Controller
DFR0182 Wirless GamePad V2.0
DFR0100 DFRduino Beginner Kit For Arduino V3
DFR0267 Bluno
DFR0282 Beetle
DFR0283 Dreamer Maple V1.0
DFR0296 Bluno Nano
DFR0302 MiniQ 2WD Plus
DFR0304 BLE Wireless Gamepad V2
DFR0305 RoMeo BLE
DFR0351 Romeo BLE mini V2.0
DFR0306 Bluno Mega 1280
DFR0321 Wido-WIFI IoT Node
DFR0323 Bluno Mega 2560
DFR0329 Bluno M3
DFR0339 Bluno Beetle
DFR0343 UHex Low-power Controller
DFR0355 SIM808 with Leonardo mainboard
DFR0392 DFRduino M0 Mainboard Arduino Compatible
DFR0398 Romeo BLE Quad Robot Controller
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DFR0575 Beetle ESP32
DFR0133 X-Board
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DFR0428 3.5 inches TFT Touchscreen for Raspberry Pi
DFR0494 Raspberry Pi UPS HAT
DFR0514 DFR0603 IIC 16X2 RGB LCD KeyPad HAT V1.0
DFR0524 5.5 HDMI OLED-Display with Capacitive Touchscreen V2.0
DFR0550 5'' TFT-Display with Touchscreen V1.0
DFR0591 raspberry pi e-ink display module V1.0
DFR0592 DC Motor Driver HAT
DFR0604 I O Expansion HAT for Pi zero V1.0
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TEL0110 CurieCore intel® Curie Neuron Module
DFR0478 FireBeetle ESP32 IOT Microcontroller(V3.0) Supports Wi-Fi & Bluetooth
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DFR0548 Micro bit Driver Expansion Board
ROB0148 micro: Maqueen for micro:bit
ROB0150 Micro bit Circular RGB LED Expansion Board
MBT0005 micro IO-BOX
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DFR0049 DFRobot Gas Sensor
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SEN0132 Carbon Monoxide Gas Sensor MQ7
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Triple Axis Accelerometer FXLN83XX Series
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SEN0253 Gravity BNO055 + BMP280 intelligent 10DOF AHRS
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SEN0002 URM04 V2.0
SEN0004 SRF01 Ultrasonic sensor
SEN0005 SRF02 Ultrasonic sensor
SEN0006 SRF05 Ultrasonic sensor
SEN0007 SRF08 Ultrasonic Sensor
SEN0008 SRF10 Ultrasonic sensor
SEN0149 URM06-RS485 Ultrasonic
SEN0150 URM06-UART Ultrasonic
SEN0151 URM06-PULSE Ultrasonic
SEN0152 URM06-ANALOG Ultrasonic
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SEN0301 Water-proof Ultrasonic Sensor ULA
SEN0307 URM09 Ultrasonic Sensor Gravity Analog
SEN0311 A02YYUW Waterproof Ultrasonic Sensor
SEN0312 ME007YS Waterproof Ultrasonic Sensor
SEN0313 A01NYUB Waterproof Ultrasonic Sensor
DFR0066 SHT1x Humidity and Temperature Sensor
DFR0067 DHT11 Temperature and Humidity Sensor
SEN0137 DHT22 Temperature and humidity module
DFR0023 DFRobot LM35 Linear Temperature Sensor
DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2
DFR0024 Gravity DS18B20 Temperature Sensor Arduino Compatible V2
SEN0114 Moisture Sensor
TOY0045 TMP100 Temperature Sensor
TOY0054 SI7021 Temperature and humidity sensor
SEN0206 IR Thermometer Sensor MLX90614
SEN0227 SHT20 I2C Temperature & Humidity Sensor Waterproof Probe
SEN0236 Gravity I2C BME280 Environmental Sensor Temperature, Humidity, Barometer
SEN0248 Gravity I2C BME680 Environmental Sensor VOC, Temperature, Humidity, Barometer
DFR0558 Gravity Digital High Temperature Sensor K-type
SEN0308 Waterproof Capacitive Soil Moisture Sensor
SEN0019 Adjustable Infrared Sensor Switch
SEN0042 DFRobot Infrared sensor breakout
SEN0143 SHARP GP2Y0A41SK0F IR ranger sensor 4-30cm
SEN0013 Sharp GP2Y0A02YK IR ranger sensor 150cm
SEN0014 Sharp GP2Y0A21 Distance Sensor 10-80cm
SEN0085 Sharp GP2Y0A710K Distance Sensor 100-550cm
DFR0094 Digital IR Receiver Module
DFR0095 DIGITAL IR Transmitter Module
SEN0018 Digital Infrared motion sensor
DFR0107 IR Kit
SEN0264 TS01 IR Thermal Sensor (4-20mA)
SEN0169 Analog pH Meter Pro
DFR0300-H Gravity: Analog Electrical Conductivity Sensor(K=10)
DFR0300 Gravity Analog Electrical Conductivity Sensor Meter V2 K=1
SEN0165 Analog ORP Meter
SEN0161-V2 Gravity Analog pH Sensor Meter Kit V2
SEN0161 PH meter
SEN0237 Gravity Analog Dissolved Oxygen Sensor
SEN0204 Non-contact Liquid Level Sensor XKC-Y25-T12V
SEN0205 Liquid Level Sensor-FS-IR02
SEN0244 Gravity Analog TDS Sensor Meter For Arduino
SEN0249 Gravity Analog Spear Tip pH Sensor Meter Kit For Soil And Food Applications
SEN0121 Steam Sensor
SEN0097 Light Sensor
DFR0026 DFRobot Ambient Light Sensor
TOY0044 UV Sensor
SEN0172 LX1972 ambient light sensor
SEN0043 TEMT6000 ambient light sensor
SEN0175 UV Sensor v1.0-ML8511
SEN0228 Gravity I2C VEML7700

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SKU:DFR0888

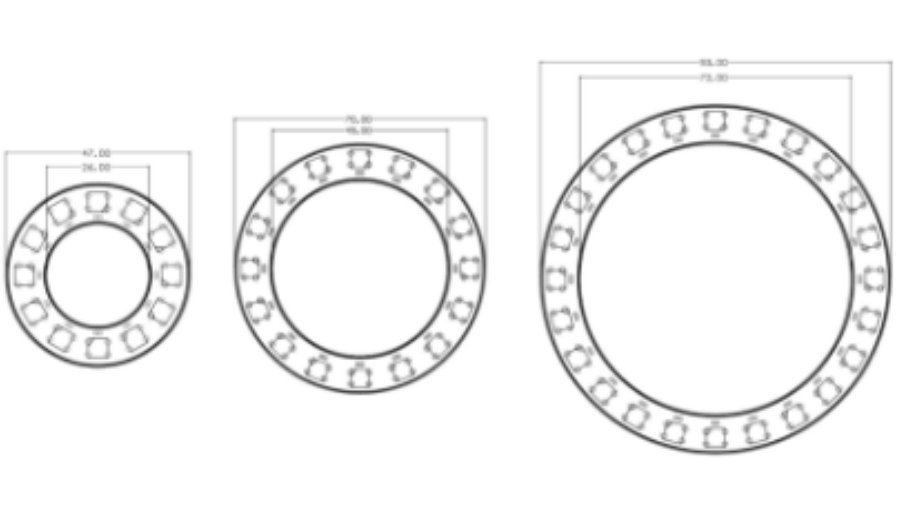
Introduction

Shine like rainbows, this full-color RGB LED Ring with an exquisite and cool appearance could be a great partner for your interactive applications. Add it to your project to brighten your creativity! Combining with sensors, it could turn into a compass that tells direction, a cool clock, a tomato timer, a countdown timer… It could also be a turntable lottery machine used in games, colorful decoration for robots, etc. Come and unlock more fun ways to play with this colorful RGB LED ring by cascading it.

Specification

- Supply voltage: 3.3-5V
- Interface type: PH2.0-3P
- Interface function: cascade multiple lamp rings through the interface

Dimension



Pinout

RGB LED ring pinout diagram:

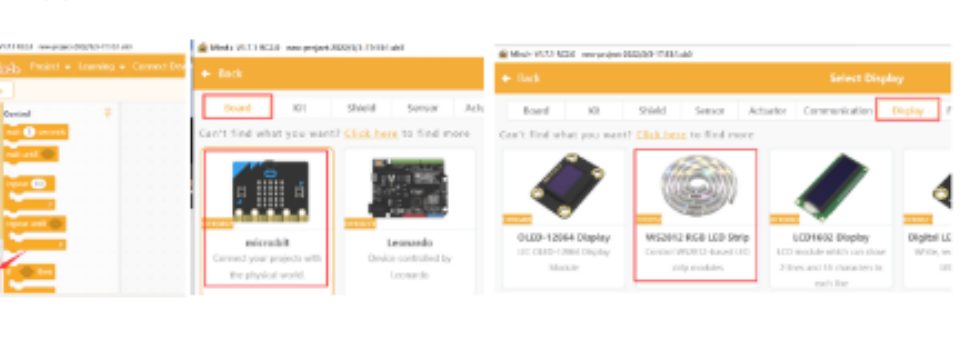
Num	Label	Description
1	D	Digital signal port
2	+	VCC
3	-	GND

Note: For the silkscreen of the port, IN and OUT represents input and output terminals respectively.

1. Mind+ Programming

User Guide

The extension library of the RGB LED command needs to be added before using the RGB LED ring. Open Mind+ platform, click "Extensions" in the bottom right corner, and in the "MCU" menu bar, select "micro:bit", the MCU to be used. Then find "WS2812 RGB LED" in the "Display" menu bar and click it to add the RGB LED extension library, then the display module will appear in the command area.



Application Sample (RGB LED Ring - 12)

Project 1: Dazzling Neon Light

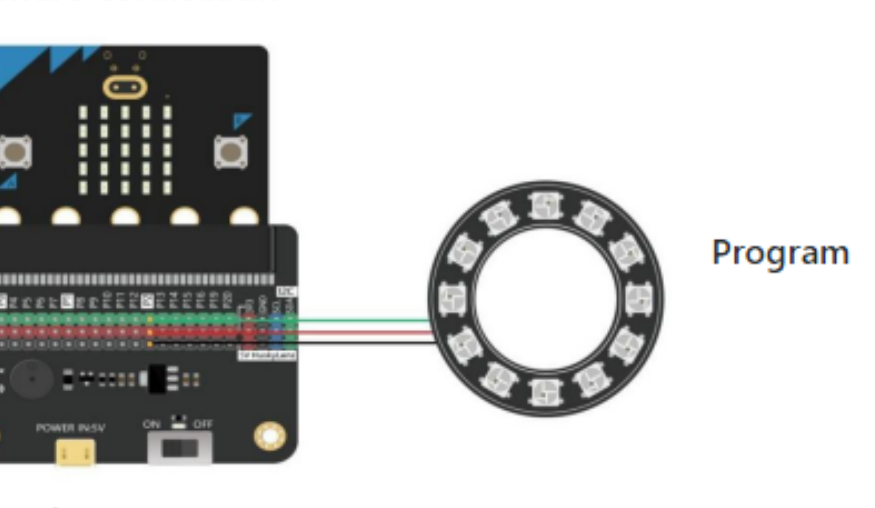
Project Introduction

Display color gradients of the 12 LED beads. The color of the lamp bead changes by one level successively around the circle to form a rotating effect as if it's a dynamic rainbow.

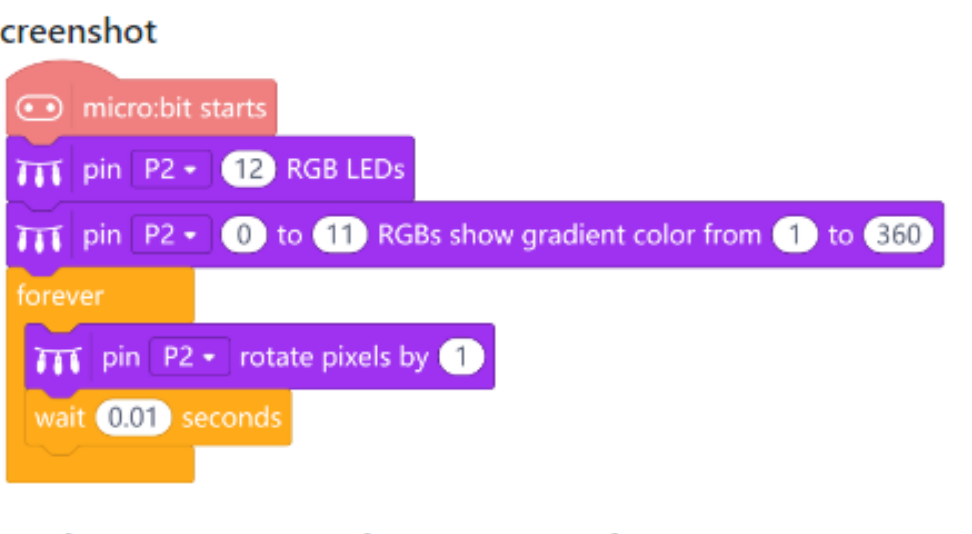
Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED Ring- 12 LED Beads × 1

Hardware Connection



Screenshot

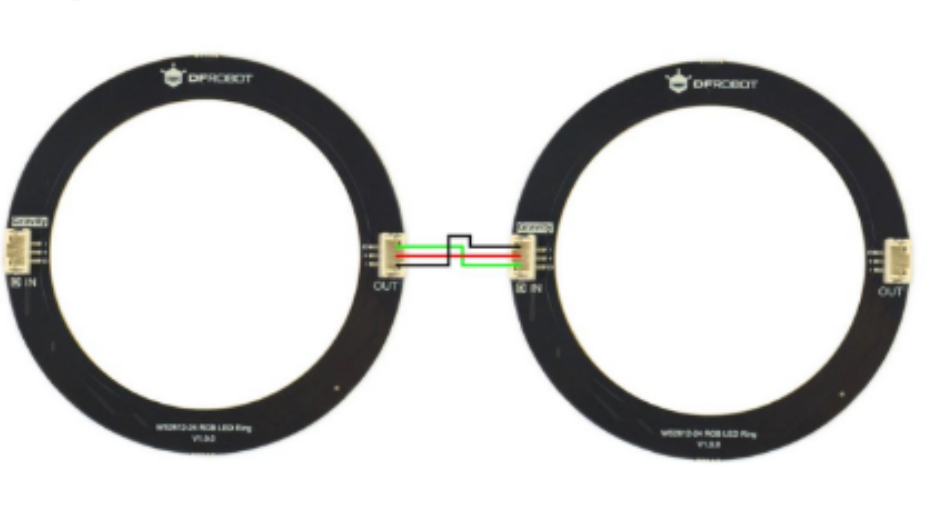


```
micro:bit starts
pin P2 ▾ 12 RGB LEDs
pin P2 ▾ 0 to 11 RGBs show gradient color from 1 to 360
forever
    pin P2 ▾ rotate pixels by 1
    wait 0.01 seconds
```

Project 2: LED Ring Cascade

Method to cascade LED ring

It's easy to cascade the LED ring. Just connect the OUT port of the first lamp ring to the IN port of the second lamp ring through the PH2.0-3P male-to-male cable.



Note: When using the cascaded lamp ring, the power supply may be unstable due to excessive beads, which can be resolved by using a 5V or external power supply.

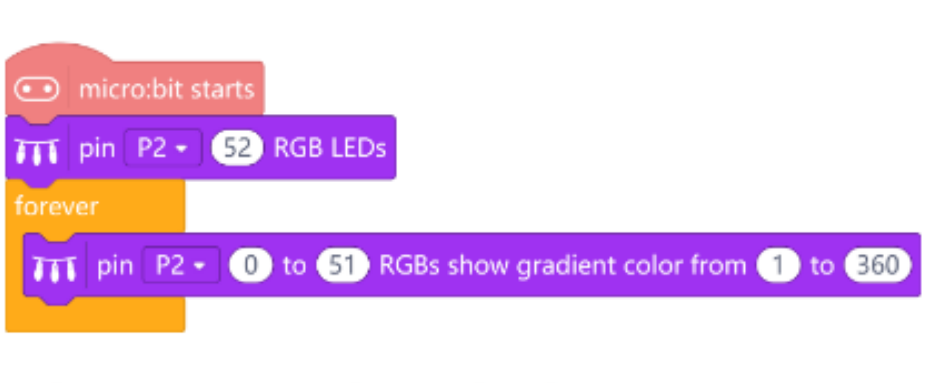
Product Introdution

To achieve a dazzling neon light effect similar to project 1 by cascading three types of LED rings.

Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED ring- 12 LED beads × 1
- RGB LED ring- 16 LED beads × 1
- RGB LED ring- 24 LED beads × 1
- PH2.0-3P digital cable × 1
- PH2.0-3P male-to-male cable × 1

Program Screenshot

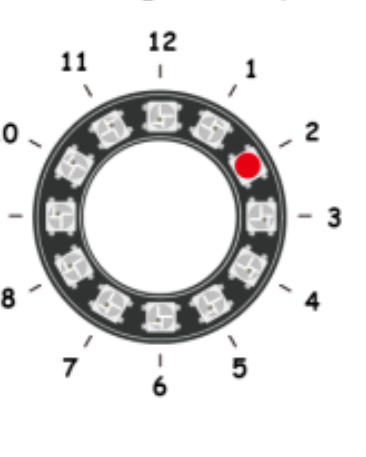


```
micro:bit starts
pin P2 ▾ 52 RGB LEDs
forever
    pin P2 ▾ 0 to 51 RGBs show gradient color from 1 to 360
```

Project 3: LED Ring Clock

Product Introduction

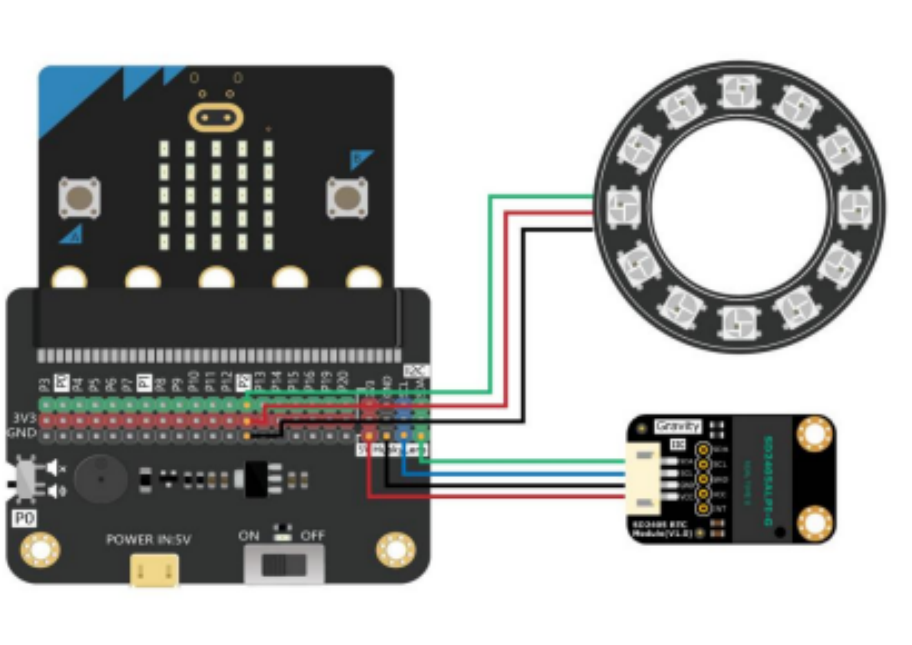
Clocks serve as timers in our daily routine. The most general clocks are electronic and quartz clocks. Let's use the LED ring module to design a unique clock.



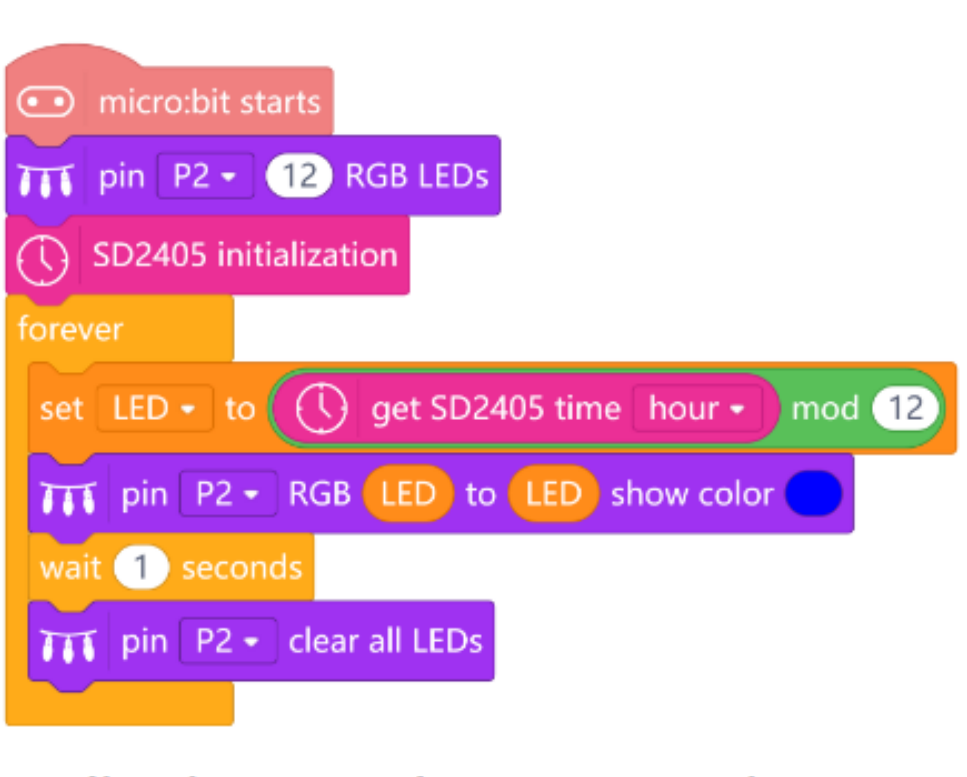
Hardware preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED ring- 12 LED beads × 1
- RTC real-time clock module × 1

Hardware Connection



Program Screenshot



```
micro:bit starts
pin P2 ▾ 12 RGB LEDs
SD2405 initialization
forever
    set LED ▾ to get SD2405 time hour ▾ mod 12
    pin P2 ▾ RGB LED to LED show color ●
    wait 1 seconds
    pin P2 ▾ clear all LEDs
```

Application Sample (RGB LED Ring- 24)

Project 4: LED Ring Compass

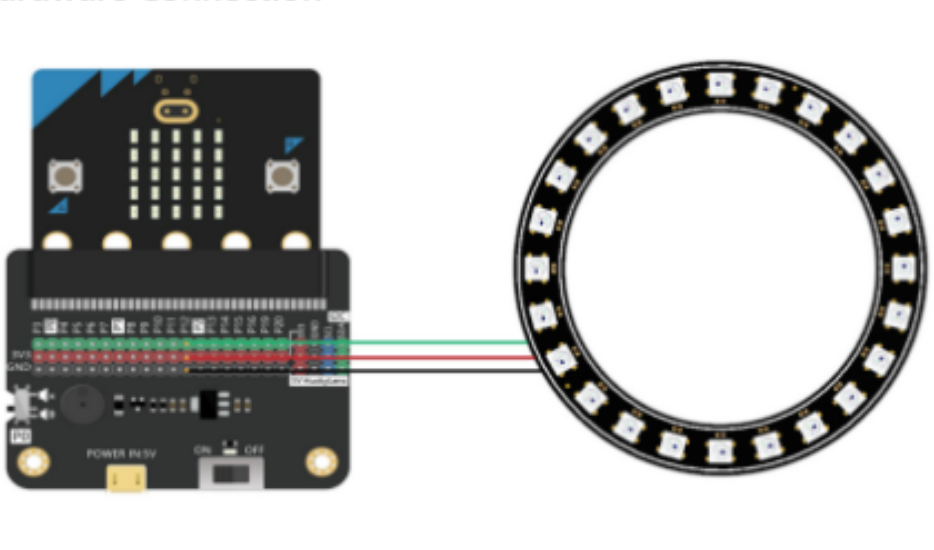
Project Introduction

The compass is designed to tell the direction, and nowadays smartphones commonly are equipped with a compass software to help us determine the North Pole based on the geomagnetic field. Let's do a compass project using RGB LED ring with micro:bit, thus explore the connection between it and us.

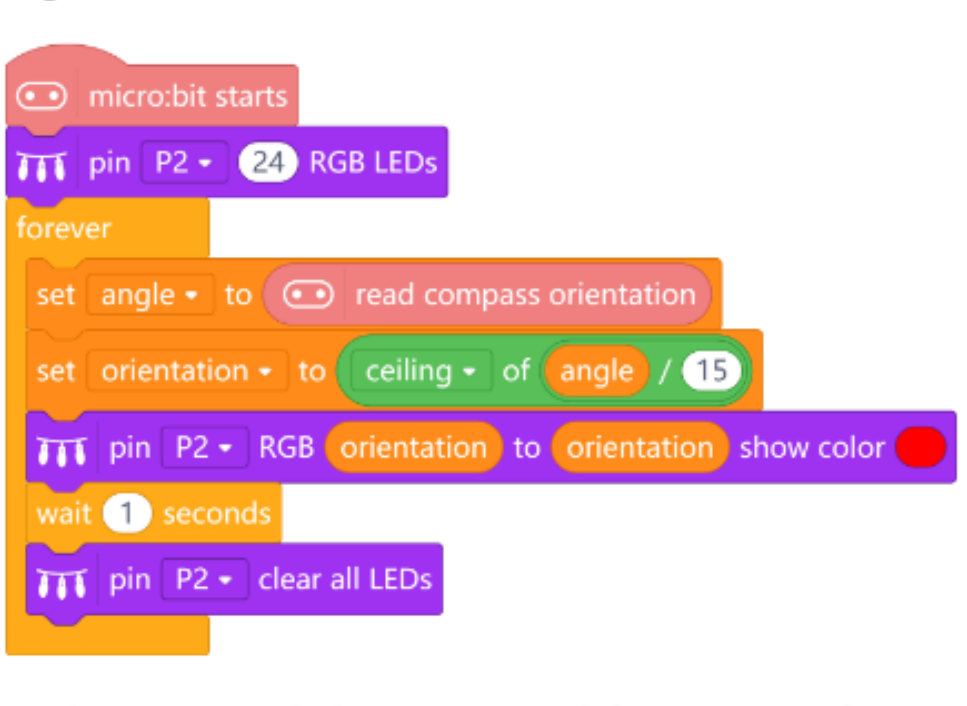
Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED Ring- 24 LED beads × 1

Hardware Connection



Program Screenshot



```
micro:bit starts
pin P2 ▾ 24 RGB LEDs
forever
    set angle ▾ to read compass orientation
    set orientation ▾ to ceiling ▾ of angle / 15
    pin P2 ▾ RGB orientation to orientation show color ●
    wait 1 seconds
    pin P2 ▾ clear all LEDs
```

Project 5: Rainbow Breathing LED Ring

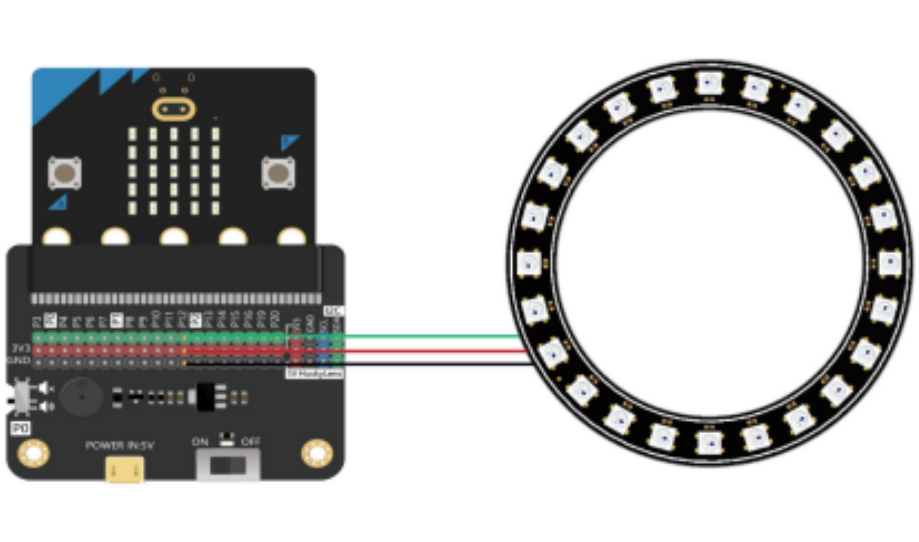
Project Introduction

The breathing light is the light controlled to gradually change from bright to dark and then from dark to bright, which feels like breathing at a certain tempo. We will employ the RGB LED ring to make a rainbow breathing ring feasting your eyes.

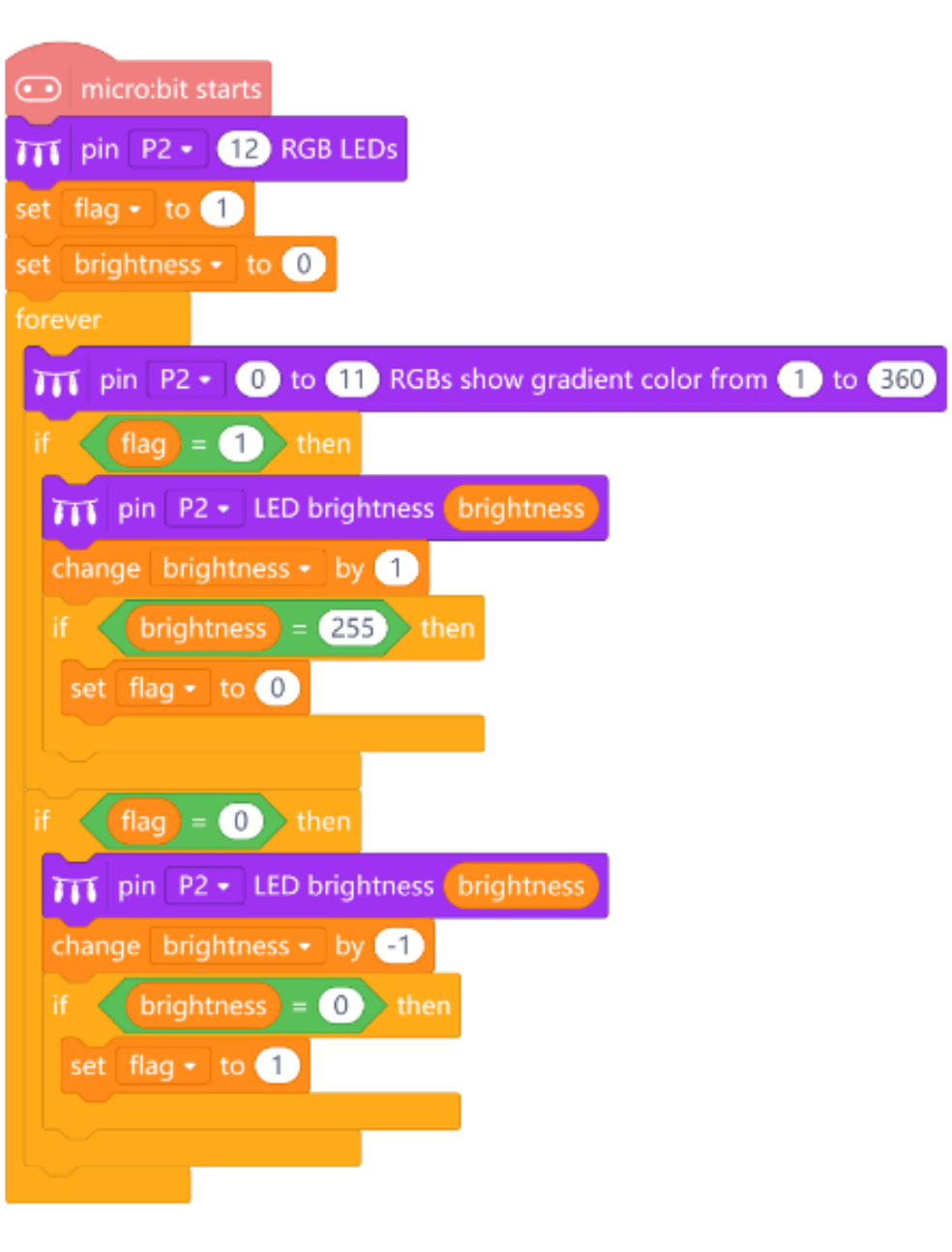
Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED Ring- 12 LED beads × 1

Hardware connection



Program Screenshot

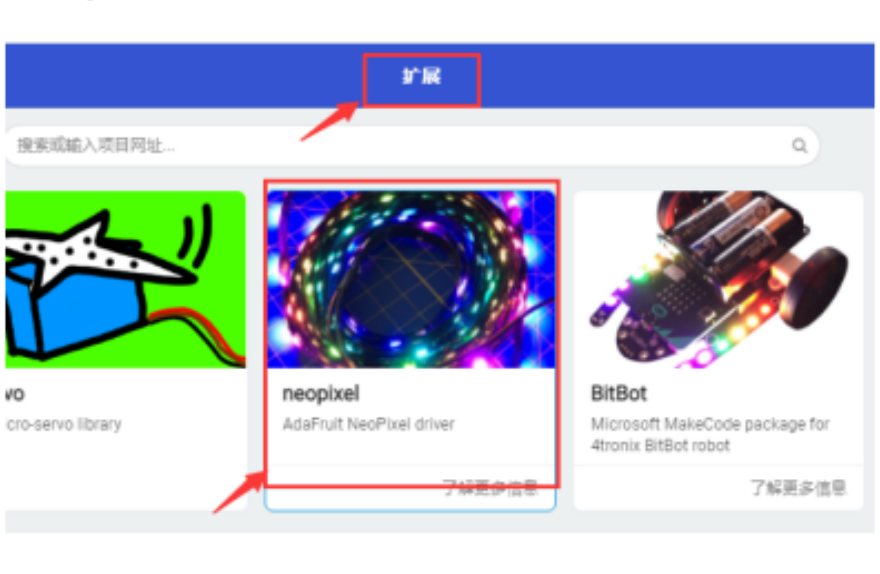


```
micro:bit starts
pin P2 ▾ 12 RGB LEDs
set flag ▾ to 1
set brightness ▾ to 0
forever
    pin P2 ▾ 0 to 11 RGBs show gradient color from 1 to 360
    if flag = 1 then
        pin P2 ▾ LED brightness brightness
        change brightness ▾ by 1
        if brightness = 255 then
            set flag ▾ to 0
    if flag = 0 then
        pin P2 ▾ LED brightness brightness
        change brightness ▾ by -1
        if brightness = 0 then
            set flag ▾ to 1
```

2. Makecode Programming

User Guide

Click the extensions in MakeCode and add the lamp strip library into the extensions.



Project 1: RGB Palette

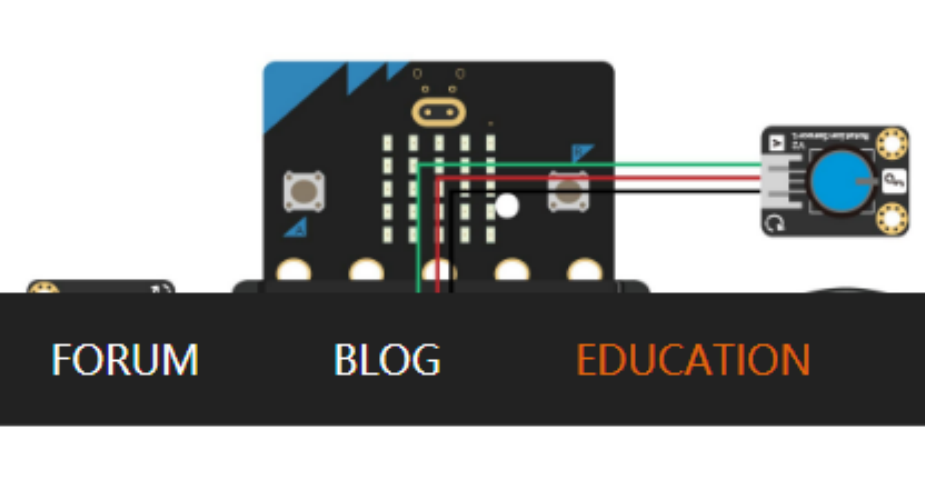
Project Introduction

We are all familiar with RGB and know that mixing blue with green will turn into yellow. RGB color model is based on the principle of getting 16 million different colors by mixing three colors. Let the RGB ring serve as our color palette and mix the color that satisfies us the most.

Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED Ring- 12 LED beads × 1
- Analog Rotation Sensor × 3

Hardware Connection



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- Interface type: PH2.0-3P
- Interface function: cascade multiple lamp rings through the interface

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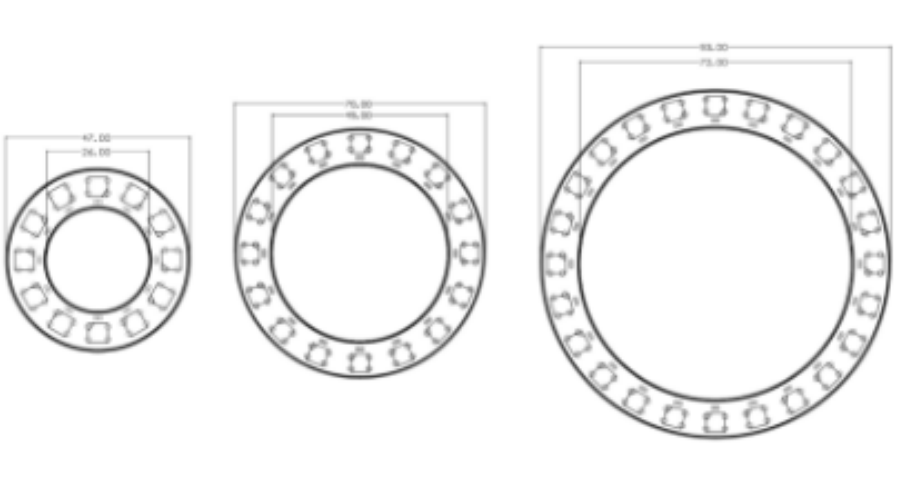


Pinout

RGB LED ring pinout diagram:

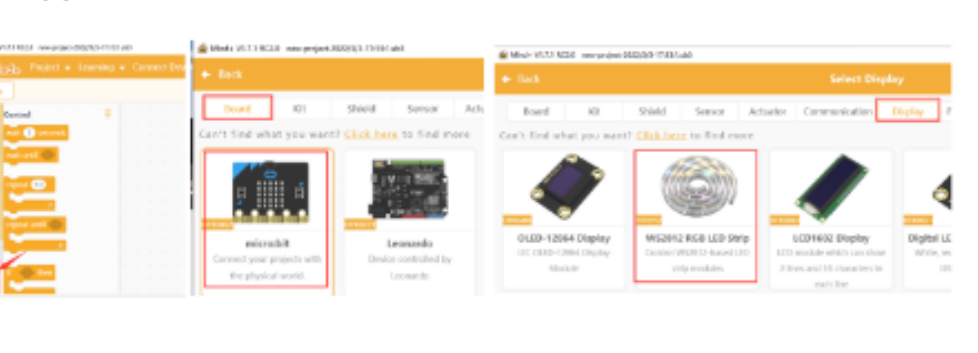
Num	Label	Description
1	D	Digital signal port
2	+	VCC
3	-	GND

Note: For the silkscreen of the port, IN and OUT represents input and output terminals respectively.

1. Mind+ Programming

User Guide

The extension library of the RGB LED command needs to be added before using the RGB LED ring. Open Mind+ platform, click "Extensions" in the bottom right corner, and in the "MCU" menu bar, select "micro:bit", the MCU to be used. Then find "WS2812 RGB LED" in the "Display" menu bar and click it to add the RGB LED extension library, then the display module will appear in the command area.



Application Sample (RGB LED Ring - 12)

Project 1: Dazzling Neon Light

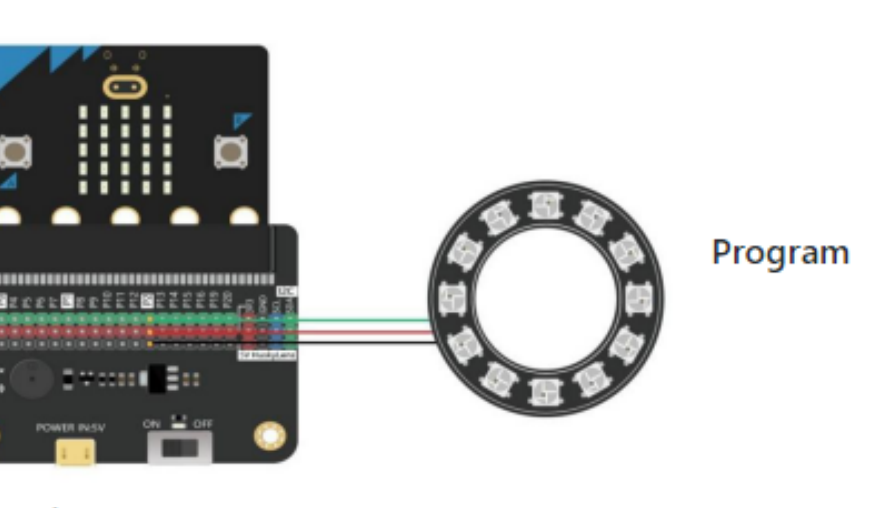
Project Introduction

Display color gradients of the 12 LED beads. The color of the lamp bead changes by one level successively around the circle to form a rotating effect as if it's a dynamic rainbow.

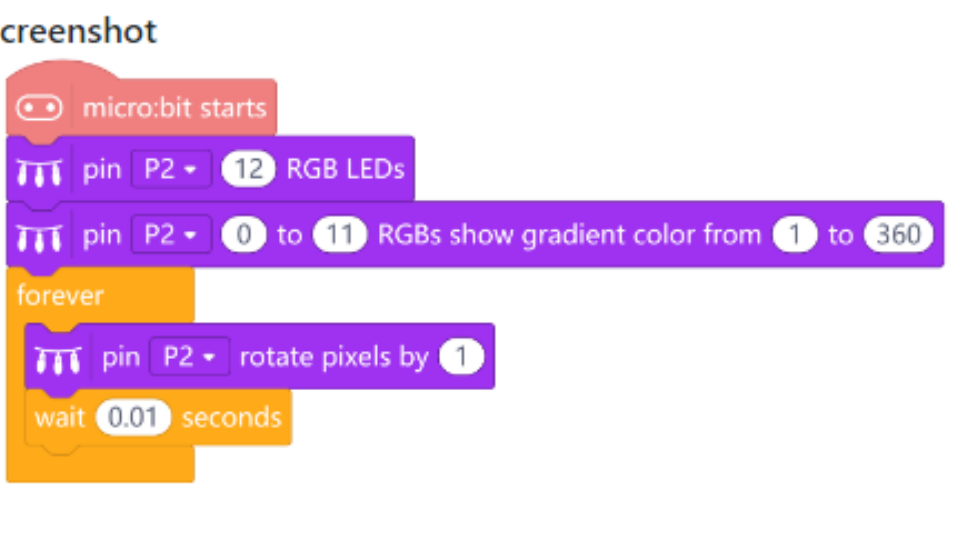
Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED Ring- 12 LED Beads × 1

Hardware Connection



Screenshot

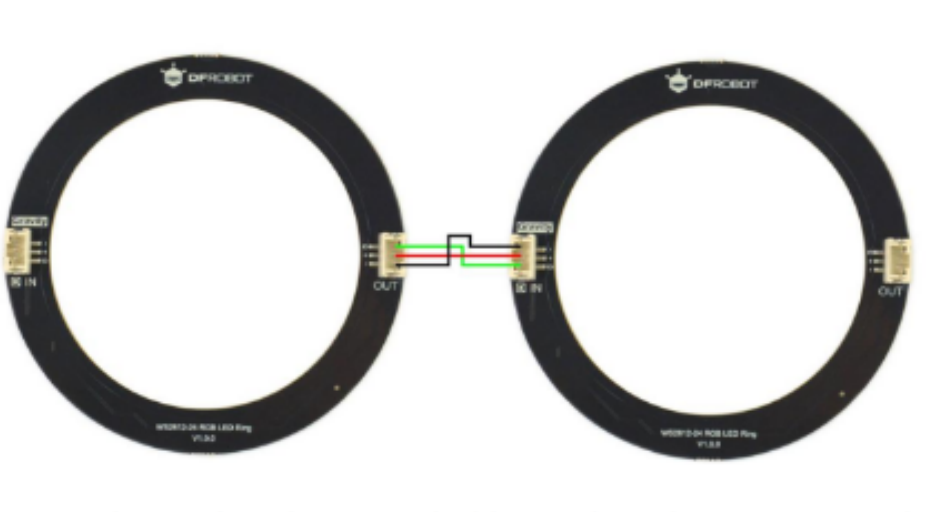


micro:bit starts
pin P2 ▾ 12 RGB LEDs
pin P2 ▾ 0 to 11 RGBs show gradient color from 1 to 360
forever
pin P2 ▾ rotate pixels by 1
wait 0.01 seconds

Project 2: LED Ring Cascade

Method to cascade LED ring

It's easy to cascade the LED ring. Just connect the OUT port of the first lamp ring to the IN port of the second lamp ring through the PH2.0-3P male-to-male cable.



Note: When using the cascaded lamp ring, the power supply may be unstable due to excessive beads, which can be resolved by using a 5V or external power supply.

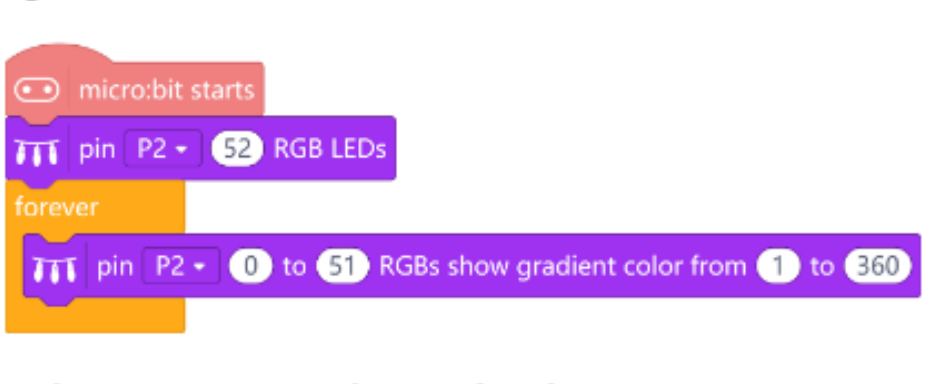
Product Introdution

To achieve a dazzling neon light effect similar to project 1 by cascading three types of LED rings.

Hardware Preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED ring- 12 LED beads × 1
- RGB LED ring- 16 LED beads × 1
- RGB LED ring- 24 LED beads × 1
- PH2.0-3P digital cable × 1
- PH2.0-3P male-to-male cable × 1

Program Screenshot

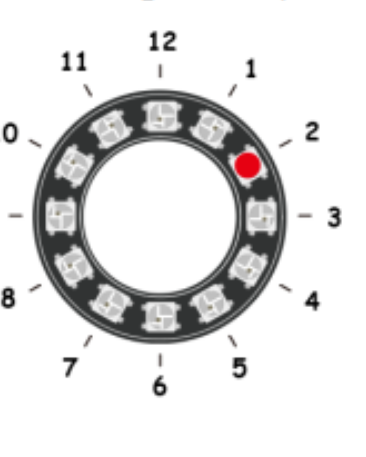


micro:bit starts
pin P2 ▾ 52 RGB LEDs
forever
pin P2 ▾ 0 to 51 RGBs show gradient color from 1 to 360

Project 3: LED Ring Clock

Product Introduction

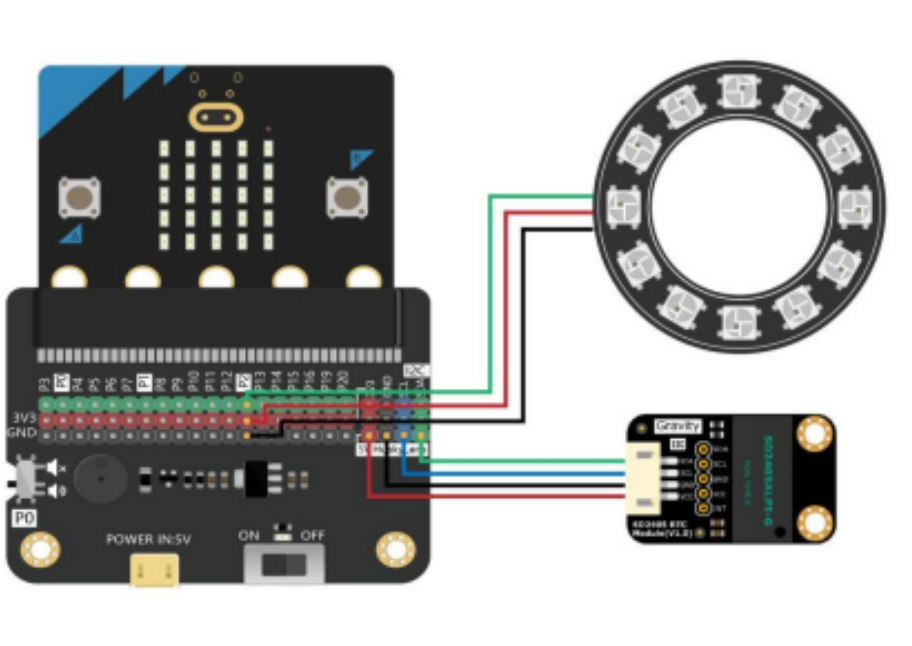
Clocks serve as timers in our daily routine. The most general clocks are electronic and quartz clocks. Let's use the LED ring module to design a unique clock.



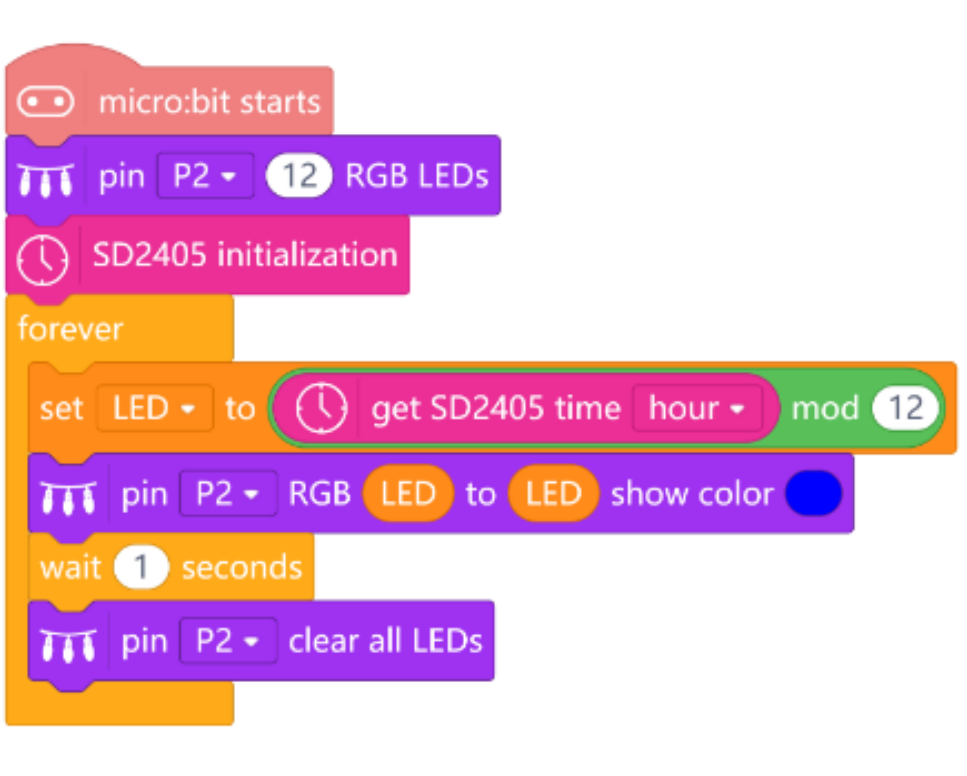
Hardware preparation

- micro:bit × 1
- IO Expansion Board × 1
- RGB LED ring- 12 LED beads × 1
- RTC real-time clock module × 1

Hardware Connection



Program Screenshot



micro:bit starts
pin P2 ▾ 12 RGB LEDs
SD2405 initialization
forever
set LED ▾ to get SD2405 time hour ▾ mod 12
pin P2 ▾ RGB LED to LED show color ●
wait 1 seconds
pin P2 ▾ clear all LEDs

Application Sample (RGB LED Ring- 24)

Project 4: LED Ring Compass

Project Introduction

The compass is designed to tell the direction, and nowadays smartphones commonly are equipped with a compass software to help us determine the North Pole based on the geomagnetic field. Let's do a compass project using RGB LED