

Micro:bit



What is it?



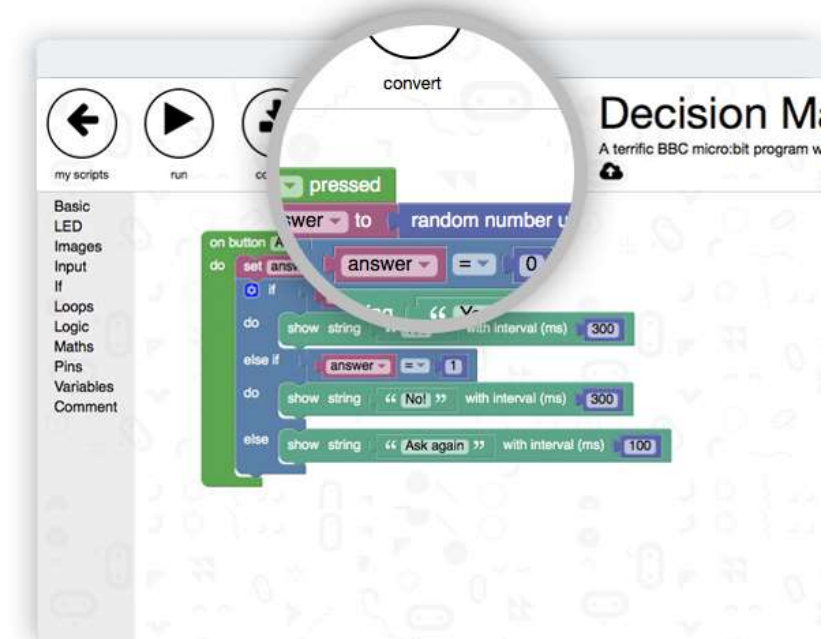
- Small, embedded system (4x5cm)
- Being provided by BBC to every current year 7 student
- 25 red LEDs & 2 programmable buttons
- Accelerometer, magnetometer and Bluetooth LE
- Five I/O rings (can be broken out into 21 pins)





4 Environments

- Microbit.co.uk
- Code Kingdoms Javascript
- Microsoft Block Editor
- Microsoft Touch Develop
- Python



Some demos...



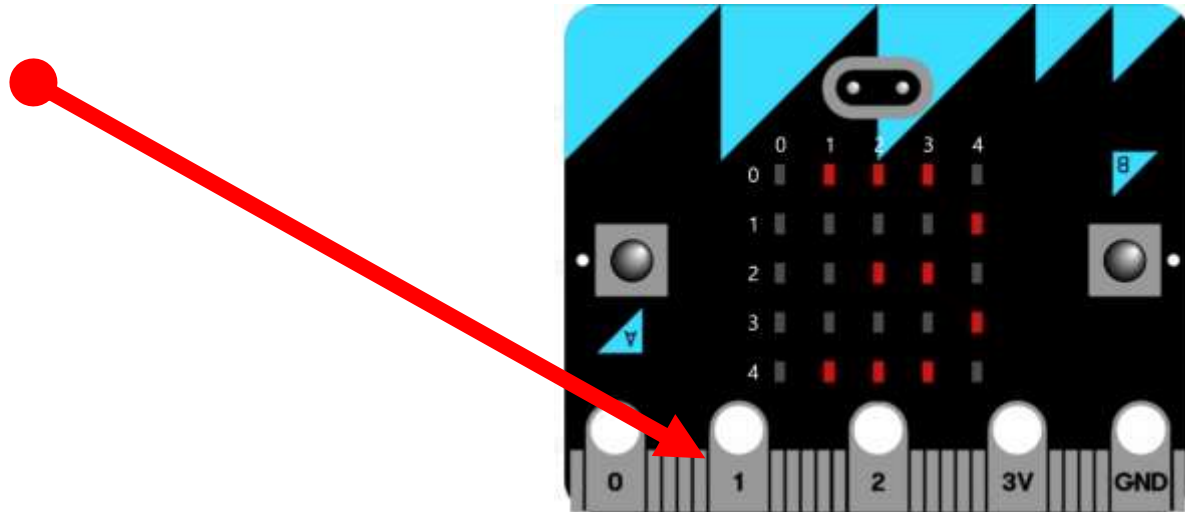
Basic Display

```
1 from microbit import *
2
3 while True:
4     if button_a.is_pressed():
5         display.scroll("Hello, world!")
6         sleep(1000)
```



Let's connect it to a Pi

- Connect a male-to-female cable to GPIO 4 (Pi)
- Connect a crocodile clip cable to PIN 1 (micro:bit)
- Clip the crocodile clip (micro:bit) to the GPIO 4 cable (Pi)



When we push a button...

```
1 from microbit import *
2
3 while True:
4
5     if button_a.is_pressed():
6         display.scroll("Say cheese!")
7
8         pin1.write_digital(1)
9         sleep(2000)
10
11     pin1.write_digital(0)
```

- Then press FLASH to write this to your micro:bit.



On the Pi, setup the camera

- As with all projects in Python, let's just start importing *everything*:

```
from picamera import PiCamera  
from gpiozero import Button  
from time import sleep
```



On the Pi, setup the camera

- ...and now setup a button on GPIO 4:

```
| button = Button(4, pull_up = False)
```



On the Pi, setup the camera

-finally, setup the camera control

```
from picamera import PiCamera
from gpiozero import Button
from time import sleep

button = Button(4, pull_up = False)

camera = PiCamera()
camera.start_preview(alpha=192)

button.wait_for_press()
camera.capture('my_face.jpg')
sleep(3)
```

- Run the Python file and press the A button on your micro:bit.



Challenge

Display a countdown timer when you press the A button.

