Middle C for
set name to 0
set value to 0
   value v = v 3 and v name v = v 3
```

```
oplay tone to Middle C for to beat set name to to 0 set value to 0 0
```

#### Execution of the Program:

- 1. First, you should set the two main boards are in the 1th wireless group, so that they can communicate with each other.
- 2. When the left button is pressed, LED dot matrix displays the scissors, and sends the number 1.
- 3. When the down button is pressed, LED dot matrix displays the rock, and sends the number 2.
- 4. When the right button is pressed, LED dot matrix displays the paper, and sends the number 3.
- 5. In the infinite loop, compare the wireless received numbers with your own Numbers;if you lost,it will display "×", if you win, it will show "√".
- 6. After showing the result, clear all data.

#### Yacht

Graphical source program: Dice Game (https://makecode.microbit.org/88613-07172-15323-53378)

```
a on radio received received imber on start

set name to received imber of received imber of the remainder o
```

#### Execution of the Program:

- 1. Set the wireless to group 1 when booting, and initialize item to 0.
- 2. When the vibration is detected, turn off the LED and initialize the value to 0, and use the

acceleration value to produce a random number between 1 and 6.

- 3. Incremental display from 0 to randomly generated number on the LED dot matrix, play the pitch and vibrate motor.
- 4. Send 1~6 random numbers to other main boards via wireless.
- 5. Comparing the random number with the received number. If it is less than the received number, turn off the light, otherwise turn on the light.

#### **Remote Control Handle**

Graphical source program of handle: Gamepad (https://makecode.microbit.org/\_Txyh7tPzs5F9)
Graphical source program of car: Mobile Platform
(https://makecode.microbit.org/\_A8uim74TxXKk)

```
on button D-PAD up v is pressed v
                                      on button D-PAD down v is pressed v
                                                                                oo on button D-PAD up v is released v
  "d radio send number 🚺 🚺
                                            radio send number ( 2
                                                                                   "| radio send number 📗 0
  on button D-PAD down - is released -
                                          on button D-PAD left v is pressed v
                                                                                      on button D-PAD right * is pressed *
   📶 radio send number 🕻 0
                                              radio send number ( 3
                                                                                      📶 radio send number 🛴 4
  on button D-PAD left - is released -
                                            on button D-PAD right v is released v
    radio send number 00
                                               radio send number 🕻 0
```

#### Execution of the Program:

- 1. Set the wireless to group 1.
- 2. When different buttons are pressed, send different numbers to let the car performs different actions.
- 3. When the button is released, the number 0 is sent to make the car stop.

```
on start
    radio set group 1
     on radio received item
  o if
           item • = 0 0
  then
          servo write pin P8 (write only) to
          servo write pin P12 (write only) • to
  p if
           item - = 1 1
  then
          servo write pin P8 (write only) • to
          servo write pin P12 (write only) to
  o if
           item • = • C 2
  then
          servo write pin P8 (write only) . to
          servo write pin P12 (write only) - to 180
  o if
           item - 3
  then
          servo write pin P8 (write only) . to 90
          servo write pin P12 (write only) . to 0
  o if
           item - = - 1 4
  then
        servo write pin P8 (write only) • to 0
          servo write pin P12 (write only) . to [ 90
```

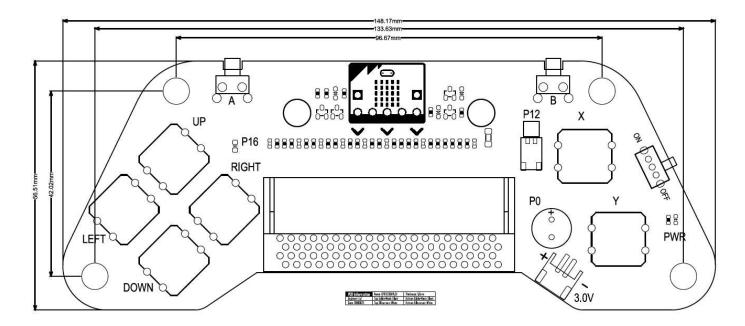
Execution of the Program:

- 1. Set the wireless to group 1.
- 2. When receiving different numbers, let the car perform different actions such as forward, backward, turn left, turn right.

## **FAQ**

| Q&A | Some general Arduino Problems/FAQ/Tips                                                                                    |
|-----|---------------------------------------------------------------------------------------------------------------------------|
| Α   | For any questions, advice or cool ideas to share, please visit the <b>DFRobot Forum</b> (https://www.dfrobot.com/forum/). |

## **More Documents**



Get micro:Gamepad (https://www.dfrobot.com/product-1711.html) from DFRobot Store or DFRobot Distributor. (https://www.dfrobot.com/index.php?route=information/distributorslogo)

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