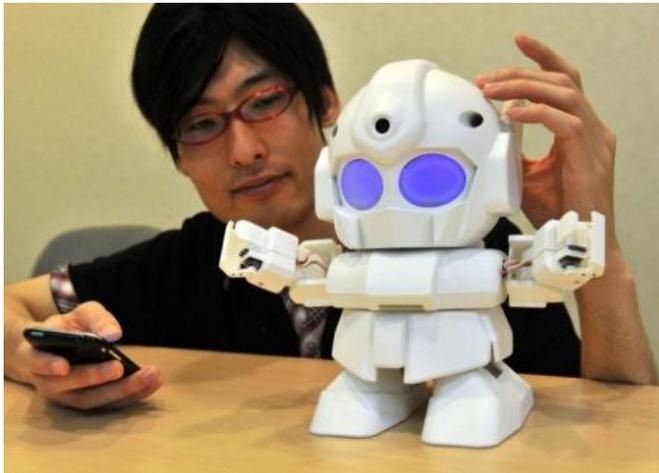


World's cheapest computer gets millions tinkering

21 July 2013, by Judith Evans



"It was just supposed to be a little thing to solve a little problem.

"We've sold many more to children than we expected to sell, but even more to adults. They're using it like Lego to connect things up."

The device, which runs the open-source Linux operating system, was designed as an [educational tool](#) for children to learn coding.

But its potential for almost infinite tinkering and customisation has fired up the imaginations of hobbyists and inventors around the world.

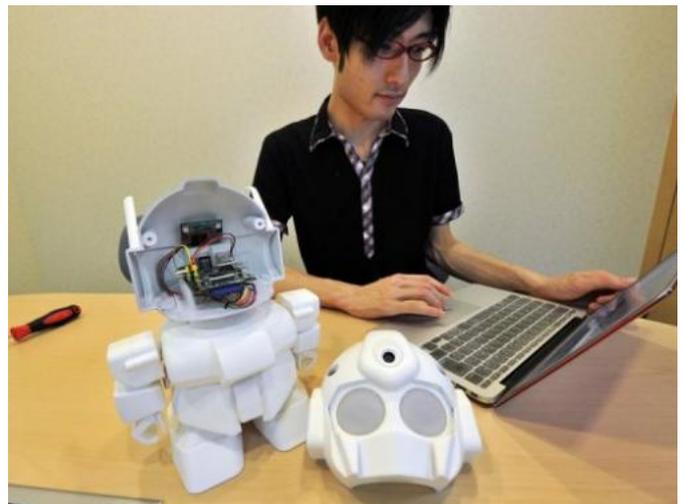
Japanese engineer Shota Ishiwatari displays the humanoid robot "Rapiro" which works with a "Raspberry Pi" in Tokyo on July 8, 2013. Raspberry Pi, the world's cheapest computer, costing just \$25 (£17, 19.50 euros), has astonished its British creators by selling almost 1.5 million units in 18 months.

It's a single circuit board the size of a credit card with no screen or keyboard, a far cry from the smooth tablets that dominate the technology market.

But the world's cheapest computer, costing just \$25 (£17, 19.50 euros), has astonished its British creators by selling almost 1.5 million units in 18 months.

The Raspberry Pi is now powering robots in Japan and warehouse doors in Malawi, photographing astral bodies from the United States and helping to dodge censorship in China.

"We're closing in on one and a half million (sales) for something that we thought would sell a thousand," said Eben Upton, executive director of the Raspberry Pi Foundation.



Japanese engineer Shota Ishiwatari displays the humanoid robot "Rapiro" which works with a "Raspberry Pi" circuit board in Tokyo on July 8, 2013. The Raspberry Pi is now powering robots in Japan and warehouse doors in Malawi, photographing astral bodies from the United States and helping to dodge censorship in China.

Ways to play

Tokyo inventor Shota Ishiwatari has created a small

[humanoid robot](#) run by a Pi, which can tell you the weather, manage your diary and even make coffee.

"I wanted to create something by using a 3D printer and the Raspberry Pi - two cool items," he told AFP, adding that he also wanted to demonstrate the potential of the microcomputer.

"Many Raspberry Pi users did not know how to have fun with the chip. I wanted to present practical ways to play with it."

Upton and his colleagues first thought of creating a cheap computer suited to programming when they were teaching computer science at Cambridge University.

They noticed that children of the wired generation lacked the day-to-day experience of coding that was so formative for the computer geeks who grew up in the 1980s.

"They didn't have the grungy familiarity with the dirty bits, the hacking," Upton told AFP.

"The theory of computer science is maths, but the practice is a craft, like carpentry."

Upton reminisces happily about his childhood coding on a BBC Micro, a rugged early personal computer from 1982.

Back then, you had to know a computer "language" in order to use one at all. But home computers are now so complex that parents often ban children from interfering with the underlying code.

Upton and his colleagues saw that developments in technology meant something like the Micro could now be created for a fraction of the cost, in pocket size, with the capacity to run multimedia programmes.

The team behind the Pi grew as the project developed; it now includes David Braben—the designer of a classic Micro game, *Elite*—and tech entrepreneur and investor Jack Lang.

By 2012, with Upton now working for a chip design

firm, the Pi was ready to launch.

Demand for the device, assembled in Wales, was so high that the websites of its distributors crashed.

Raspberry jams

User groups called Raspberry Jams now meet monthly in cities from Manchester to Singapore to share ideas.

A Raspberry Jam brought together the team behind a Pi camera that will photograph rhinos and other endangered animals in east Africa, generating data on their habits and on poaching.

The Instant Wild system, backed by the Zoological Society of London, already operates in several countries, beaming images via satellite to park rangers and to an app that crowdsources identifications of animals.

But by replacing expensive purpose-built equipment with cheaper Raspberry Pis, Instant Wild hopes to vastly expand its work.

A grid of 100 Pi cameras will be set up in 2015 on a Kenyan ranch, while another Pi will make its way to Antarctica to record penguin behaviour.

"It used to be very expensive—you'd have to run a laptop, with a huge car battery to power the thing. This saves countless power and it's easy for it to send out alerts automatically," said Alasdair Davies, technical advisor to the project.

Upton, however, is focused closer to home.

The Raspberry Pi Foundation is nonprofit and the design freely available, so he and his team will not be retiring on the proceeds of their success.

Instead they are working on software to make the Pi more accessible for children without expert help, and Upton remains intent on improving computer education.

The foundation is in discussions with the British government on a new IT curriculum.

For the country that invented some of the earliest computers, Upton feels that teaching coding should be a matter of national pride.

"The definition of computing is being reworked to be less about PowerPoint and more about computer programming—the useful stuff. The real stuff," he said.

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