Raspberry Pi

Market Research

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MARKET

When the first Raspberry PI (Pi) was released in February 2012 it made a big impact that extended well beyond the education world for which it was touted. The Pi became a staple amongst the hobbyist and professional maker communities and was used for building everything from media centers, home automation systems, remote sensing devices and forming the brains of home made robots. It has recently been announced that over 5m Raspberry Pi's have been sold since its inception, making it the best selling British computer in history [Guardian]. This success has led to the Raspberry Pi foundation announcing the launch of the Raspberry Pi 2 (Pi2), which is claimed to be "six times" as fast as the first generation Pi (900Mhz quad-core compared to the original at 700Mhz single-core), has 1GB of RAM compared to 512Mb of the top end first generation Pi, and most importantly the price is still the same at around $35. With these souped up specs some claim that the Pi2 can now be a reasonable replacement for a home PC. [1]

Upton gathered a group of like-minded teachers, academics and computer enthusiasts around him, and the dream of the Raspberry Pi – a cheap, credit-card-sized, programmable computer – was born. Last week, the first prototypes arrived at his Cambridge laboratory; by the summer he hopes they'll be available in some schools, and by September he hopes they'll be starting to make a real difference to the teaching of computing across Britain.

The first 10 devices are being auctioned on eBay, with some bidders pledging more than £2,000 for a machine that will retail at around £22. But why? Upton hopes it signals support from the computer community for Raspberry Pi as a concept, as well as speculation that early models will one day be worth high sums. "We're a charity, and our ambition is to keep the costs as low as possible to enable as many schools as possible to invest in it for their students," he says.

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[1] https://www.linkedin.com/pulse/raspberry-pi-disruptive-force-computer-market-dr-avtar-sehra

Until now, though, inquiries from independent schools have outnumbered those from state schools, by around five to one. (2012)[2]

Exactly four years ago, on 29 February 2012, we unleashed the original 256MB Raspberry Pi Model B on a largely unsuspecting world. Since then, we've shipped **over eight million units**, including three million units of Raspberry Pi 2, making us the UK's all-time best-selling computer. The Raspberry Pi Foundation has grown from a handful of volunteers to have over sixty full-time employees, including our new friends from Code Club. We've sent a Raspberry Pi to the International Space Station and are training teachers around the world through our Picademy program.

In celebration of our fourth birthday, we thought it would be fun to release something new. Accordingly, Raspberry Pi 3 is **now on sale for $35** (the same price as the existing Raspberry Pi 2.[3]

https://www.raspberrypi.org/blog/raspberry-pi-3-on-sale

The Raspberry Pi foundation has launched the latest generation of its flagship credit card-sized computer as it **announced sales have topped 8m, making it the UK's all-time bestselling computer.**
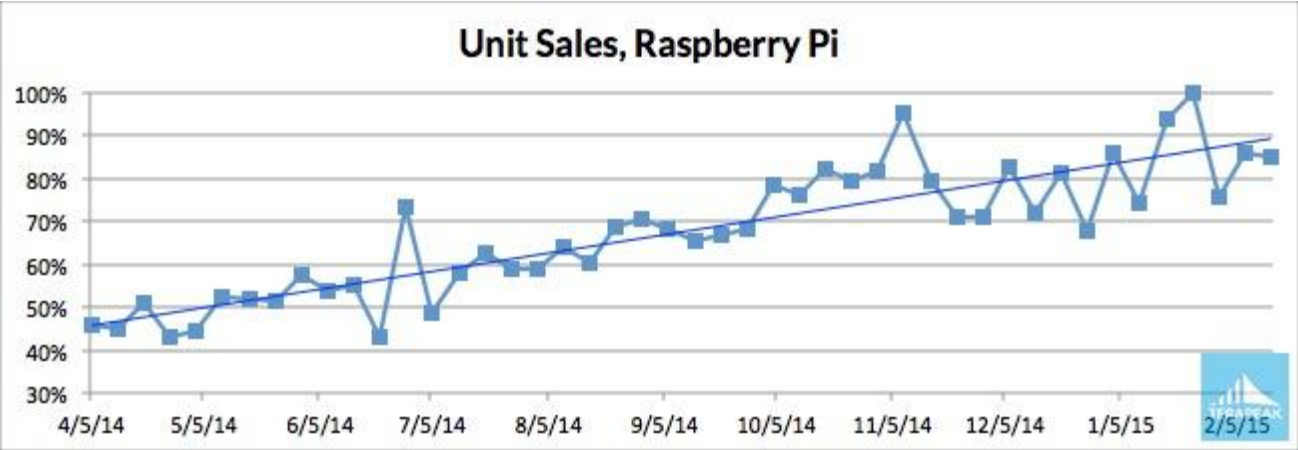
https://www.theguardian.com/technology/2016/feb/29/raspberry-pi-3-launch-computer-uk-bestselling

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[2] https://www.theguardian.com/education/2012/jan/09/raspberry-pi-computer-revolutionise-computing-schools

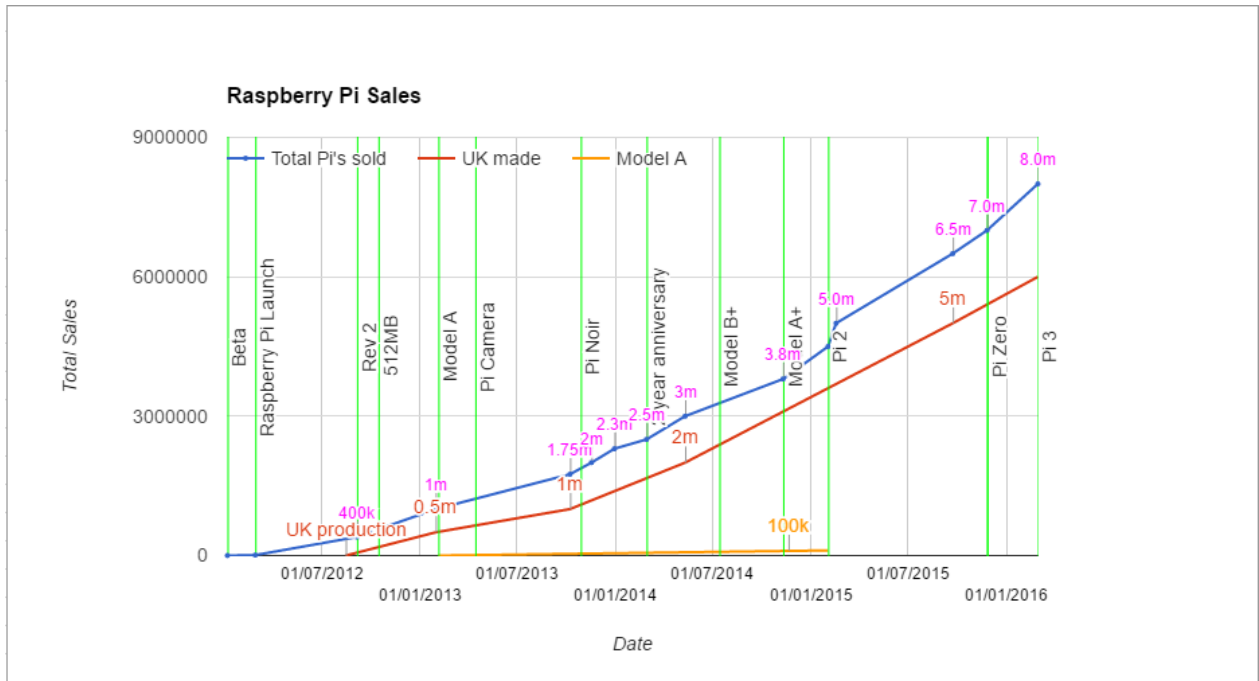[3] https://www.raspberrypi.org/blog/raspberry-pi-3-on-sale

Raspberry Pi has been at the center of the do-it-yourself "smart things" and "internet of things" movements, as people use them to handle tiny embedded computing and network tasks of all kinds. They've become a standard, go-to platform for tech hobbyist needs of many kinds.
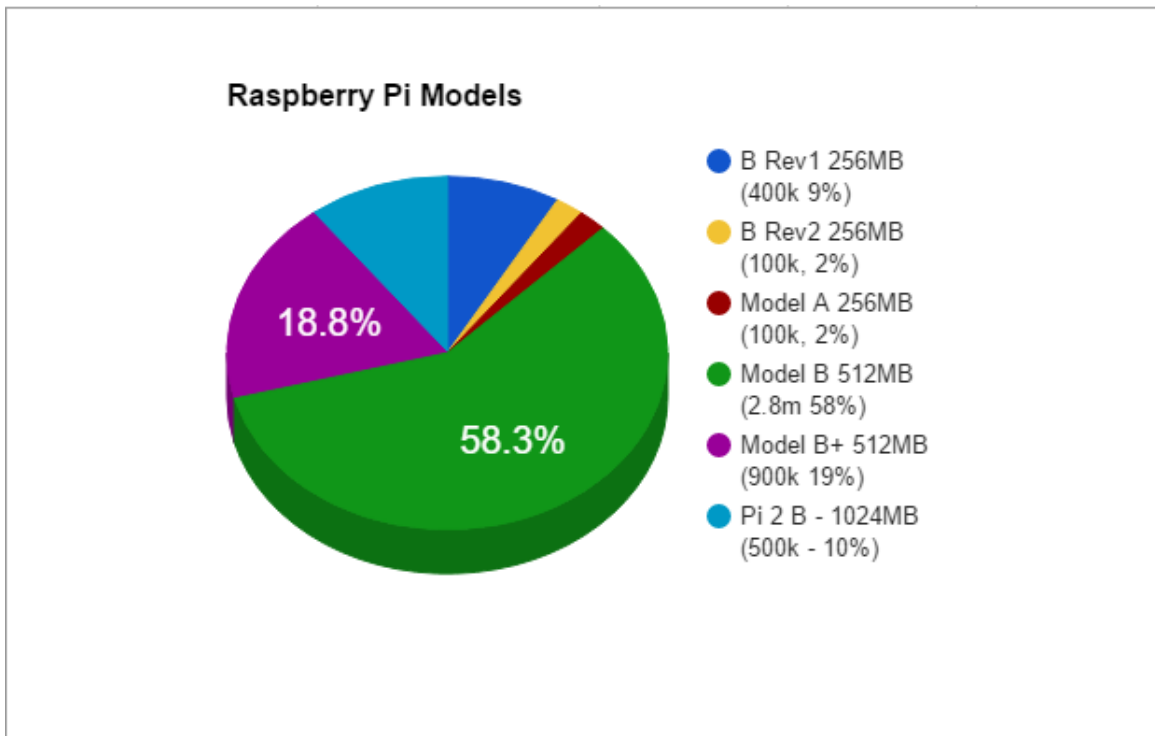

Unit Sales, Raspberry Pi

http://www.terapeak.com/blog/2015/02/27/maker-movement-and-do-it-yourself-electronics-are-hot-on-ebay

Raspberry Pi Sales

2012-2016

https://docs.google.com/spreadsheets/d/1zWwpcckDEEVAhNH3y7JQGxxbjP42nUywPOzDWr1fH28/edit#gid=0

https://docs.google.com/spreadsheets/d/1zWwpcckDEEVAhNH3y7JQGxxbjP42nUywPOzDWr1fH28/edit#g

Windows 10 migration will motivate most businesses to plan a PC refresh strategy in 2016. Many organizations are already considering desktop virtualization, but many have been held back for cost reasons. A **Raspberry Pi based Thin Client that costs $65**–not to mention the security and manageability benefits of Zero Client device–changes the economics dramatically.
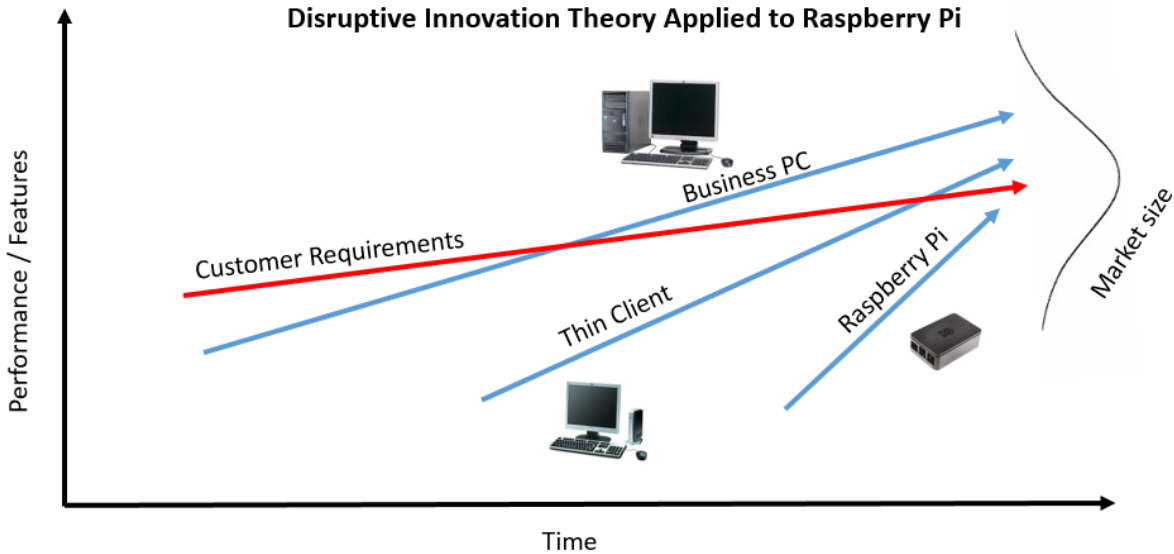
Following the Clay Christensen Disruptive Innovation Theory, it is just a matter of time for disruptive products to catch up to to mainstream requirements. As depicted in the chart above, these innovations often start below the requirements line, based on performance. However, technology advancements improve faster than customer requirements. Often these disruptive innovations can open new markets based on low cost and new uses which then benefits from the increased scale. Initially the low-cost disruptor starts with a low-end niche market. [4]

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[4] https://www.citrix.com/blogs/2016/02/08/can-the-raspberry-pi-disrupt-the-thin-client-market-and-the-pc-market

CONSUMERS

The Raspberry Pi isn't easy for everyone to use. While Eben Upton's invention was intended to be donated to lower-income students to promote teaching of programming skills, it's generally proven a bit too advanced for today's average K-12 technology learner. The device has instead found its core demographic in hackers and engineers. Also, educators new to Linux will have some learning to do. [5]

The original target for the RPi was (secondary) school age children coming up to University entrance.

As things have turned out the users now range from something like 8 to 80, with occasional individuals beyond even that spread.
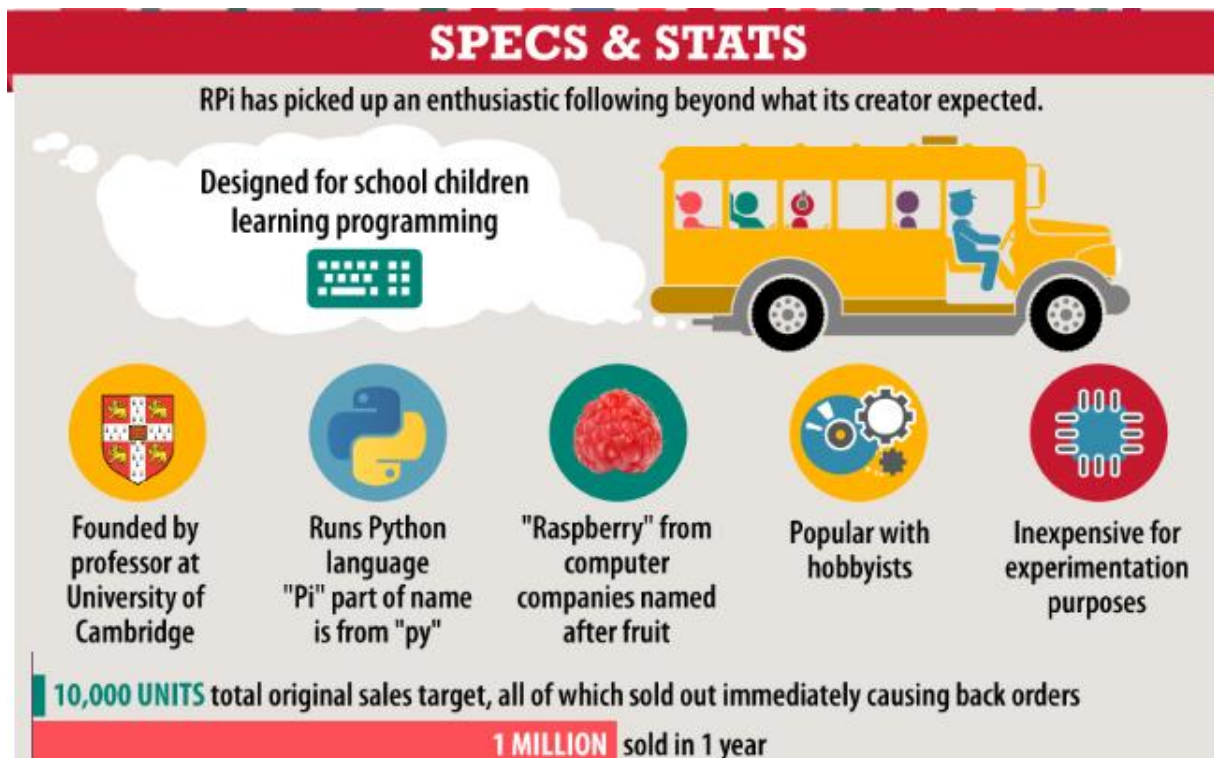
But it isn't a 'magic bullet' to technical understanding. Actual ages and competences obviously vary, but I think it is unlikely that anyone under (approx) 12 or 13 will accomplish much without adult guidance and encouragement. [6]

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[5] http://www.educationworld.com/a_tech/tech-in-the-classroom/raspberry-pi.shtml

[6] https://www.raspberrypi.org/forums/viewtopic.php?f=47&t=60196

SPECS & STATS

RPi has picked up an enthusiastic following beyond what its creator expected.

Designed for school children learning programming

Founded by professor at University of Cambridge

Runs Python language "Pi" part of name is from "py"

"Raspberry" from computer companies named after fruit

Popular with hobbyists

Inexpensive for experimentation purposes

10,000 UNITS total original sales target, all of which sold out immediately causing back orders

1 MILLION sold in 1 year

http://www.raspberrypi-spy.co.uk/2014/09/infographic-the-tiny-computer-that-could

Where In The World Are The 1.2M Raspberry Pi Microcomputers? Mostly In The West But Pi Founders Want More Spread This Year

One to 1.2 million Raspberry Pi microcomputers have shipped since the device's launch just over a year ago but where in the world are they located? While it's impossible to say exactly where* each Pi has ended up, the vast majority of the devices sold to-date have shipped to developed nations — including the U.S. and the U.K. But the potential of the Pi as a low cost learning-focused computing platform for developing countries remains very exciting.

Last week the U.K.-based Pi Foundation blogged about a volunteer group that had taken a suitcase-worth of Pis to a school in rural Cameroon where they are being used to power a computer class. At $35 apiece, and even $25 for the Model A Pi, the Pi does a lot to break down the affordability barrier to computing — although it still requires additional peripherals (screen, keyboard, mouse) to turn it into a fully fledged computer terminal.

https://techcrunch.com/2013/04/12/raspberry-pi-global-sales-spread
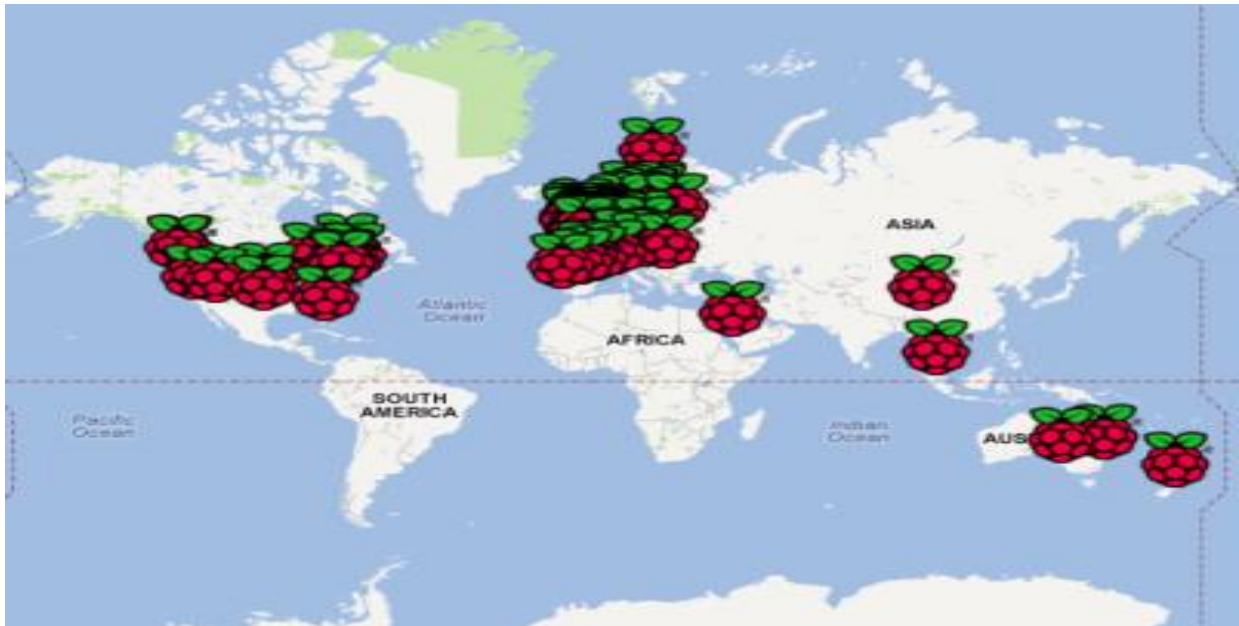
RASPBERRY PI IN SCHOOLS

This term, we've started to see the beginnings of school applications of Raspberry Pis. We've been taking a lot of orders from teachers in the UK, and we're very pleased to see teachers elsewhere catching on to the project too; I'm talking to a number of charitable bodies and businesses around the world who are providing units to local schools, and we've met some singularly inspiring teachers both at home and on the recent tours we've been doing. (2012) [7]

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[7] https://www.raspberrypi.org/blog/raspberry-pi-in-schools
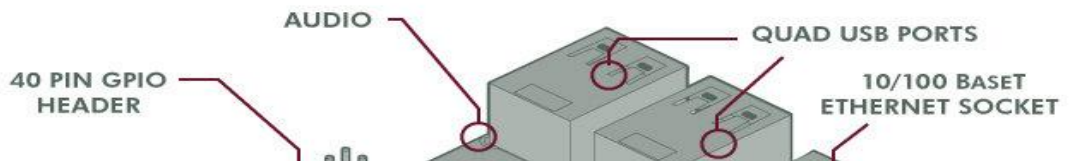
RASPBERRY PI

HOW TO GET STARTED
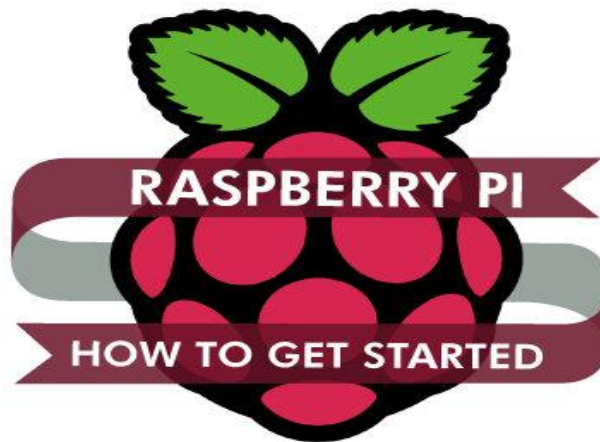
IS IT FOOD?

No, Raspberry Pi is actually a low cost, case-less computer, the size of a credit card. It plugs into a computer monitor or TV, and uses a standard keyboard and mouse.

WHAT'S IT FOR?

The device was created to be a low-cost computer that would enable kids to play around with computer projects and programming without fear of an expensive mistake.

AUDIO

40 PIN GPIO HEADER

QUAD USB PORTS

10/100 BASET ETHERNET SOCKET

http://www.raspberrypi-spy.co.uk/2014/09/infographic-raspberry-pi-how-to-get-started

COMPETITORS

Element14

Established in 2009, the Element14 Community is the industry standard for electronics collaboration. It has popular technical blogs, videos and webinars that provide information on the latest in electronics trends such as the Internet of Things and Wireless Technologies.[8]

Raspberry Pi is teaming up with Element14 on a customization service that lets organizations order 3,000 or more specially-made boards at once. You can use the service to add or remove connections, rejigger the layout and otherwise get the exact mini computer you want. It'll take up to three weeks before Element14 starts designing your custom board, let alone shipping it, but that could be a small price to pay if you're determined to get the right mix of circuitry.[9]

Element14, the market leading manufacturer and distributor of the Raspberry Pi are today announcing the launch of the new Raspberry Pi 3 Model B. The new generation board is faster and more powerful than ever before and comes with built-in Wireless and Bluetooth connectivity. This new board adds to element14's broad product portfolio which includes a world class ecosystem of accessories such as the recently launched Raspberry Pi Touchscreen Display.

The new Raspberry Pi 3 is available to buy today from element14, for a price of USD35 and is built on a new QUAD Core Broadcom BCM2837 64bit ARMv8 processor (running an ARMv7 operating system) at 1.20GHz, a significant increase from 900MHz on the Raspberry Pi 2. It has improved power management and an upgraded switched power source up to 2.5 Amps to support more powerful external USB devices.[10]

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[8] https://www.element14.com/community/static/about?ICID=footer_aboutus

[9] https://www.engadget.com/2015/10/27/raspberry-pi-customization-service

[10] http://www.premierfarnell.com/content/element14-launches-raspberry-pi-3

Tech distributor and systems design specialist element 14 has signed an exclusive deal with Raspberry Pi to offer customers bespoke designs of its super-popular Raspberry Pi boards -- which element 14 already manufactures.

According to element 14, these customisation options could include all kinds of tweaks, like reconfiguring the board's layout, adding more functionality, refreshing the interface and changing the board's memory configuration.

The company's new Raspberry Pi Customisation Service promises to guide businesses through every step of the process from initial concept of how the boards will work, through to actually getting them manufactured and delivered.

Element 14 guesses that, initially, most customisation options will be for 3000 to 5000 boards -- depending on how many changes they require to the current Raspberry Pi system. And the kinds of businesses that might be interested are pretty endless, from telecommunications companies to Internet of Things (IoT) startups to energy management companies and end consumer devices.

Claire Doyle, element 14's Global Head of Raspberry Pi, said in a statement: "This exclusive partnership extends element14's world class end-to-end design to manufacturing services to OEM customers, giving them the flexibility to customise any Raspberry Pi board in order to optimise it for a particular design."

Last year, Raspberry Pi launched its Compute Module, aimed specifically at business and industrial users, providing them with more flexibility in how they take advantage of the processor. The new agreement with element 14 means this thinking has been taken up a notch, providing those that want more and more customisation options with more freedom than ever before to really make Raspberry Pi their own. [11]

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[11] https://www.element14.com/community/docs/DOC-76955/l/raspberry-pi-customization-service

Gumstix- Geppetto Design

As a global leader in hardware design and manufacturing solutions, Gumstix[®], gives its customers the power to solve their design, business, and environmental challenges with Geppetto[®] -- the online design-to-order system-- and a broad portfolio of small computers and embedded boards. In addition to engineers and industrial designers, Gumstix helps students, educators, and makers unlock their creative ideas to bring them to market. Since we pioneered the concept of an extremely small computer-on-module (COM) with a full implementation of Linux in 2003, the company has grown to support over 20,000 diverse customers and is listed in 100+ patents and cited in over 2,200 articles. Our systems have launched some of the world's coolest products - from phones to drones - on commercial, university, and hobbyist workbenches in over 45 countries. [12]

Gumstix creates the fastest path to market for Raspberry Pi Compute Developers with Geppetto Design to Order. (D20)Platform.

Now that Geppetto Design-To-Order (D2O) supports the Raspberry Pi Compute Module, you have two ways to build a custom expansion board in less than a day. All Geppetto D20 custom boards are verified and shipped within 15 days of order.

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[12] https://www.gumstix.com/about-us

Gumstix Pi Compute Dev Board – **Click,** Clone and Jumpstart Your Design in Geppetto

The Gumstix Pi Compute Development Board for the Raspberry Pi Compute Module comes complete with HDMI-out, USB host and Pi's 27-pin camera and display I/Os, it has everything you need to get started. Just drag and drop it into Geppetto to start clicking to build your custom Gumstix Pi Compute expansion board.
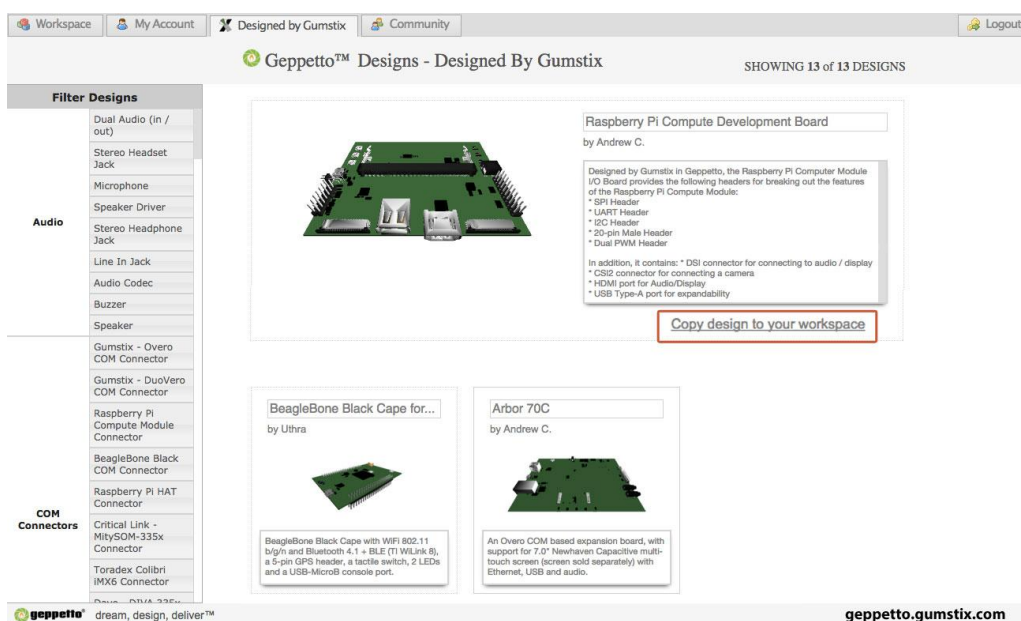
Gumstix Pi Compute Connector – **Drag, Drop, Design Your Own Expansion Board from scratch for Pi Compute**

If you're looking to add a custom board to your Pi Compute project, Geppetto D2O now has a SODIMM connector module with ports and signals pre-configured for the Raspberry Pi Compute Module. Add the Gumstix Pi Compute Connector to your board and easily add components such as HDMI, USB, and a host of other common peripherals.

https://www.gumstix.com/blog/build-your-own-custom-expansion-board-for-raspberry-pi-compute-module-in-a-day
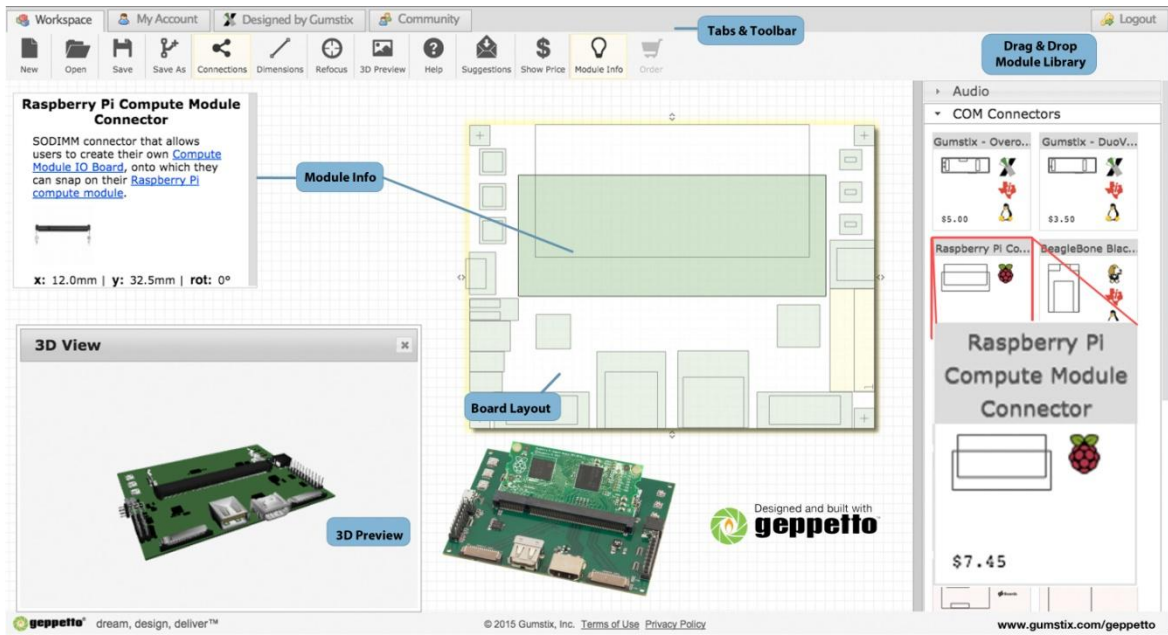
Display Module

DisplayModule started in 2013, in Ningbo, China and are dedicated to providing you with easy-to-use Display Modules with competitive pricing.

Our goal is to provide you with the best display modules and accessories provide superior documentation as well as source code for all popular open source hardware platforms. This will get you started within minutes and let you focus on innovation.
Ningbo is a well-known import/export city with the second-largest port in the world, this lets us take advantage of competitive pricing and fast deliveries. [13]

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[13] http://www.displaymodule.com/pages/contact-us

CoMo Booster For Raspberry Pi Compute Module (Geekroo Technologies)

We are proudly Australian owned business based in Adelaide, South Australia. We are electronic engineers, software programmers, makers and geeks. We design, manufacture and sell electronic gadgets, accessories and expansion devices for Arduino, Raspberry Pi, BeagleBone board, etc.

The Geekroo team is very small. All of the team members work for Geekroo as just a hobby job. We develop our products on our free time, spending long nights, weekends and holidays. Only because we love doing this. [14]

'CoMo' stands for the Raspberry Pi **Co**mpute **Mo**dule. CoMo Booster is an enhanced motherboard for the Raspberry Pi Compute Module. It's essentially a same kind product as the Compute Module IO Board.[15]

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[14] http://www.geekroo.com.au/about-us

[15] https://www.kickstarter.com/projects/geekroo/como-booster-launch-your-raspberry-pi-compute-modu

Unsuccessful Kickstarter funding campaign

https://www.kickstarter.com/projects/geekroo/como-booster-launch-your-raspberry-pi-compute-modu