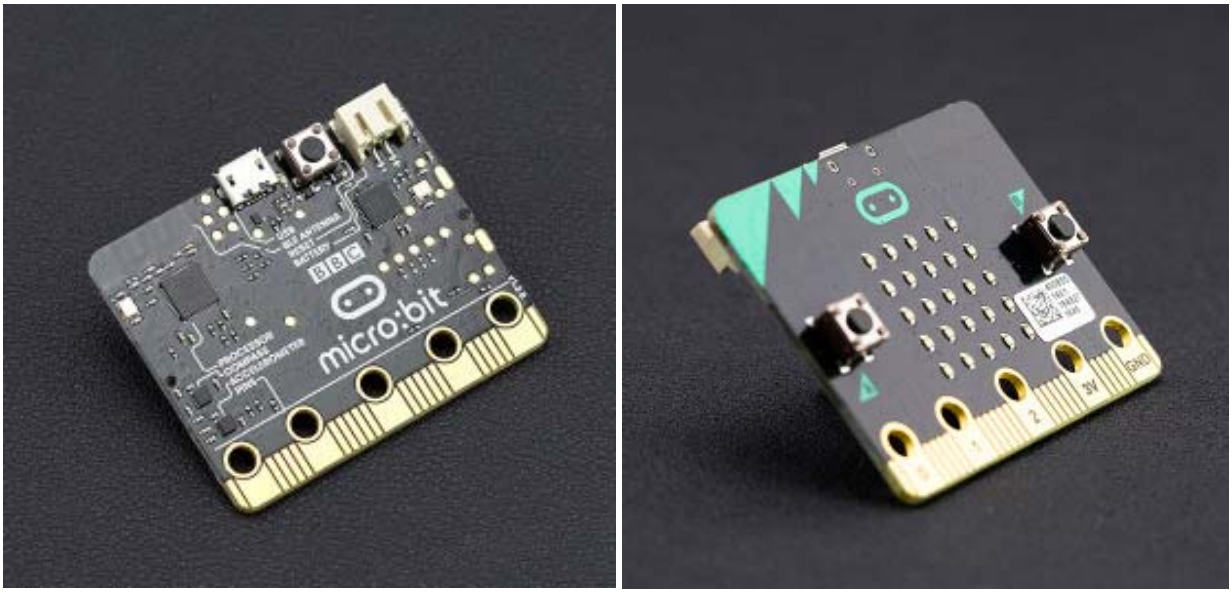


Micro:bit - an Educational & Creative Tool for Kids

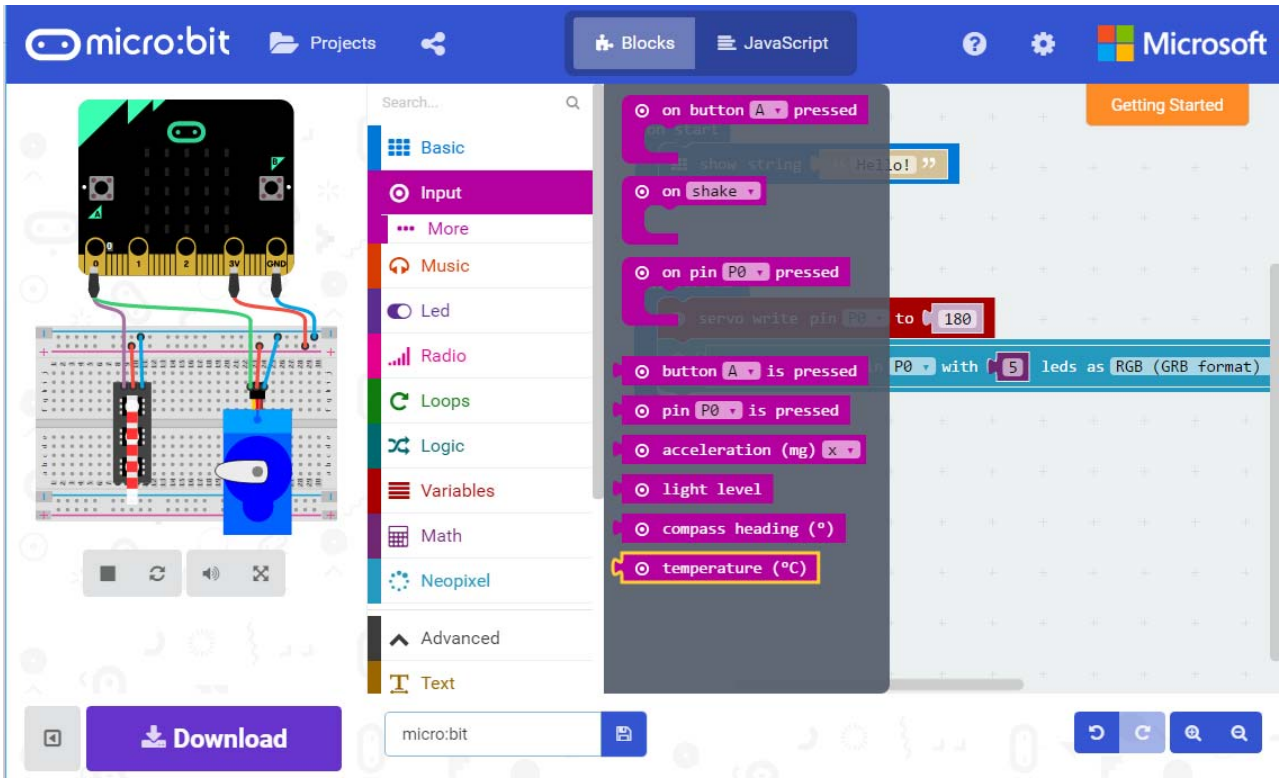
SKU:DFR0497

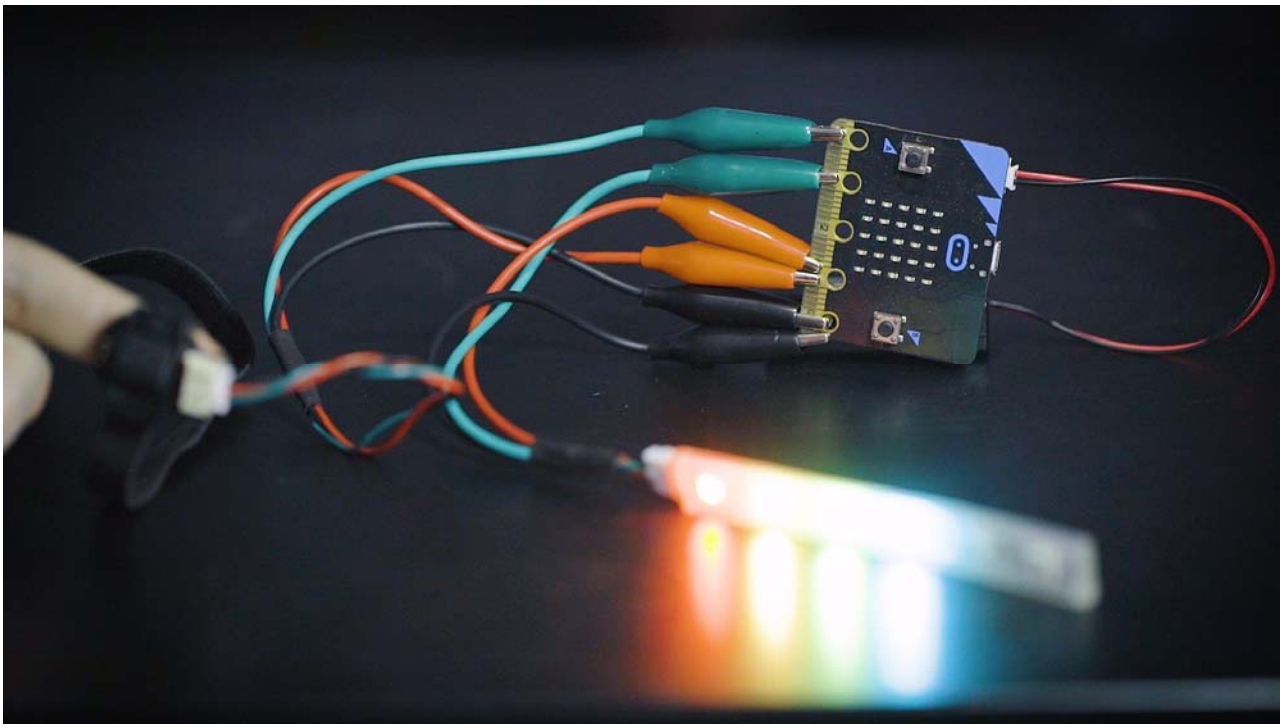
INTRODUCTION

micro:bit is a pocket-sized microcontroller designed for kids and beginners learning how to program, letting them easily bring ideas into DIY digital games, interactive projects and robotics.

micro:bit comes with a variety of on-board modules, including a 5x5 LED matrix (also supports light detection), 2 programmable buttons, motion detector, Compass and Bluetooth® Smart module. Additionally, you may attach more modules such as a servo motor, RGB LED lights through 5 I/O rings or 20 edge connectors.

micro:bit can be programmed with Microsoft Block Editor via graphical editor or JavaScript editor. The Microsoft Block Editor is available on Windows, macOS, IOS and Android, supporting wireless programming via Bluetooth.





Note: It comes with board only, USB cable and Power holder need to be purchased separately.

Microbit Tutorials
Micro:bit board: an introduction
5 Easy Steps for you to Quick Start with BBC Microbit
Micro:bit JavaScript Blocks Editor: Hello World
Micro:bit JavaScript Blocks Editor: Turning LEDs on and off
Micro:bit JavaScript Blocks Editor: Detecting button click events
Micro:bit JavaScript Blocks Editor: String interpolation
Micro:bit: MicroPython support

FEATURES

- A variety of on-board modules
- Expandable for additional sensors or actuators
- Graphical drag and drop code editor
- Easy and smooth program uploading
- Bluetooth wireless programming uploading
- Bluetooth Wireless communication

SPECIFICATION

- **Microprocessor:** 32-bit ARM® Cortex™ M0 CPU
- **A 5x5 LED matrix with 25 red LEDs** to light up. Each LED is individually programmable and can display animated patterns, scrolling text and alphanumeric characters
- **Two programmable buttons.** The micro:bit can detect either of its two buttons being pressed and unpressed, and can be programmed to act on that or send the information to another device. Use them as a games controller, or control music on a smartphone.
- **On-board motion detector** or 3-AXIS digital accelerometer that can detect movement and tell other devices you're on the go. It measures on 3 axes, X, Y, Z, and sends back the data in milli-gs. The micro:bit can react to this data and tell other devices it is moving. The device will also detect a small number of standard actions, eg shake, tilt and freefall. Turn the micro:bit into a spirit level. Use it for motion-activated games. Have your micro:bit light up when something is moved.
- **A built-in compass**, 3D magnetometer to sense which direction you're facing and your movement in degrees. This data can be used by the micro:bit in a program or be sent to another device. The magnetometer could also detect the presence of certain metals and magnets.

- **Bluetooth® Smart Technology** (previously called Bluetooth Low Energy) to wirelessly communicate with other Bluetooth Smart devices and exchange data and commands. Connect the micro:bit to other micro:bits, devices, phones, tablets, cameras and everyday objects all around. Play games, share creations or join forces to create multi-micro:bit masterpieces. Take a selfie. Pause a DVD or control your playlist.

- **Five Ring Input and Output** (I/O) including power (PWR) and ground (GRD). PWR, GRD, I/O x 3. Each I/O ring is programmable to be either analogue or digital. The rings are suitable for crocodile clips or 4mm banana plugs, meaning an external sensor can be connected to measure things like temperature, moisture, proximity to other devices. The micro:bit reads values from the sensor and acts on them or sends them to another device. The micro:bit can also send control commands to the rings – these could be used to control things like a motor or robot. The PWR and GRD rings supply 3 volts and could be used to power a separate device.

- **Edge Connector:** 20 pins, 1.27mm pitch and extend 7.62mm from board edge suitable for standard connectors. This allows the micro:bit to be connected to another device, eg Arduino, Galileo, Kano and Raspberry Pi through a standard connector.

- **Micro-USB contoller:** This is controlled by a separate processor and presents the micro:bit to a computer as a memory stick. This means the program can be dragged onto the micro:bit in the same way a file is dragged onto a memory stick.

- **2xAAA** battery pack

- **System LED** x 1 (yellow)

- **System push button switch** x 1

- **Size:** 43×52 mm / 1.7*2.04 inches (net).

- **Weight:** 8g

SHIPPING LIST

- micro:bit x1

- Quick Start Guide x1

- Safety guide x1

PROJECTS

Project 1. Micro:bit Surprise box
In this project it shows how the box interacts with flahsing hearts.

Main Components:
micro:bit
DFRobot micro:bit Expansion Shield
DFRobot Ambient Light Sensor
Servo Motor 9g

Project 2. How To Make A Micro:bit Heart Rate Monitor

The following tutorial will show you how to set the micro:bit beating together with your heart using the optical heart rate sensor:
Component List:
micro:bit - An Educational & Creative Tool for Kids
Gravity: Heart Rate Monitor Sensor for Arduino

Project 3: OBLOQ-IoT Module +Micro:bit IoT Flower Watering

Hardware list:
Gravity: UART OBLOQ – IOT Module (Microsoft Azure)
Micro:Mate - A Mini Expansion Board for micro:bit (Gravity Compatible)
Micro:bit - an Educational & Creative Tool for Kids
9g Metal Gear Micro Servo (1.8Kg)
One bottle and part of tube
Gravity: Analog Capacitive Soil Moisture Sensor- Corrosion Resistant

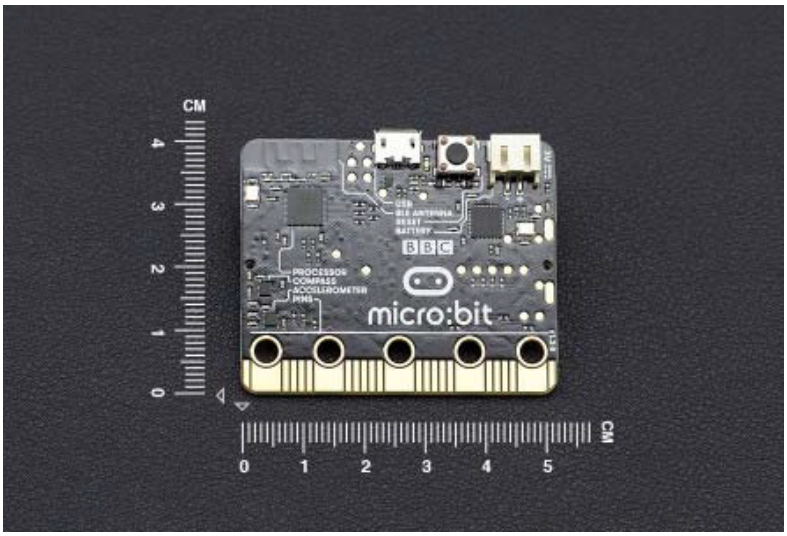
Project 4: Microbit Projects: Yes/No Bear

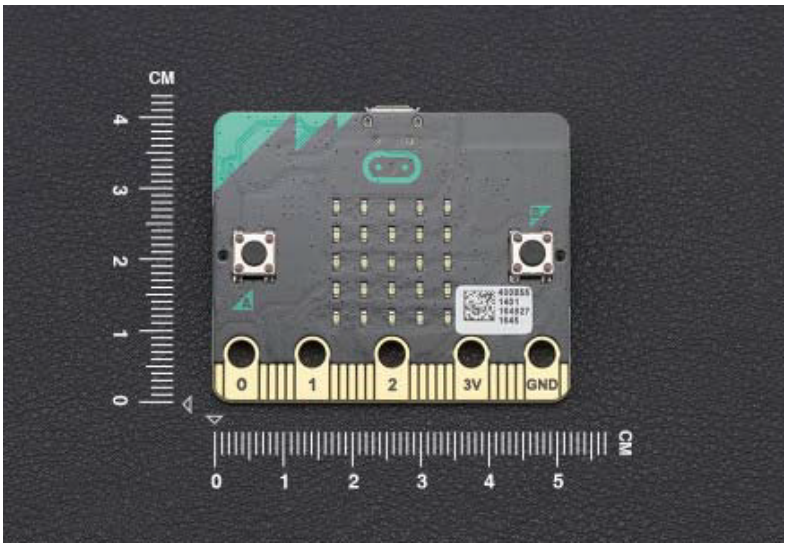
There are 2 possible answers. Either yes or no. We randomly generate the outcome when a button is pressed. When the answer is yes, the display will show Y & the tilt servo will response. When no, the display will show N and pan servo will response.
Part needed
2 x 9G servo motor
1 x microbit
1 x micro:mate(breakout board)
1 x Pan tilt kit
1 x stuffed toy bear

Project 5: LED writing board (micro:bit compatible)

The LED writing board is created using a photo frame that is surrounded with LED strip lights. When button A is pressed, the led strip turns white and flash. When button B is pressed, a random color is generated. To off, press button A and B together.
Hardware components:

1 x photo frame
RGB individually addressable LED strip (neo pixels)
1 x microbit
1 x micro:mate(breakout board)





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