Introdución – que é Raspberry PI 3?

Obxectivos

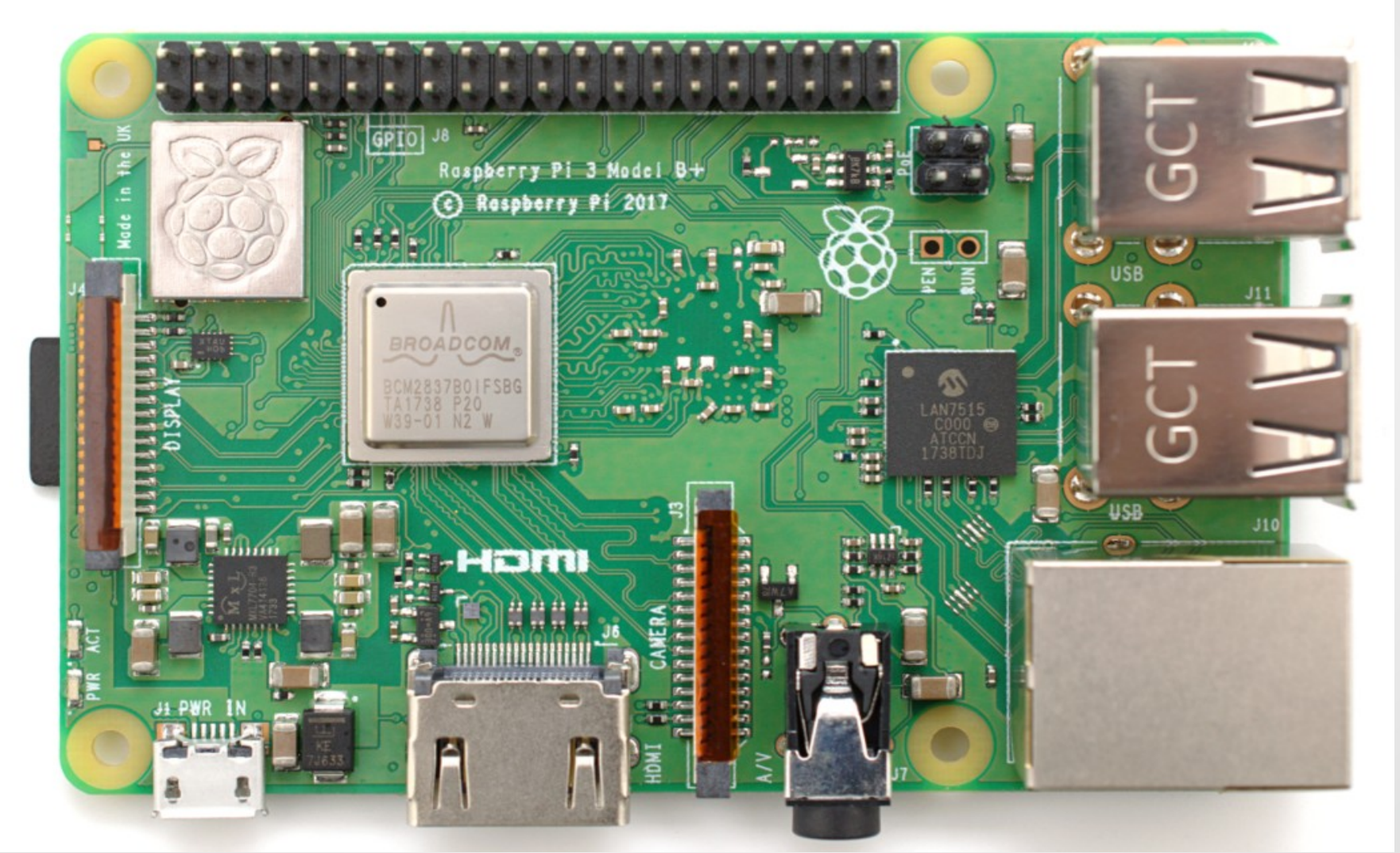
- Coñecer o kit Raspberry Pi
- Coñecer as diferenzas entre Raspberry e Arduino
- Coñecer sitios de referencia de proxectos

Introdución – que é Raspberry PI 3?

Contidos

- Comparar os kits Arduino e Raspberry Pi
- Coñecer as diferenzas entre Raspberry e Arduino
- Coñecer sitios de referencia de proxectos

Introdución – que é Raspberry PI 3?



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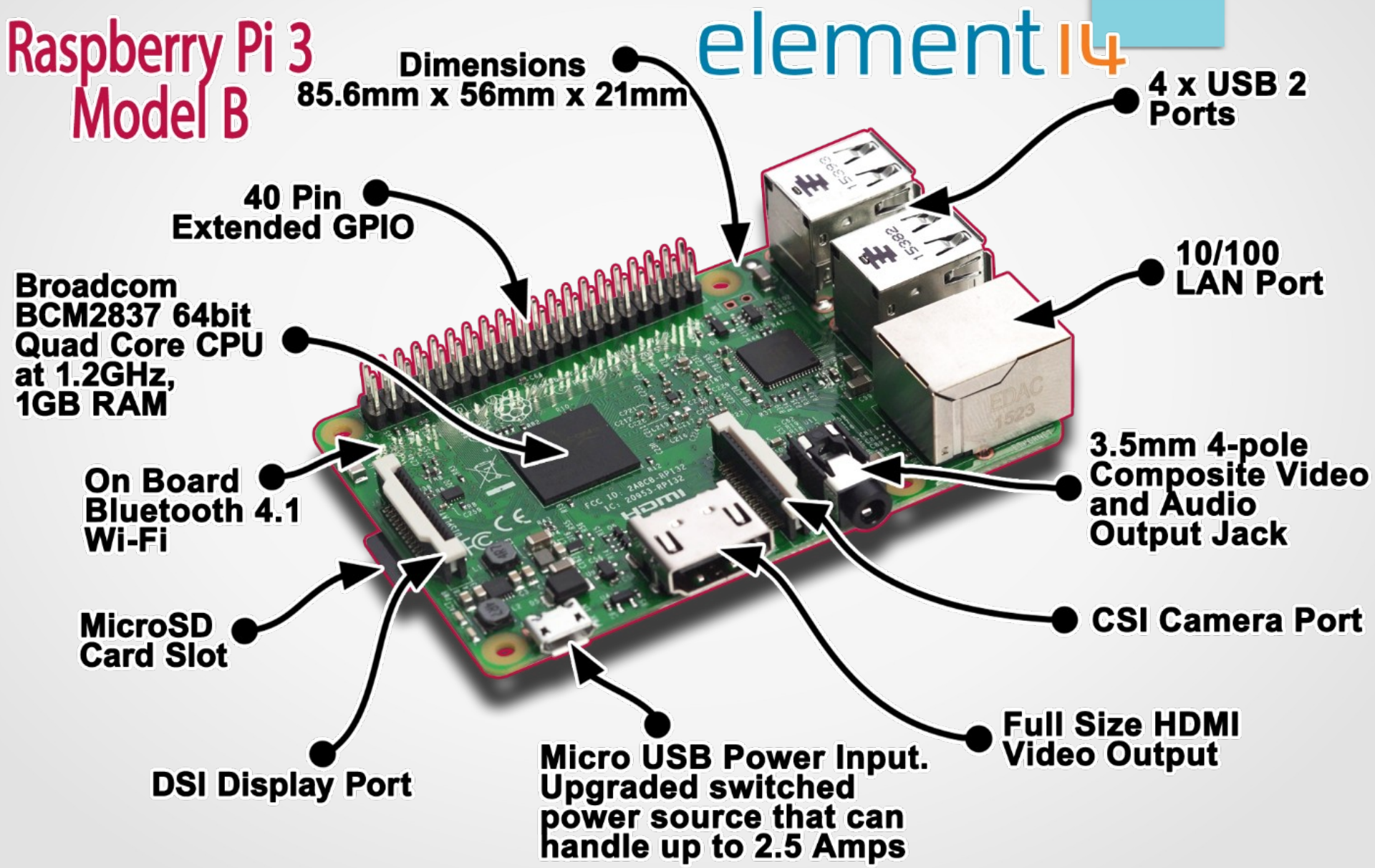
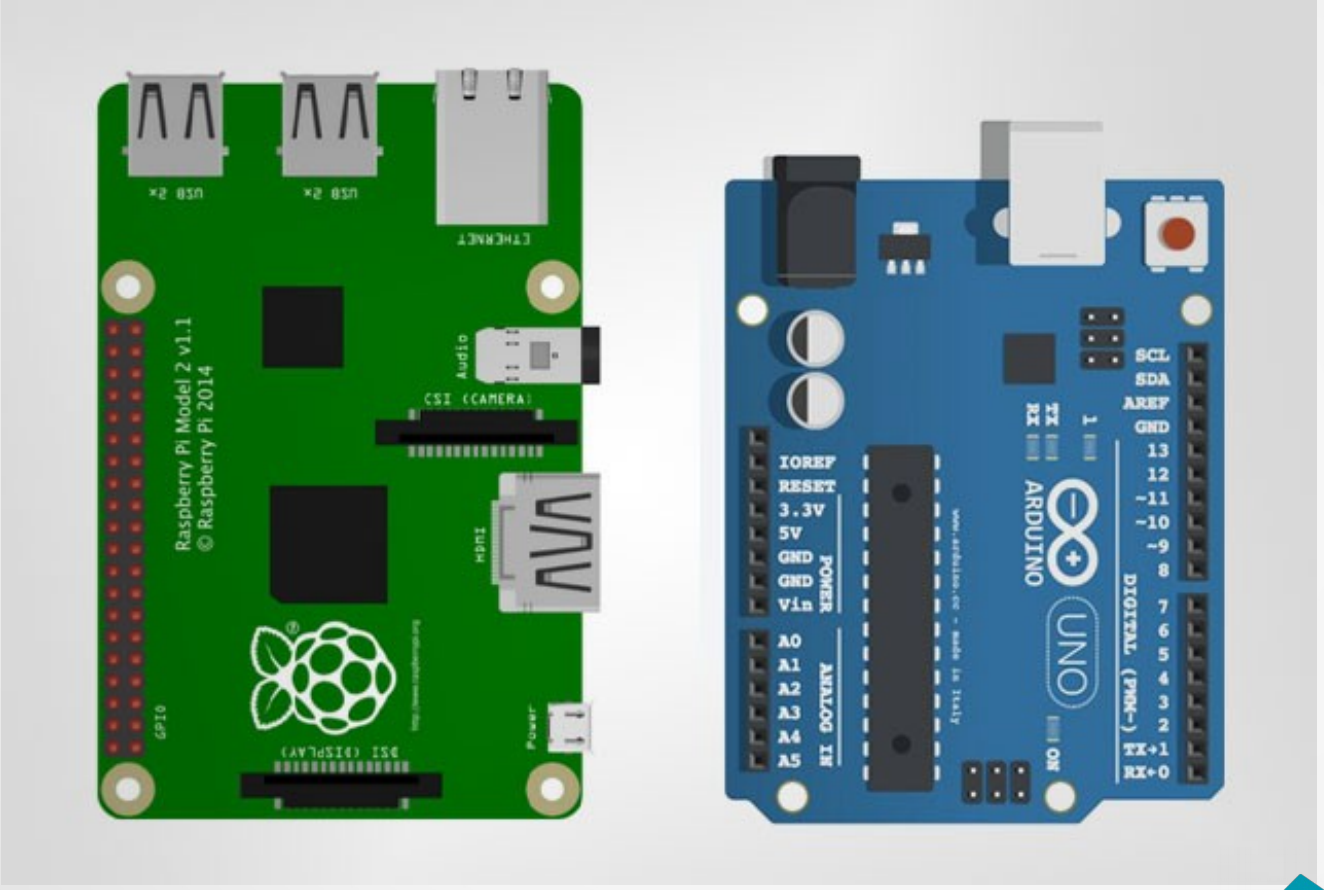


Introdución – diferenzas con Arduino



- Deseñadas como plataformas de uso fácil para proxectos DIY de electrónica.
- Proveñen do ensino.
- Ambas poden conectarse, comunicarse e controlar outros dispositivos HW.
- Son HW libre.

open source hardware

open source initiative

Introdución – diferenzas con Arduino

Raspberry Pi 3

- Ordenador persoal completo, orientado ao SW
- Necesita un SO adaptado ao procesador
- Usualmente Linux, mais tamén executa Windows 10

  https://www.raspberrypi.org/downloads/
- Inclúe de serie dispositivos de comunicación (BT, WiFi, ethernet, conectividade HDMI, USB, etc)

Arduíno

- É un microcontrolador orientado a interactuar con dispositivos electrónicos como LEDs, sensores, motores, etc
- Executa indefinidamente un programa (non ten SO)
- Moito máis fácil de programar que os PICs
- Existen moitos dispositivos baratos compatibles con Arduíno
- Precisa de adaptadores para comunicacións.

Introdución – diferenzas con Arduino

	Arduino Uno	Raspberry Pi Model B+
Price	$30	$35
Size	7.6 x 1.9 x 6.4 cm	8.5 x 5.6 x 1.7 cm
Memory	0.002MB	512MB
GPIO	14	40
Clock Speed	16 MHz	700 MHz
On Board Network	None	10/100 BaseT Ethernet socket
Multitasking	No	Yes
Input voltage	7 to 12 V	5 V
Flash memory	32KB	Micro SD card
USB	One, input only	Four, peripherals OK
Operating System	None	Linux distributions
Integrated Development Environment	Arduino IDE	Scratch, IDLE, anything with Linux support

Introdución – diferenzas con Arduino

	Raspberry Pi 3 	Arduino Uno Rev3 
Advantages	• Stronger and quicker processor, multitasking available • Built in Ethernet port, Wi-Fi and Bluetooth capability • OS can be switched easily • Audio output, Camera port, USB ports, HDMI output all included • Great to start learning to code with its helpful learning programs already installed • Great for projects that need to connect online and have multiple activities going on at the same time	• Easier to connect to analog sensors, motors and other electronic components • Variety of Shields that can add functionality • Long set-up not needed, just plug in and code will run • Price is cheaper (around $20) and will not need much cables (standard A/B USB) • Great for projects that need to quickly get data from sensors and do one activity from that data
Disadvantages	• Long set up and will need extra components when first starting (HDMI cable, monitor, keyboard and mouse) • Might need to install programs to get simple actions going • Can be more expensive (around $35, not including SD cards, cables, keyboards/mouse)	• Can run one code at a time, so can't multitask activities, slower speed • No Internet connectivity right out the box (can add with Shield) • Bigger learning curve since it's C/C++ language and will need to get outside sources to learn

Proxectos - por onde empezar?

- Podemos encontrar proxectos interesantes en diversos sitios.
- Adoitan ter bos buscadores, normalmente por categorías.
- Os máis habituais son Thingiverse, e Instructables:

https://www.thingiverse.com/

https://www.instructables.com/

- Existen outras páxinas e aparecen novas todos os días:

https://makezine.com/

https://www.makeuseof.com/tag/best-raspberry-pi-projects/