Whatever happened to...

Each year sees a host of new technologies that are supposed to change our world but then disappear without a trace. Wendy Brewer and Ursula Seymour revisit the most hyped innovations of yesteryear

Hyperbole is a well-established part of any product launch. But with some devices the hype and reality are so disproportionately unrelated it's laughable.

Those evil robots

It's a vision that's been mooted over the decades and was particular popular in the 1950s. But how close have we actually come to realising the technological nirvana where robots tackle the housework and entertain the kids? Thanks to Sony's Aibo (launched in 1999), a toy robot dog is no longer a problem for the well-heeled parent. The only drawback is its £1,000 price tag – rather more than your average stocking filler.

So toy robots are no longer the stuff of science fiction. But what about that anthropomorphic home help automation?

The Japanese have a few household robots to choose from including the Banryu, a guarding dinosaur robot and the Fujitsu Maron-1. But these guys are limited to keeping watch over your home and, again, are eye-wateringly expensive. More anthropomorphic models are on the way, such as Honda's Asimo, but they're a long way from becoming truly useful household objects.

The days of a bi-ped bot who will wield the dustpan and brush as well as wake you up with tea and toast remain pretty far off. Give it another 50 years or so...

Apple Newton

Arguably the first personal digital assistant, the Newton was hyped to the heavens before its launch in the early 1990s. It promised features that are still in their infancy.

Discontinued in 1998, the MessagePad and ePad models won many fans. Indeed, these avid admirers picketed the Apple car park when boss Steve Jobs announced the Newton's demise. But while the company kindly gave protesters coffee and cookies, Jobs stuck to his guns. He binned the Newton in order to "focus our software development resources on extending the Macintosh operating system".

Since then there have been many rumours that Apple was to re-enter the PDA space but so far to no avail. And given the success of its recent musical endeavours, it seems unlikely that this will happen any time soon. Unless you can pick up an old model on eBay, it looks like RIP Newton.

Wearable computers

IT analyst Gartner predicts that by 2010 we will be wearing computers that can connect us up to a network. You could buy tickets or make micropayments without even reaching into your pocket.

This may seem far-fetched, but there are already several products on the market attempting to fuse man and machine. Xybernaut's Poma is a wearable headset that mounts a tiny 1in colour screen in front of your eye, allowing you to access data from the attached computer.

Sony has taken this concept and applied it to gaming, coming up with the PUD-J5A headmounted display for its PS2 console. Simply cover your eyes with the two LCDs and enter a virtual world.

While these are fine stabs at creating wearable computers, they're far from streetwear. Unless you enjoy walking around with your vision obscured – not to mention looking like a right prat. Creating a fashion-conscious wearable PC will take time and we think 2010 is a far too optimistic target date. But then we have been known to be wrong about such things...

Electronic books

E-books were meant to revolutionise the way we read, relegating the traditional paper-based novel to the confines of history. But some five years after e-books were first introduced, the majority of us would still rather pick up a paperback than download an electronic file.

First off, traditional books tend to be cheaper. Amazon.co.uk has Richard Morgan's *Broken Angel* for £5.59 in paperback, while the electronic version costs £8.24. Then there's the practicality issue. After all, the beach isn't the ideal place for your expensive e-book reader and a few hours spent scanning a screen in the sun will play havoc with your eyes.

It's not all bad, though: e-book prices are coming down and the range is expanding. Some publications are also better suited to the electronic format – for example, searching an academic textbook for those salient facts is much easier onscreen.

But the pleasure of snuggling up in bed with a gripping paperback or lounging on the beach with the latest bestseller is much more tempting than squinting at an electronic reader. And we suspect that it will stay this way for the foreseeable future.

Sinclair C5

In the early 1980s the idea of an electronic car had everyone's tongues wagging. In an attempt to address our growing pollution problem, the government had abolished tax on electronic vehicles and set up a series of grants for alternative power cars.

So Clive Sinclair's C5 seemed like a great idea... in theory. In reality it was a commercial disaster, dubbed a dangerous joke by the press, selling less than 17,000 models in the UK. And for anyone who's ever driven the C5 – or sat in a queue of traffic inches from the floor boxed in by two lorries – it's clear why it was a failure.

The Sinclair was meant to provide an affordable option to the motor car. And at £399 that was probably the only criteria it met. Assembled and serviced by vacuum manufacturer Hoover, it boasted a top speed of 15mph, peddle power was required on steep hills and it could only go for about 10km before needing a recharge.

There's still the odd C5 fan out there but there's as much chance of our roads being clogged up with Sinclairs as Segways (see right).

Betamax VCRs

Betamax is a classic example of a manufacturer pushing its own format and falling flat on its face. Sony introduced Betamax VCRs in 1974. The tapes were slightly smaller than the standard VHS and offered better picture quality but less capacity.

Despite a major advertising campaign, Sony shot itself in the foot by refusing to allow pre-recorded phonographic videos to be sold in Betamax format, meaning the latest Hollywood blockbusters were only available on VHS.

Sony eventually produced its own VHS tapes, effectively conceding defeat in the format war. Betamax production ceased in the US and Europe in 1998, but Sony continued to manufacture a limited number of Betamax VCRs in Japan until the end of last year.

Game.com handheld console

Tiger Electronics broke into the handheld market in 1997, hoping to mop up some of Nintendo GameBoy's ever-expanding audience. The Game.com's design itself was fine, although some of the hardware was looking outdated at the time of launch.

The large LCD was touch-sensitive and players had the bonus of a personal electronic organiser as well as online capabilities. The affordable £55 device lacked a keyboard and for most online apps the screen simply wasn't suitable. Indeed, it only proved useful for uploading high scores.

But the handheld's real downfall was games. Supplied with several pre-programmed basic titles, including the crowd-pleaser Solitaire, many of the more advanced games promised by Tiger Electronics never made an appearance. The revolutionary double-game card slot allowed players to switch between games, but the low resolution meant poor graphics.

Tiger released its second model, the Game.com Pro, a few years later and surprisingly removed the innovative two-card slot. Alas that flopped too, leaving Nintendo free to dominate the handheld market. ☒

Segway Human Transporter

The Segway was meant to revolutionise the way we travelled. This two-wheeled personal transportation system is 'driven' by the body's movements and resembles a wheeled Zimmer Frame. Classy.

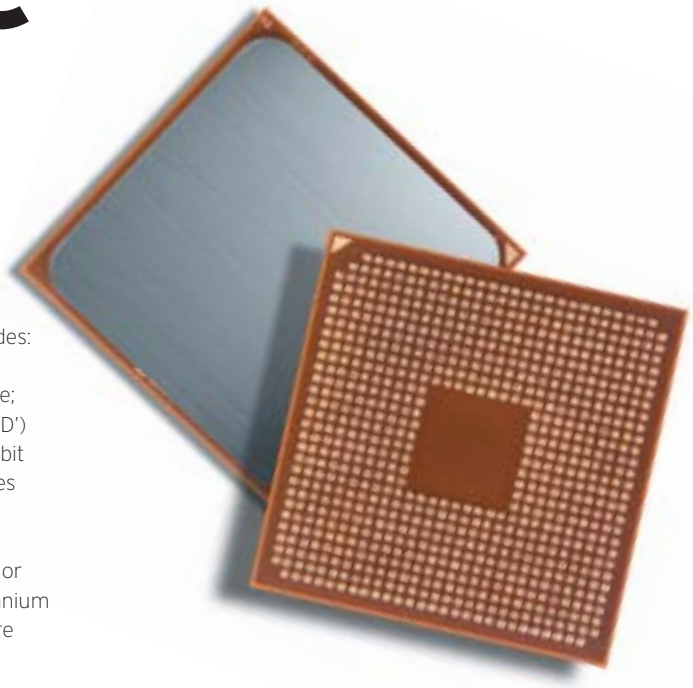
Asking around the office if anyone had ever seen one of these devices trundling around the streets of London, the resounding answer was "No". One of our number did boast that he had once seen inventor extraordinaire Clive Sinclair riding a Segway around BBC Television Centre, but that doesn't count.

Apart from the fact that you'll look really silly using a Segway, they don't get you where you want to be much faster than if you were walking and if it rains you'll get soaked. Oh, and another thing that might be putting off the masses: the price tag is a humungous $4,950 (around £3,000).

But then, unlike the ill-fated C5, the Segway is still being produced and the website boasts of rallies of hundreds of ardent fans (well, okay, 150) converging in cities across the US on their Human Transporters. Watch this space...

AMD edges ahead in 64bit race

Intel rival AMD has come out with the first true 64bit consumer processor in the shape of the Athlon 64. Roger Gann takes a look at what sets this chip apart



This September saw the launch of AMD's 64bit processor, the Athlon 64 aka 'Clawhammer'. Of course, 64bit processors are nothing new. Intel, IBM and Sun have had 64bit CPUs for a while now and AMD launched its first 64bit processor, the Opteron, back in April. What sets the Athlon 64 apart from its predecessors is its target audience – the mainstream desktop PC user.

All the previous 64bit processors have been specifically designed for use in servers or high-end workstations and priced accordingly. The Apple G5, with its PowerPC 970 processor (released back in June) signalled a break with that trend. But given Apple's tiny market share, AMD's new processor is far more significant.

Break into the mainstream

AMD is launching two 64bit processors: the high-end 2.2GHz Athlon 64 FX-51 and the consumer-level 2GHz Athlon 64 3200+. The latter chip sits in socket 754, which supports a single-memory channel, while the 2.2GHz Athlon 64 FX-51 uses socket 940 and supports dual-memory channels.

Both processors are expected to be in fairly short supply until the end of the year. But to get the best out of these 64bit CPUs they really need a 64bit operating system, not to mention 64bit drivers and applications, and the 64bit version of Windows XP has only just entered beta testing.

Based on the same K8/AMD 64 core as the Opteron, the Athlon 64 can operate in one of three modes: 32bit legacy (aka 'Intel') mode; dual 32/64bit compatibility mode; and pure 64bit (aka 'x86-64 AMD') mode. The last two require a 64bit OS and are essentially sub-modes of the chip's 64bit long mode.

The ability to run 32bit code without a speed penalty is a major plus for the Athlon 64. Intel's Itanium range can run 32bit, but nowhere near as fast as pure 64bit code.

Performing arts

The Athlon 64 comes with a number of performance enhancements designed to speed the passage of data inside the chip. Its 64bit architecture allows it to process twice as much data per clock cycle as current Athlons, although that doesn't make it twice as fast – far from it. Furthermore, the chip will give consumer desktops access to one terabyte of memory – more than the 4GB limit on 32bit computers.

The new CPUs feature 1MB of L2 cache (double that of the Athlon XP 3200+), better branch prediction algorithms and bigger TLB (translation look-aside buffers). This all combines to allow the Athlon 64 to run faster than an Athlon XP working at the same clock frequency.

The integer pipeline of the Athlon 64 is longer, permitting higher clock frequencies, and it supports the SSE2 instruction set, meaning it can handle all existing extensions of the x86 set. Another major innovation is its integral DDR SDRAM controller, which will reduce latencies on data requests. The CPU and south bridge is connected with the Hyper Transport bus, with up to 3.2GBps bandwidth in each direction.

Although the initial Athlon 64's have a performance rating of 3200+, they are slated to reach 3700+ during early 2004, rising to 4300+ by the end of the year. By then, AMD will have switched from a 130nm manufacturing process to 90nm. Overclockers will no doubt rejoice at the inclusion of a built-in thermal diode and that AMD has hidden the fragile CPU die under a nickel-plated copper lid.

Special interest

The major problem facing the Athlon 64 is that the average PC user doesn't need 64bits just yet. Indeed, cutting-edge PCs still ship with just 1GB of RAM – far from the 4GB ceiling imposed by 32bit chips. Gamers and those who use complex programs such as CAD may benefit, but ordinary users will see the Athlon 64 processor as a faster iteration of the 32bit Athlon XP. ☒