KIRK NORTHROP

MICRO PYTHON, THE INTERNET OF THINGS AND THE £3 DEVICE

KIRK NORTHROP

MICRO PYTHON, THE INTERNET OF THINGS AND THE £4 DEVICE

MEMORIES OF 2012

- Olympics
- Queen thing
- Higgs Boson found
- No need to get up to turn the light on anymore

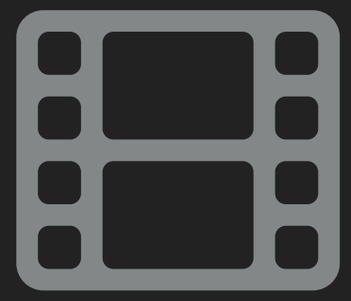

PHILIPS
PHILIPS
I WANT / JE VEUX
Available on the App Store
hue
PERSONAL WIRELESS LIGHTING


08:42
ScenePage 1
Relax
Focus
Energize
Reading
Yellow
P
Lanterns
ALL OFF

SWITCHES ARE EASY [CITATION NEEDED]

THE INTERNET OF THINGS

WIFI CONTROLLED SWITCHES



SWITCHES ARE EASY [CITATION NEEDED]

EXCEPT...

MICRO PYTHON

- Used in the BBC micro:bit
- Lean version of Python 3 designed for microcontrollers
- Great because of Raspberry Pi and Code Club
- Easy way into building physical products
- Bit fiddly at the moment - but still awesome

Disposably cheap

Can use Python

Low power

IDEAL IOT DEVICE

Open source

Small

Access to WiFi

GPIO Pins

YE OLDEN DAYS (THE 1990S)

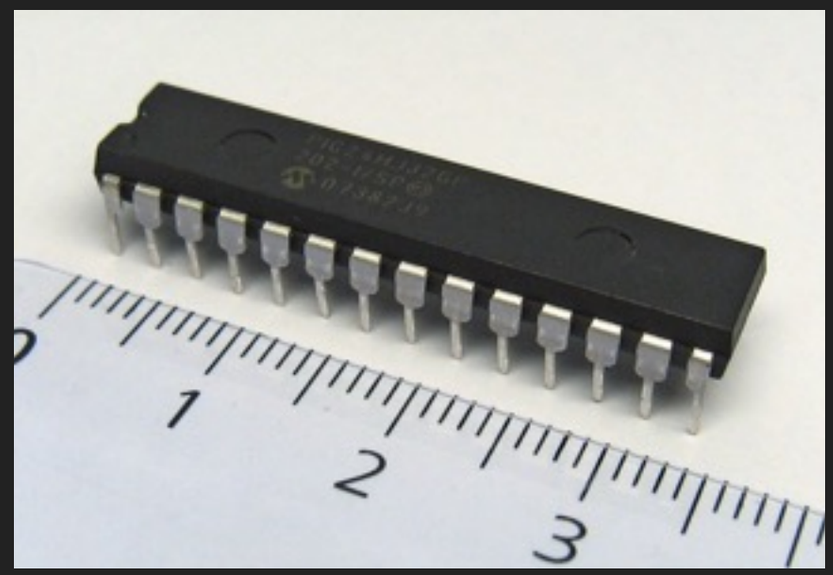
THE PIC MICROCONTROLLER

YES

- Disposably cheap (£1)
- Small
- Low power
- GPIO Pins

NO

- Python Compatible
- Open Source
- Access to WiFi



RISE OF THE HACKERS (MID 2000S)

ARDUINO (GENUINO)

YES

- Disposably cheap (£1)
- Small
- Low power
- GPIO Pins
- Open Source

NO

- Python Compatible
- Access to WiFi

FRUIT BASED COMPUTERS (FROM 2012)

NO MORE C!

UNLESS YOU WANT TO...

RASPBERRY PI B

YES

- GPIO Pins
- Python Compatible
- Open Source
- Access to WiFi

NO

- Disposably cheap (£30)
- Small
- Low power

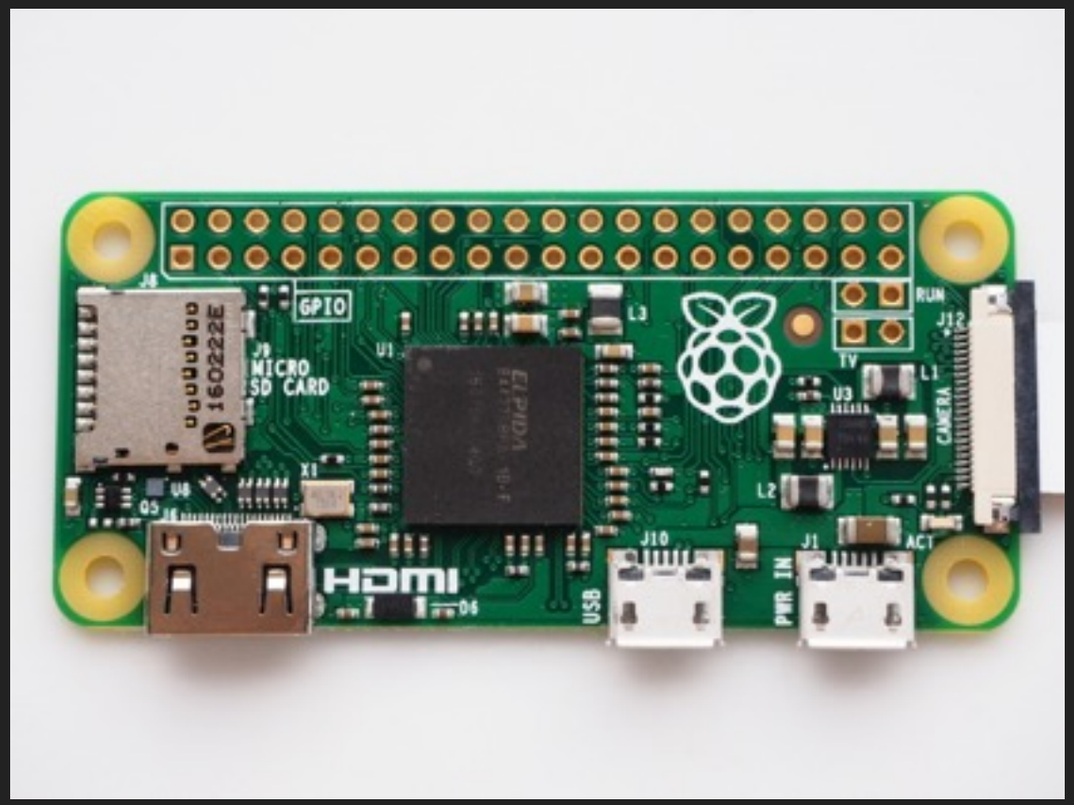
RASPBERRY PI ZERO

YES

- Disposably cheap (£4)
- Small
- GPIO Pins
- Python Compatible
- Open Source
- Access to WiFi

NO

- Low power

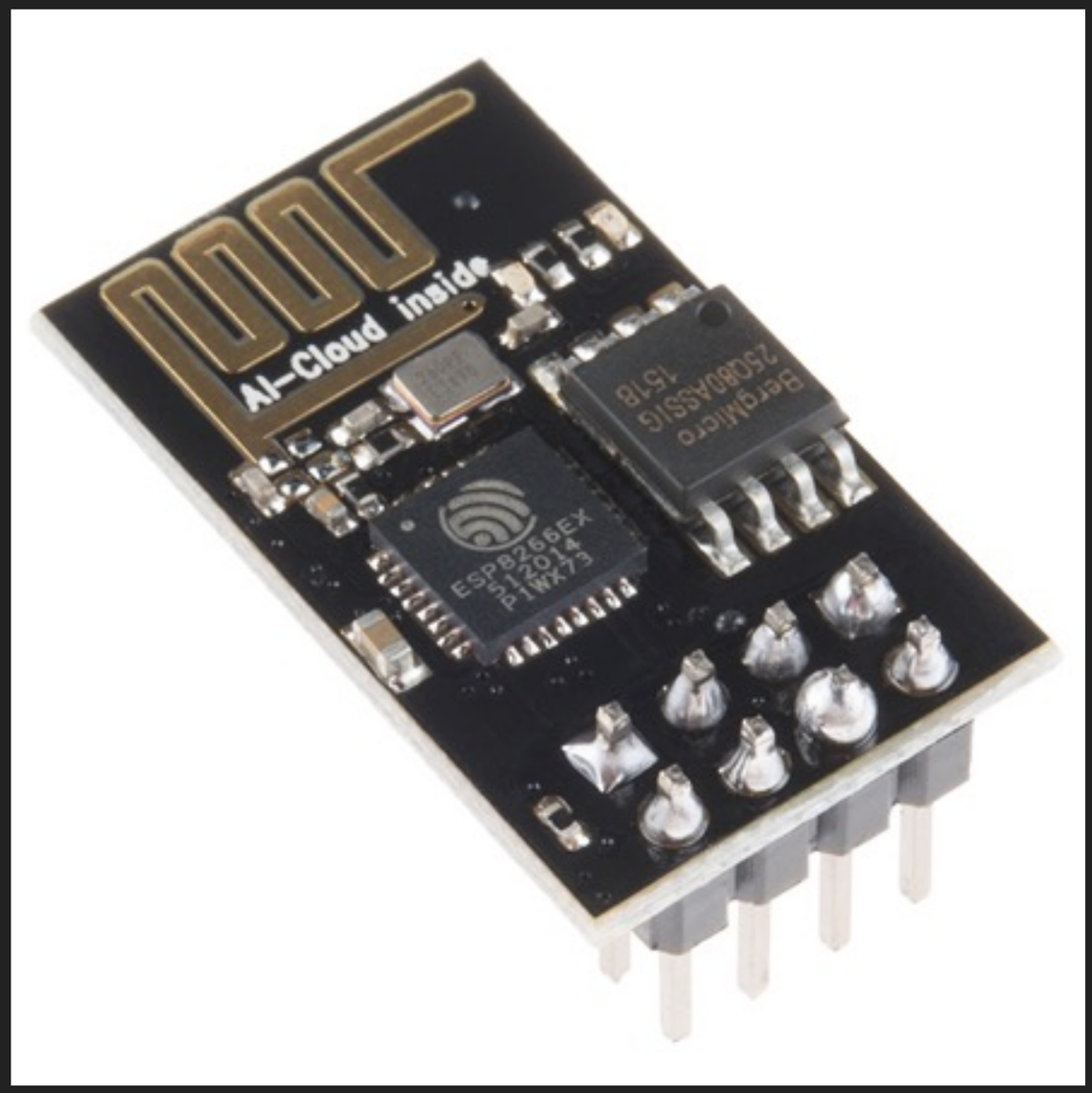


CHEAP (AS) CHIPS

ESP8266

YES

- Disposably cheap (£1.35)
- Small
- GPIO Pins
- Python Compatible
- Open Source
- Access to WiFi
- Low power



DASH (BUTTON)
A-AAAAAA

DASH BUTTON REQUIREMENTS

- Ability to connect to home WiFi
- Customisable URL on button push
- Long battery life
- Ability to be branded

AMAZON DASH BUTTON

YES

- Disposably cheap
- Small
- Access to WiFi
- Low power
- GPIO Pins (for button and LED)

NOT IMPORTANT

- Python Compatible
- Open Source

BILL OF MATERIALS

ESP8266	£1.35
Button Batteries	£0.30
Push Switch	£0.10
Programmable LED	£0.12
Microphone	£0.04
Some wire	£0.20
3D Printed Case	£0.57
	£2.68

SWITCHES ARE EASY [CITATION NEEDED]

WIFI IS LESS EASY

THE DIFFICULT BIT

- If you’re a developer, set in code
- If you’re a user… need another way

bit.ly/micropythonwifi

BUT AFTER THAT…

it’s just a switch, and…

SWITCHES ARE EASY [CITATION NEEDED]

SERIOUSLY THOUGH, COOL THINGS ARE CHEAP

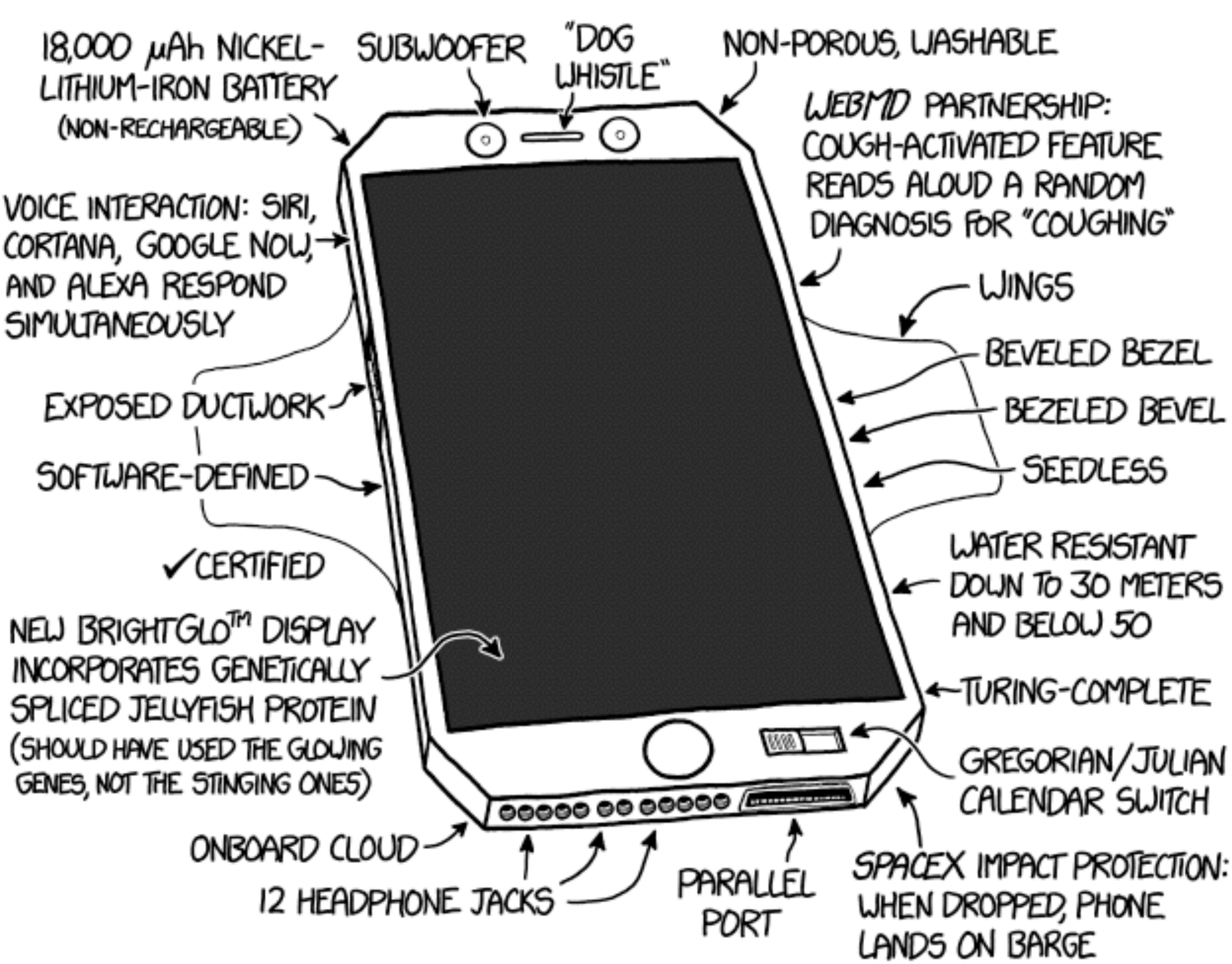
- Programmable LEDs - 10p
- LCD Display - £2+
- RFID Module - £1.50
- GPS/Phone Modules - £8

TIPS FOR DEVELOPING IOT DEVICES

- Having a vague idea of electronics is a big help
- Don’t be afraid to tinker!
- Pimoroni and Adafruit are awesome websites
- Most of the stuff out there has a library

INSPIRATION

- Ideas from my friends
- hackaday.com
- Copying multinational retailers
- Watching too much Sci-Fi



INTRODUCING

THE XKCD PHONE 4

DID YOU KNOW "4" IS "IV" IN ROMAN NUMERALS?®©™

GITHUB.COM/KIRKNORTHROP

KIRK@KRN.ME.UK