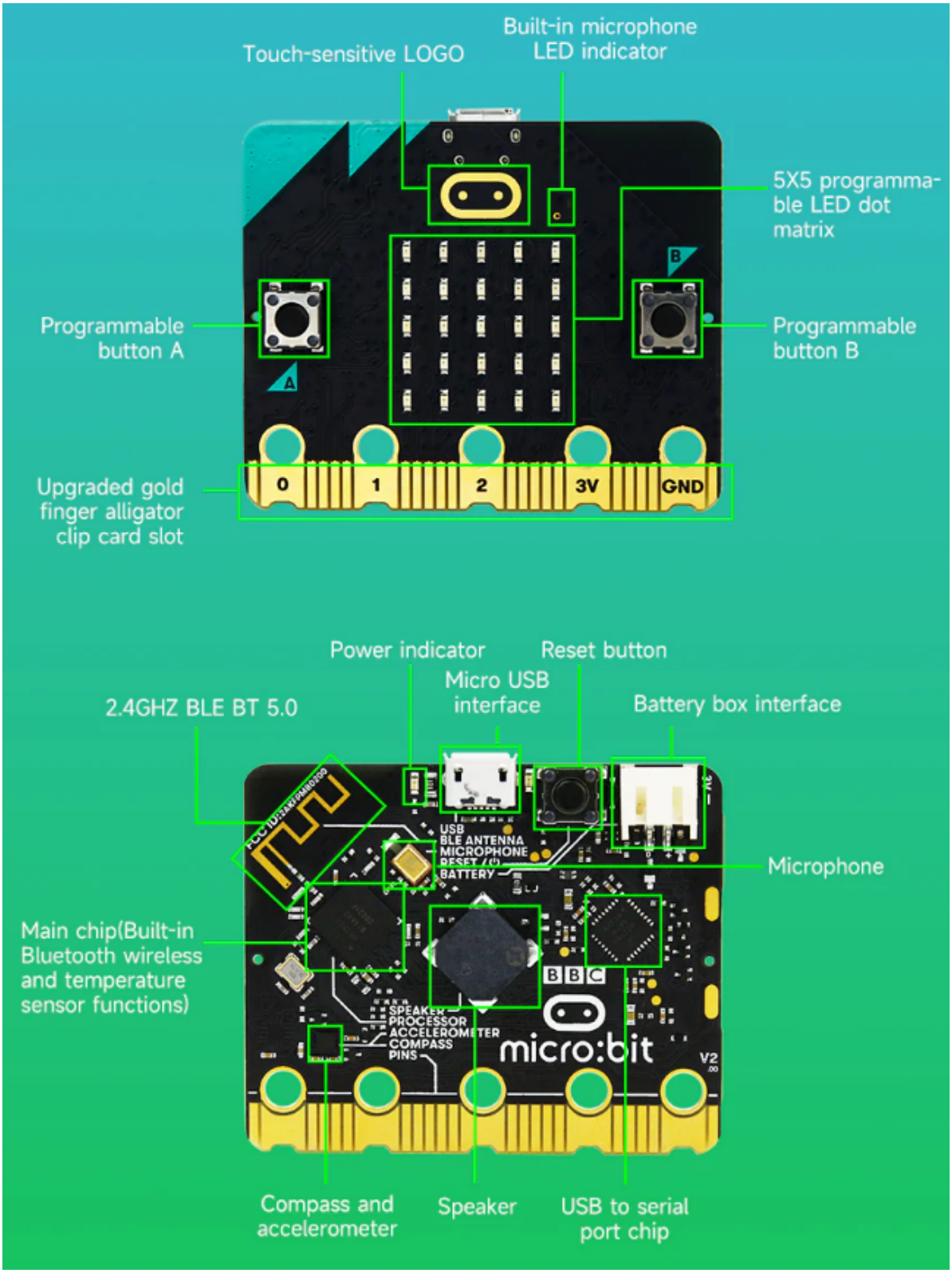
About BBC microbit

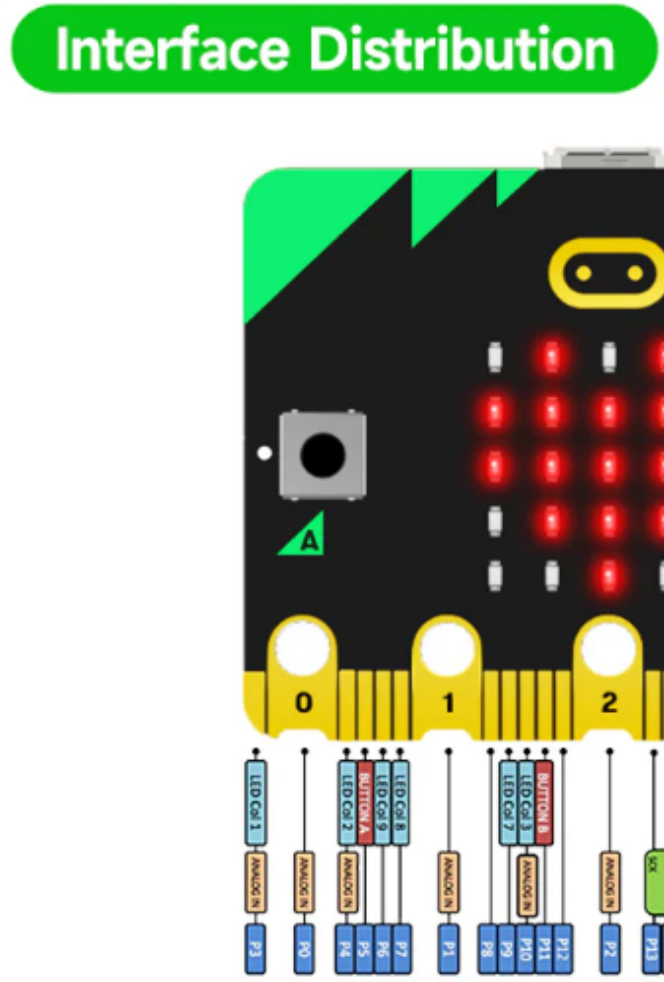
1. What is Micro:bit?

Micro:bit is a microcomputer for programming tutorials for teenagers launched by the British BBC. In November 2020, BBC released the new micro:bitV2. Although it is small in size, it is rich in functions. The motherboard, which is only half the size of a credit card, integrates a three-in-one (accelerometer, magnetometer, gyroscope) sensor chip, two programmable buttons, 25 monochrome LED lights to form a 5*5 dot matrix screen and nRF52833 chip supporting Bluetooth 5.0. It also comes with a microUSB power supply interface, which can be powered by an external battery box. There are also multiple gold finger connectors at the bottom, which can be used to control external devices.

2. Functional distribution



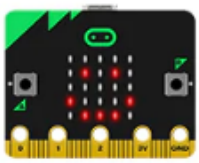
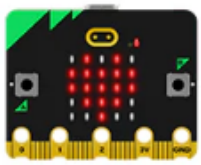
3. Pin distribution



6 pins that can be assigned as analog input pins
Can support 3 touch input pins at the same time
2 on board button detection pins
6 internal pins for display or light sensing functions (Reassignable)
2 dedicated to external I2C interface
3 PWMs can be set at the same time
1 pair of serial transmit & receive pins
3 optional SPI communication interfaces

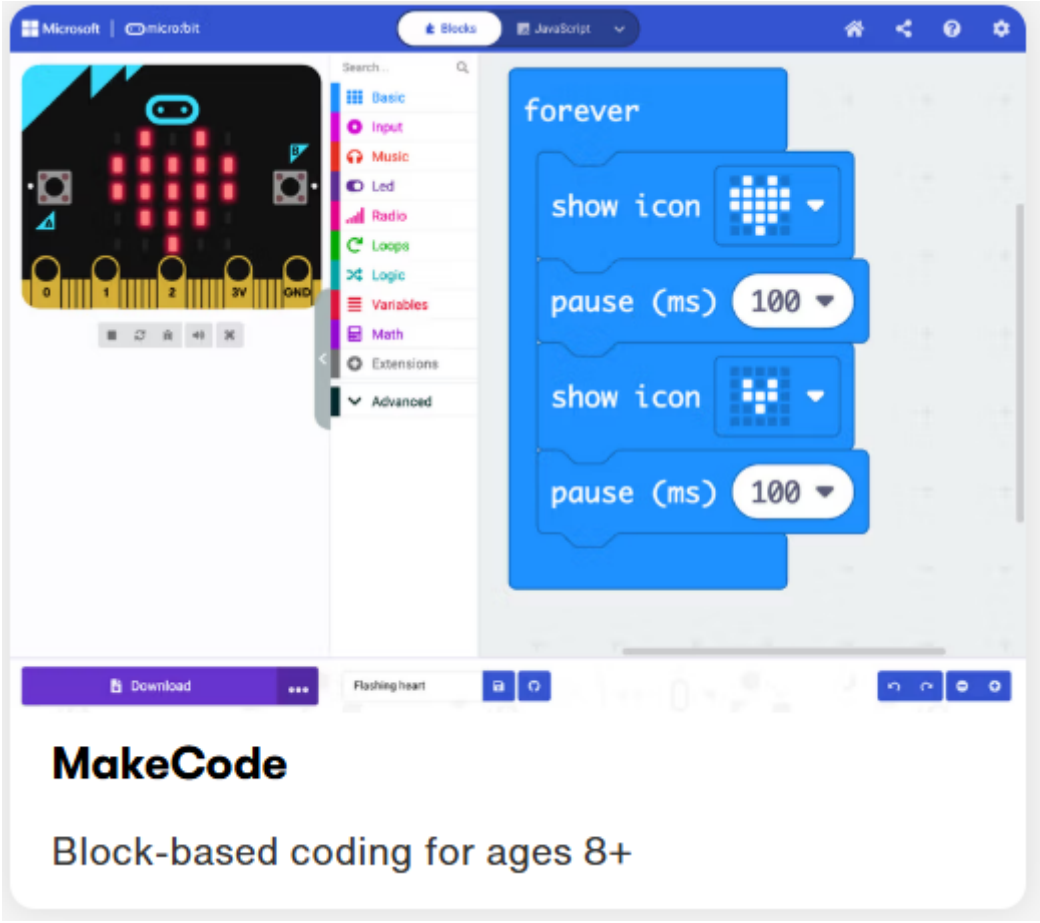
4. New and old comparison

Compared with the old version of micro:bitV1, V2 has added a programmable touch logo, a microphone and a buzzer, and the CPU performance has been improved by nearly four times. It also has a built-in sleep/shutdown mode and a discrete regulator, which can provide up to 200mA of current for external devices, and the newly upgraded serrated GPIO gold finger can better fix the alligator clip. The following is a comparison between micro:bitV1 and V2.

Version	 micro:bit V1.5 Version (Old version)	 micro:bit V2.21 Version (New version)
Processor	Nordic semiconductor nrf51822	Nordic semiconductor nrf52833
RAM	256kb Flash 16kb RAM	512kb Flash 128kb RAM
External chip	NXP KL26Z 16KB RAM	NXP KL27Z 32KB RAM
Microphone	/	MEMS microphone with LED indicator
Speaker	/	On board speaker
Touch logo	/	On board touch logo
Expansion interface	25 pins and 3 dedicated GPIO pins	25 pins and 4 dedicated GPIO pins
	PWM, I2C, SPI and expansion interface	
	Power supply	
	3 ring pins for connecting alligator clips/banana plugs	
	Flat-type interface design	The interface adopts a notch design, which makes it easier to connect
I2C bus	Shared (multiplexed) I2C bus	Internal and external independent I2C bus
Wireless	2.4GHZ broadcast/BT 4.0	2.4GHZ broadcast/BT 5.0
Power	MicroUSB 5V power supply / 3V power supply interface / battery box power supply	
Indicator light	/	Power indicator
Working current	90mA	200mA
Motion sensor	ST LSM303	
Programming software	C++, Makecode, Python	

5. Programming environment

Regarding the programming environment, BBC provides an online programming website (https://microbit.org/code/), which includes the easy-to-use graphical programmer MakeCode,



There is also the MU editor that supports the popular language Python, which allows you to experience the learning process from easy to difficult, from shallow to deep