The Dawn Of Affordable Computing

The ZX81 and Spectrum by Sinclair Research, were among the first affordable home computers available during the early 1980's.

Although these 8-bit computers were crude by today's standards, they gave ordinary people the opportunity to write computer programs and games.

The BBC Acorn computer was backed by the British Government for use in education and subsidies were granted to schools. These computers were a little too expensive for most families to have at home.

The 'Electron' was Acorn's attempt at addressing the price issue. They sold a number of units, however despite being more powerful on the hardware side, the range of game titles was significantly smaller than rivals Sinclair and Commodore.

The Fall Of Programming

Home computer users were becoming less interested in writing their own programs.

Slick-looking, professionally made games that were coming out of software publishing companies were compelling.

Ocean Software for example, boasted an impressive library of hit game titles such as 'Daley Thompson's Decathlon', 'Chase HQ' and 'New Zealand Story'.

The trend of moving away from programming followed within the education sector. Early software packages like Wordstar, and Lotus 123 were difficult to use before the days of the graphical interface, but typing skills, word processing, spreadsheet and database training continued to be the focus. Programming was seen as a very specialist and niche area of study.
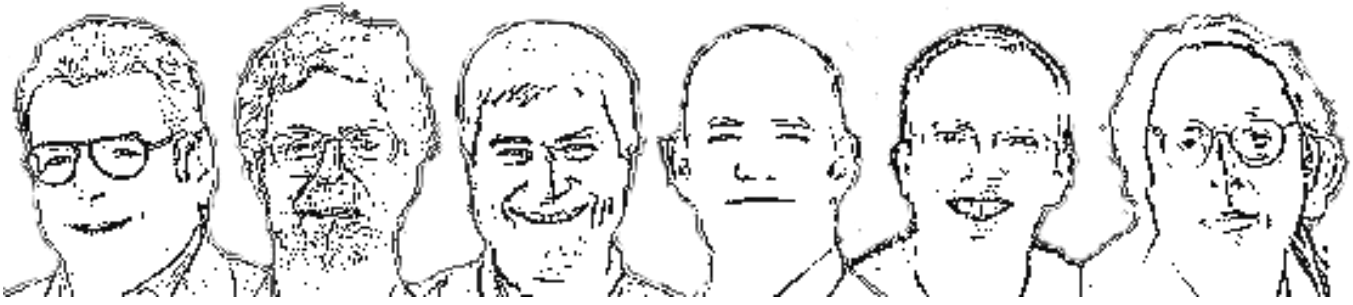
The Pioneers

The story of how the Raspberry Pi computer came to be.

Cambridge and Beyond

Cambridge University attendees have played a major role in the development of computers in Britain. The story of how these individuals have branched out into various organisations such as ARM Holdings plc, Acorn, Sinclair Research, Element 14, Broadcom and the Raspberry Pi Foundation is a complicated one.

To understand the links between all of these companies and organisations is extrememly difficult, due to many mergers, aquisitions, dismemberments, shareholdings, employment movements and so forth, and many a journalist has been beaten trying to unravel exactly who did what, and now who owns it.

What we do know is that the Raspberry Pi project began in 2006. There was a common desire amongst certain individuals to recapture a sense of the pioneering spirit of computing that came during the 1980s, When affordable personal computers became available to the average hobbyist or budding computer enthusiast. There was a growing concern about the diminishing interest in computer science and an opinion that the ICT curriculum had become too focused upon word processing, spreadsheets and databases.

Initially the plan was to build a simple microcontroller-based computer that booted straight into a python interpreter prompt (the Pi in the Raspberry Pi name was a reference to the Python programming language).

This cheap device was intended to be used to promote and invigorate the next generation of programmers and developers.
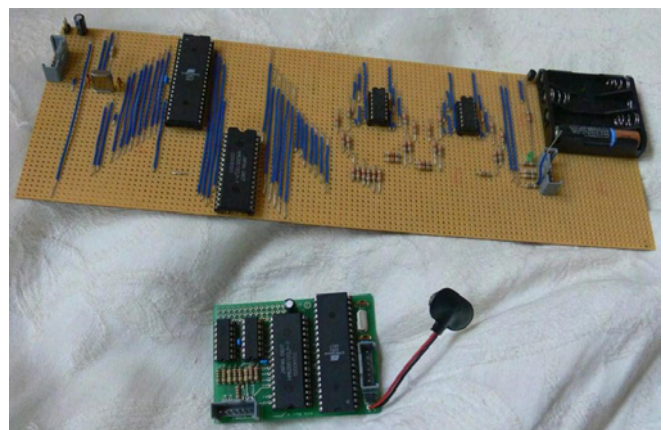
Early microcontroller-based circuit board

DAVID BRABEN
CHAIRMAN AND ELITE CO-AUTHOR

Due to the cost of producing a working system with networking capabilities, device drivers, etc. built into the interpreter, it was decided that it would be easier to use an already freely available operating system (Linux). Using Linux would also allow flexibility in the choice of programming languages and other software that could be used.

The option of using a 'System on a Chip' (SoC) became preferable to a microcontroller computer. Broadcom had developed a range of ARM processors for use in smartphones.

BROADCOM.

Broadcom employee Eben Upton and other luminaries such as David Braben (Famed writer of the BBC Micro games 'Elite' and 'Frontier'), Jack Lang, Pete Lomas, Professor Alan Mycroft and Dr Robert Mullins set up a charity called 'The Raspberry Pi Foundation'. The idea they had in mind was to design a SoC board populated with a Broadcom ARM11 processor chip, which could be produced and sold at a very inviting price, to a potential new generation of computer science engineers.

The first prototype boards were the size of a USB memory stick, with 1 USB port at one end and a HDMI video output at the other end. These boards used microSD memory cards to store the Linux operating system. The boards were too small to accomodate a network port, GPIO header, composite video and analogue audio outputs, which would mean that they were unsuitable as hardware development boards.

USB Stick sized early version of the Raspberry Pi

It was decided that a credit-card sized board would be sufficient, and the Raspberry Pi Foundation set about designing the board layout and working with the Linux community to develop and refine a number of Linux operating system distributions that would work well with the 700MHz ARM1176JZF-S processor. The initial design had an SD card reader fitted to the underside of the printed circuit board (PCB), however the first prototype card readers protruded slightly outside the credit card shape.
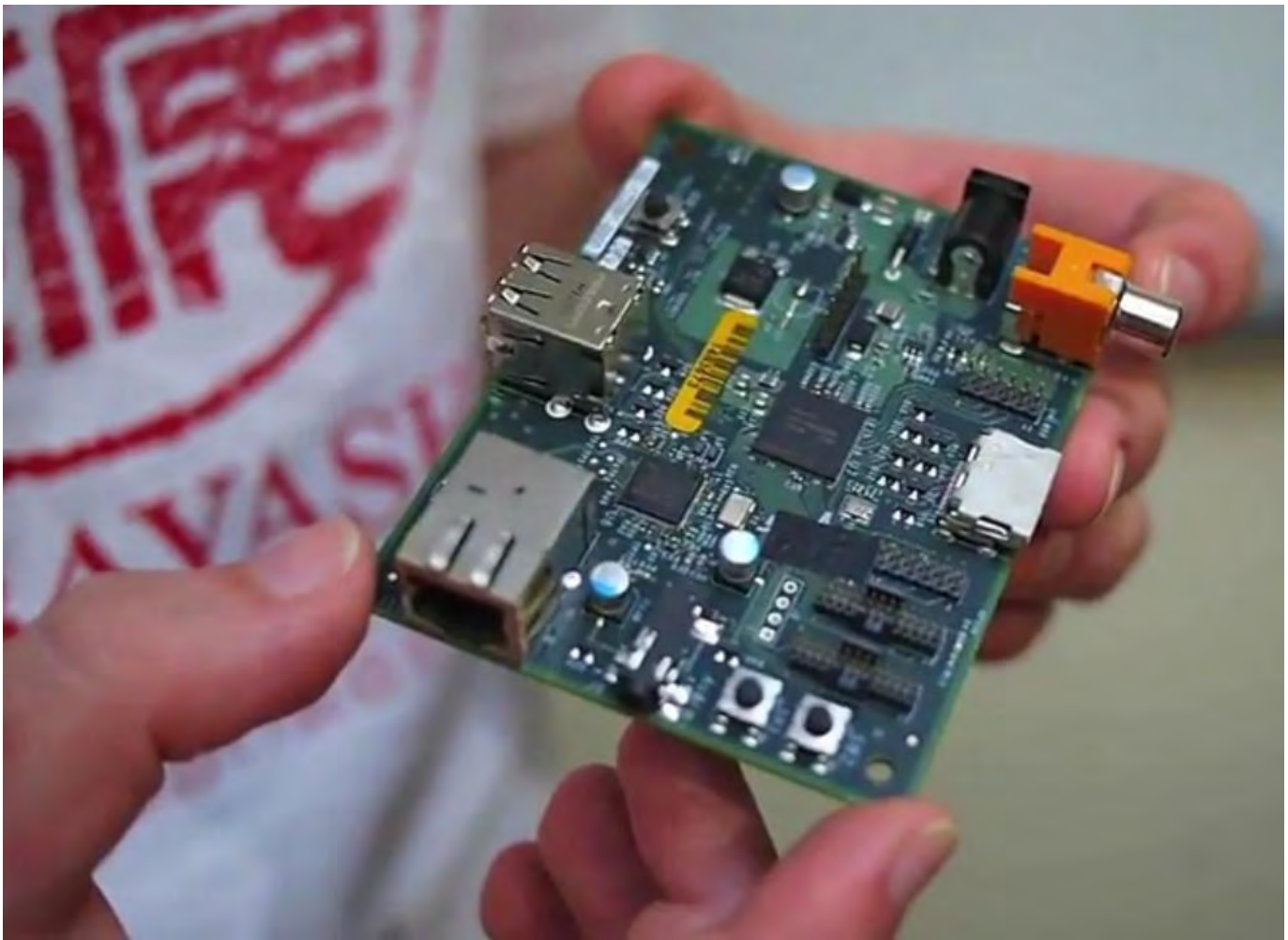
Co-founder Eben Upton displays one of the first Alpha Boards

In August 2011, fifty alpha boards were produced. The SD card reader had been repositioned to be flush with the edge of the card.

By December 2011, beta boards of the Raspberry Pi were able to demonstrate Full HD 1080p video playback and a ported version of the Quake 3 game, using the onboard Videocore IV graphics processing unit (GPU).
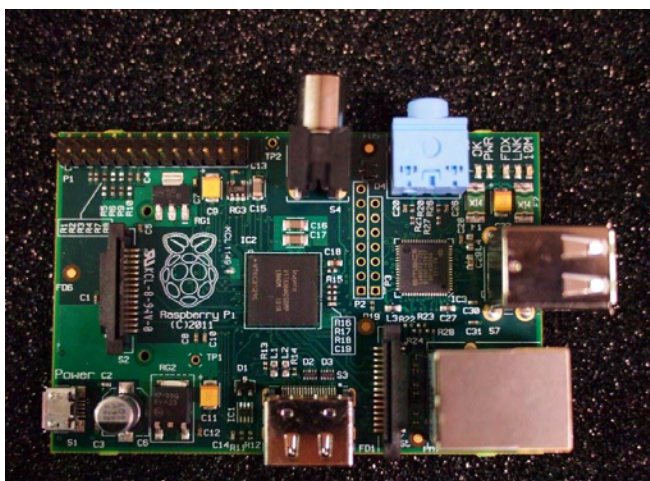
Notably the beta boards were fitted with micro-usb power connectors. This meant that it would be possible to use the commonly found phone chargers to power the boards.

In January, The Raspberry Pi Foundation auctioned some of their prototype Raspberry Pi boards on Ebay and announced that the first 10,000 Raspberry Pi computers were being manufactured in China. They would be sold through industrial components suppliers 'RS Components International' and 'Premier Farnell' with additional design engineer community support provided through 'Element 14'.

After a few setbacks, the first Raspberry Pi boards were available for pre-order. The official launch was at 6am UTC on the 29th of February 2012.

Raspberry Pi beta board

Article by Jaseman