

Programming the micro:bit

Drop in session



Raspberry
Pi
Birthday
Weekend
2017

Beginner

Before you begin

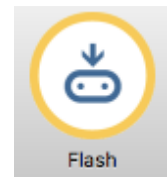
- Take time to read the safety guidance sheet
- Make sure you have Mu loaded from the “Programming” menu. This is a special version of Python for programming the micro:bit
- Plug the micro:bit into the Raspberry Pi using the USB cable

Scrolling messages

- We’re first going to start my scrolling messages across the micro:bit’s LEDs
- Enter the following code into Mu:

```
from microbit import *  
display.scroll('Hello World!')
```

- Press the “Flash” button to get the program on your device
- If all is well, your program will display, although an error message may be displayed if there’s a bug in your code



Displaying images

- We’re now going to display some images on the micro:bit’s LEDs
- Enter the following code into Mu:

```
from microbit import *  
display.show(Image.HEART)
```

- Press the “Flash” button to get the program on your device
- Try adding further images from the list overleaf. For example:

```
from microbit import *  
while True:  
    display.show(Image.SMILE)  
    sleep(1000)  
    display.show(Image.HEART)  
    sleep(1000)
```

`display.show(Image.HEART)`

Image.HEART
Image.HEART_SMALL
Image.HAPPY
Image.SMILE
Image.SAD
Image.CONFUSED
Image.ANGRY
Image.ASLEEP
Image.SURPRISED
Image.SILLY
Image.FABULOUS
Image.MEH
Image.YES
Image.NO
Image.TRIANGLE

Image.TRIANGLE_LEFT
Image.CHESSBOARD
Image.DIAMOND
Image.DIAMOND_SMALL
Image.SQUARE
Image.SQUARE_SMALL
Image.RABBIT
Image.COW
Image.MUSIC_CROTCHET
Image.MUSIC_QUAVER
Image.MUSIC_QUAVERS
Image.PITCHFORK
Image.XMAS
Image.PACMAN

Image.TARGET
Image.TSHIRT
Image.ROLLERSKATE
Image.DUCK
Image.HOUSE
Image.TORTOISE
Image.BUTTERFLY
Image.STICKFIGURE
Image.GHOST
Image.SWORD
Image.GIRAFFE
Image.SKULL
Image.UMBRELLA
Image.SNAKE

Image.CLOCK12 # clock at 12 o' clock
Image.ARROW_N
... # arrows pointing N, NE, E, SE, S, SW, W, NW (microbit.Image.ARROW_direction)

Image adapted from Alexander Hadwen-Bennett's "micro:bit SoW for Micro Python" -
<http://community.computingschool.org.uk/resources/4488>

- *Challenge* – can you make a clock hand move around the micro:bit's LEDs?
Hint: start with – `display.show(Image.CLOCK12)`

Reacting to buttons

- The buttons on the micro:bit can be used to trigger events, such as displaying text or images
- Enter the following code into Mu:

```
from microbit import *  
while True:  
    if button_a.is_pressed():  
        display.scroll('I am A')  
    if button_b.is_pressed():  
        display.scroll('I am B')
```

- *Challenge* – can you get more than one event to take place when a button is pressed?
- *Challenge* – can you make a different image display when you shake the micro:bit? Hint: try adding - `if accelerometer.was_gesture('shake')`: