

MicroPython on the BBC micro:bit

FOSDEM 2016
Brussels, Belgium
Marc-André Lemburg

BBC micro:bit



BBC micro:bit: Idea

- BBC will distribute Microbits to all 7th graders in the UK (approx. 1 million)
- Idea based on the BBC Micro (1981)
- Kids are supposed to learn programming, but really:

Kids should get a more direct access to computers

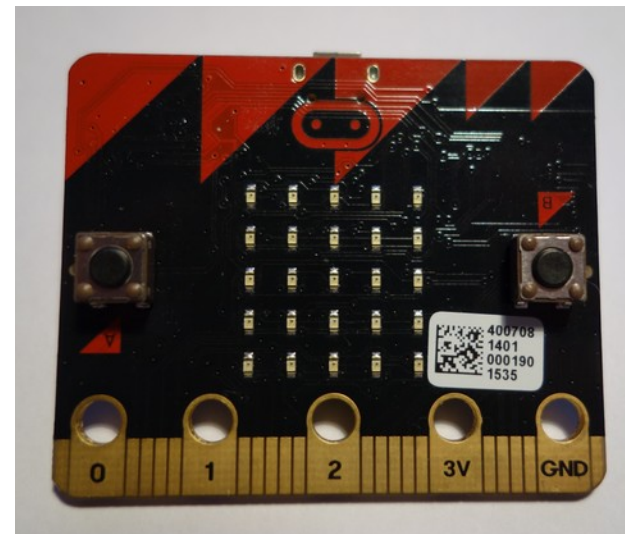
BBC micro:bit

- Micro controller (System on a Chip)
- Micro USB
 - used for flashing firmware + scripts
 - can provide power
- 3V battery connector



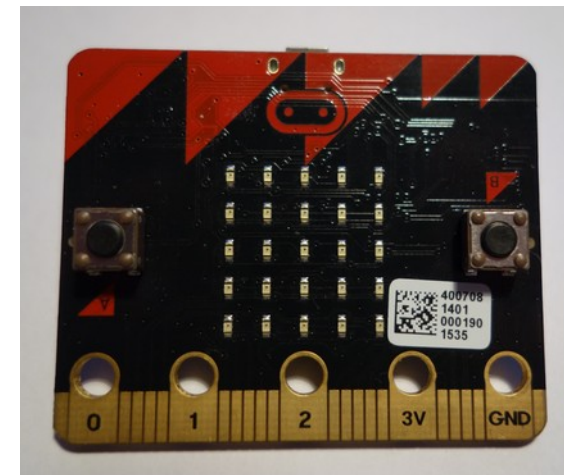
BBC micro:bit: I/O

- Buttons
 - Button A, Button B, Reset
- Pins
 - Input and output, digital and analog
- LED grid
 - 5x5 = 25 LEDs
 - Brightness can be controlled (in 10 steps)



BBC micro:bit: Sensors

- Accelerometer
 - for X-, Y- und Z-direction
- Compass
 - Not very accurate, but works
- Some pins can be used as additional buttons
 - Pins 0, 1 and 2



BBC micro:bit: Technical data

- **ARM Processor**
 - nRF51822, 16MHz ARM Cortex-M0 Microcontroller,
- **256KB Flash**
- **16KB RAM**
- 25 LEDs, 2 Buttons
- Runs on 3.3V
- Size: ca. 5 x 4.2 cm

MicroPython

- Project by **Damien George**
- Originally created for the “pyboard” micro controller board
- **Ported to the BBC Microbit in 2015**
- Release: MicroPython 1.0 in the next few weeks
- URL: <https://micropython.org/>

MicroPython: Tiny Python Implementation

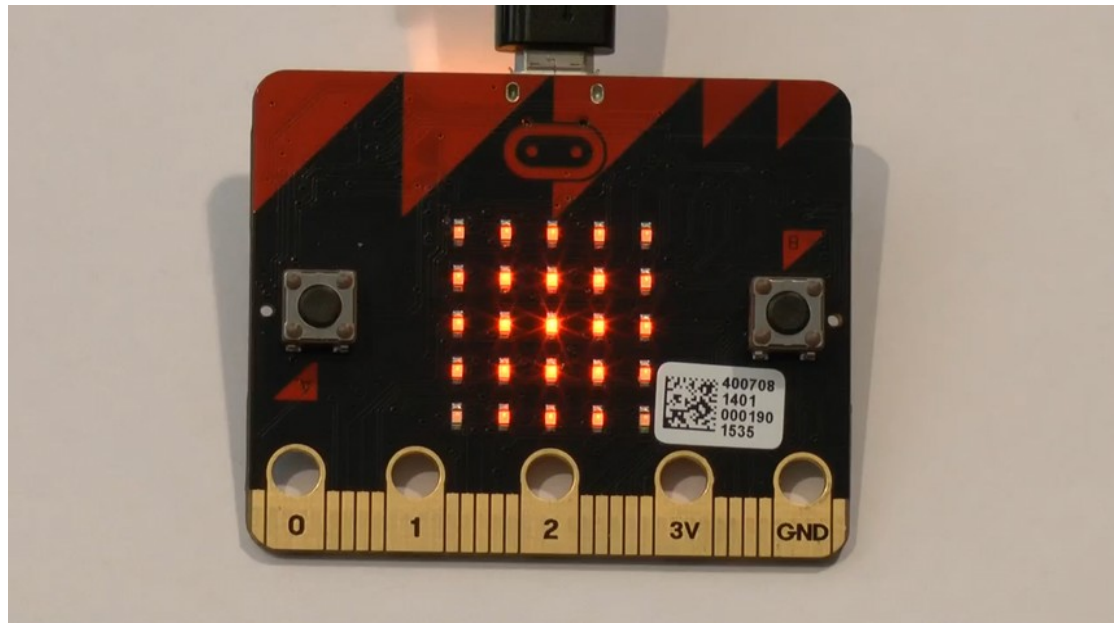
- Written in C / C++
- Implements parts of Python 3.4
- Includes the REPL (via serial console)
- Unicode, floats, arrays, bytes, etc.
- No complex numbers

MicroPython and the Microbit

- Project coordinated by **Nicholas Tollervey**
- Damien George did most of the MicroPython porting
- Small group of supporters – could need more :-)
- “**microbit**” module to easily access the Microbit features

MicroPython: Demo

alive.py



Availability

- Planned: End of 2015
- Now announced for **early in 2016**
- **Hopefully in 2016 :-)**
- **Will likely be available for purchase via Farnell**
 - After the first 1 million Microbits have been distributed to the school kids

While waiting...

- Project “**micro:bit World Tour**”
 - URL: <https://microworldtour.github.io/>
 - 5 microbits on tour around the world
- Goal: create many small projects, which can then be used by teachers and school kids to learning Python

Thank you for your attention



Beautiful is better than ugly.

Contact

eGenix.com Software, Skills and Services GmbH

Marc-André Lemburg

Pastor-Löh-Str. 48

D-40764 Langenfeld

Germany

eMail: mal@egenix.com

Phone: +49 211 9304112

Fax: +49 211 3005250

Web: <http://www.egenix.com/>