



by Alan Winstanley

**In Part Two of our 50th Anniversary celebration of *Practical Electronics* magazine, we chart the progress of Britain's last remaining hobby electronics magazine from the 1970s to the present day.**

#### **New technologies**

In the 1970s, semiconductor technology raced ahead: silicon had supplanted germanium, circuitry had gone 'digital', new light-emitting diodes offered colour, speed and power efficiency, CMOS technology was starting to emerge, and large-scale integrated chips were being released with applications in every sector of technology. A stylish Sinclair digital watch could now be built in kit form, as could a Sinclair 8-digit wrist calculator.

#### **The chips byte back**

*Practical Electronics* continued in the same vein of presenting projects of intermediate to advanced complexity, submitted by freelance contributors. One emerging area was really starting to make its presence felt: computing. Thanks to Intel, the era of the microprocessor was upon us, and *Practical Electronics* was keen to meet this challenge with tutorials, starting in 1975, followed in 1977 by the series *Microprocessors Explained*, written by RW Coles (who had previously designed the magazine's first digital IC project in December 1970).

The dawn of the home computing era became something of a double-edged sword. There were electronics hobbyists hungry to know more about programming and building computer kits, especially in the USA, but this new field could be a distraction from 'core electronics' project construction. Of course, those newly interested in computing also drifted into electronics as a complement to their hobby. In fact, *Practical Electronics* said that the Personal Computer Show held in Atlantic City in August '76 showed how the new hobby of home computing had taken both the electronics industry and retail trade completely by surprise.

The year 1977 would be one of upheaval, as IPC Magazines moved some operations away from London to Poole in Dorset, on the south-west coast of England. Editor Fred Bennett remained in London as editor of *Everyday Electronics*. Mike Kenward accepted the post of editor of *Practical Electronics* in

# 50 Golden Years Of Practical Electronics

## PART 2

Poole; he had returned to England after working for *Electronics Today International* in Canada. Having become divided, the two magazines went their own way and to some extent *PE* and *EE* became rivals. December 1977 was the last London-based edition and Mike's new team took over from the January 1978 issue of *Practical Electronics*.

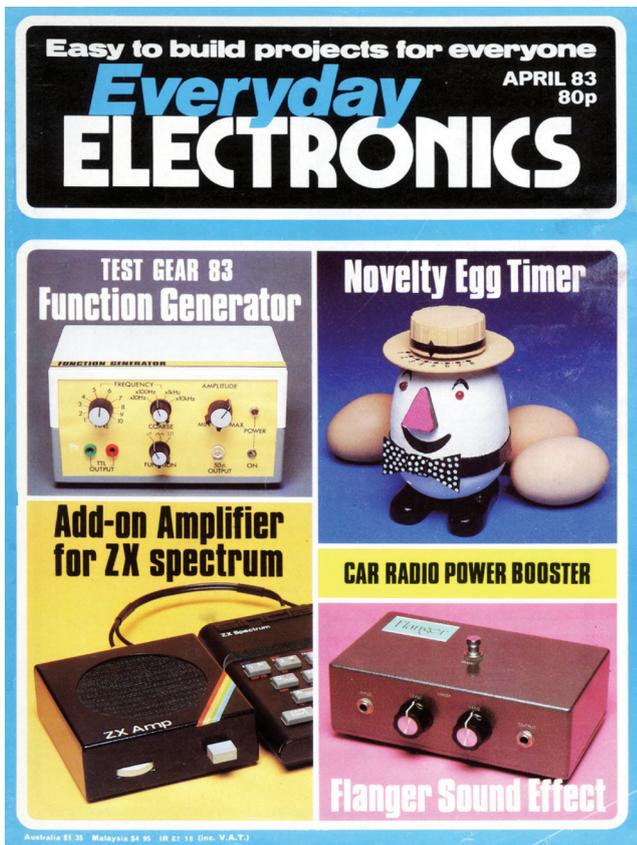
#### **Digital takes off**

It has been said that *Practical Electronics* had resisted the temptation to carry many hobbyist-designed computer projects as developments were still racing ahead. Perhaps memories of the ill-fated *Digi-Cal* desktop calculator were still raw! A computer kit by MITS called the Altair 8800 claimed to be the first Intel 8080-based 8-bit computer kit to rival commercial units and *Practical Electronics* swiftly and characteristically rose to the challenge by publishing the *PE Champ* microprocessor development system. *Practical Electronics*' immensely successful *Compukit UK101*, a 6502-based design with 8K of RAM, followed in August 1979. It ran Microsoft BASIC and software could be uploaded on cassette tapes and some expansion possibilities tantalised the taste buds of hobbyists. A new branch of electronics technology – a computer hobby in its own right – had taken shape and the plethora of magazine titles on sale reflected that.

The July 1980 issue saw another milestone home computer product appear, one that would become the clarion call of home computing in Britain: the brilliant Sinclair ZX80, then the ZX81 and the Sinclair Spectrum, all light years ahead of the modest Sinclair amplifiers and radios that first appeared in November 1964's launch issue. Computer projects, including modems and Teletext followed, then in 1981 the *PE Car Computer*, a design with unsurpassed capabilities, and the *Telectric Digital* electricity cost meter, which also found its way onto BBC TV's *Tomorrow's World*. Home computers such as the BBC Model B and the Vic 20 were prime material for more computer-based projects in the years ahead.

The late 1970s had been a period of great turmoil in Britain, with industrial problems, recession and strikes doing great harm and the after-effects of this were felt in a decline in readership as well as advertising. Gone were the days of turning away advertisers from the magazine's overcrowded pages and both titles were caught up in





The April 1983, *Everyday Electronics* would be the last in this traditional style. Note the add-on project for the Sinclair ZX Spectrum home computer

industrial supply problems, with deliveries becoming erratic at times. *Everyday Electronics* then entered the computing fray with a restyle, the April 1983 issue was the last before it morphed into *Everyday Electronics and Computer Projects*. The May '83 cover project sported a *Real-Time Clock* for Apple II and BBC Micro computers.

### End of the IPC era

In 1985, IPC Magazines decided to dispose of a number of their titles including *PE* and *EE*. Following a brief period of stabilisation under its new owners, Intra Press, in 1987 *Practical Electronics* acquired a new editor: John Becker. Already known to many readers for his designs, including a post-Chernobyl *Geiger Counter* featured (again) on *Tomorrow's World*, John became editor literally overnight and quickly settled to produce *Practical Electronics* under the auspices of its new owner.

As I write, I have the November 1989 issue of *Practical Electronics* open at John's 25 Years Silver Celebration. The revised magazine itself would be different from before, and contained a lot more news, features and theory but less sleeves-up practical hobby electronics – much less. John was a true thoroughbred electronics hobbyist at heart, and had tremendous skills in design and authoring, as readers appreciated at the time. One did wonder whether it was a marriage made in heaven, and a decade later John confided to the writer that he did not always agree with the direction that its publisher seemed intent on going.

Both magazines were conscious of the competition as a multitude of titles jostled for the attention of subscribers. *Electronics Today International* hailed from Australia and the British version of *ETI* gave *Practical Electronics* a run for its money. Initially published by Modmags, *ETI* was perhaps a bit rebellious and it published projects and features in a style that was anything but stuffy or formal: if *PE* wore suits then *ETI* wore jeans! Another Modmags



*EE* was rebranded as *Everyday Electronics and Computer Projects* from May 1983, to appeal to the rapidly increasing number of home computer enthusiasts who, it was hoped, would explore microelectronics

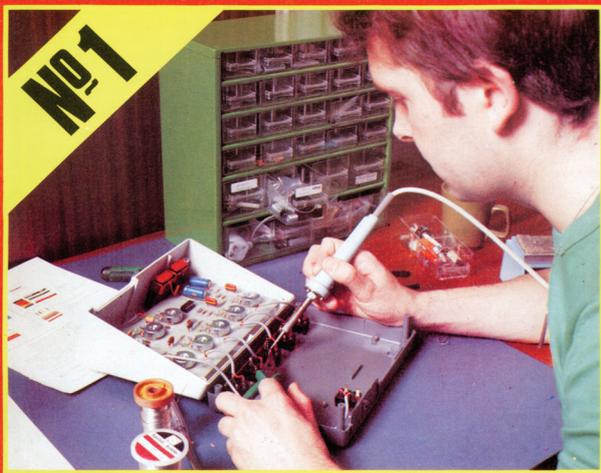


*Electronics Today International (ETI)* rivalled *Practical Electronics* in the UK; its less formal approach found many friends. It merged into *EPE*'s format in 1999



# Hobby Electronics

November 78  
40p



**Component Codes**  
*What the colours mean*

**DIY Stereo Amplifier**  
*Full constructional details*

**Bedside Radio Project**  
*Music for insomniacs*

**Home Computers**  
*What are they?*

**Metal Locators**  
*Discover how they work*

**Understanding Hi-Fi Specs.**  
*We take the lid off*

**Into Electronics**  
*A series for newcomers*

**DIY Digital Clock**  
*Time well spent*

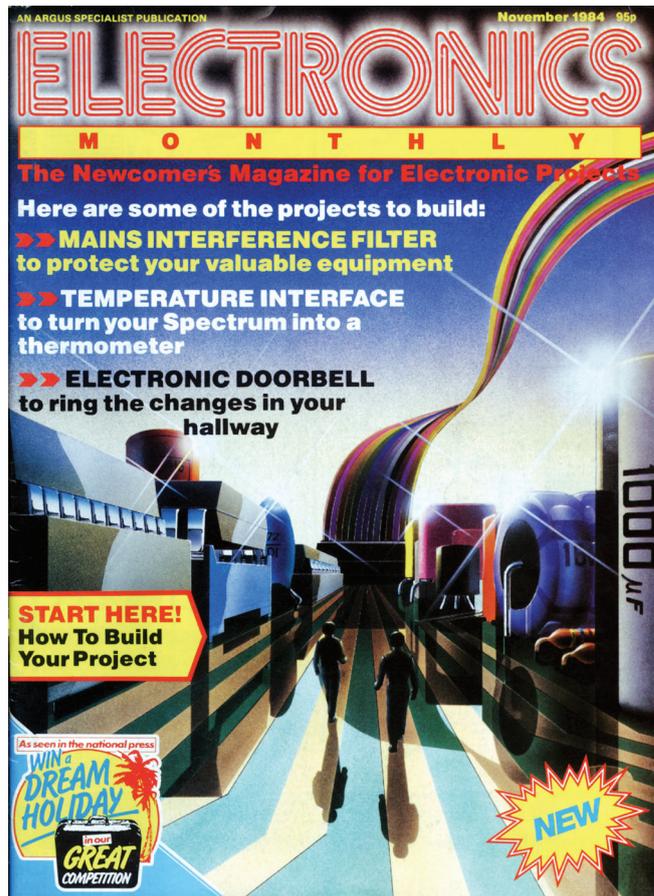
Issue No.1 of *Hobby Electronics*, November 1978 was aimed squarely at the electronic hobbyist beginner's market – it became *Electronics Monthly* in late 1984

title called *Hobby Electronics* (November 1978 to October 1984 issues) took aim at *Everyday Electronics*. It eventually came under the same editorial auspices as *ETI* and changed to *Electronics Monthly* from late 1984. The 25th anniversary issue of *PE* also carried an item on a new niche magazine devoted to vintage radio called *Radio Bygones*, edited by *Practical Wireless's* Geoff Arnold, and eventually *RB* also became part of the *EPE* family.

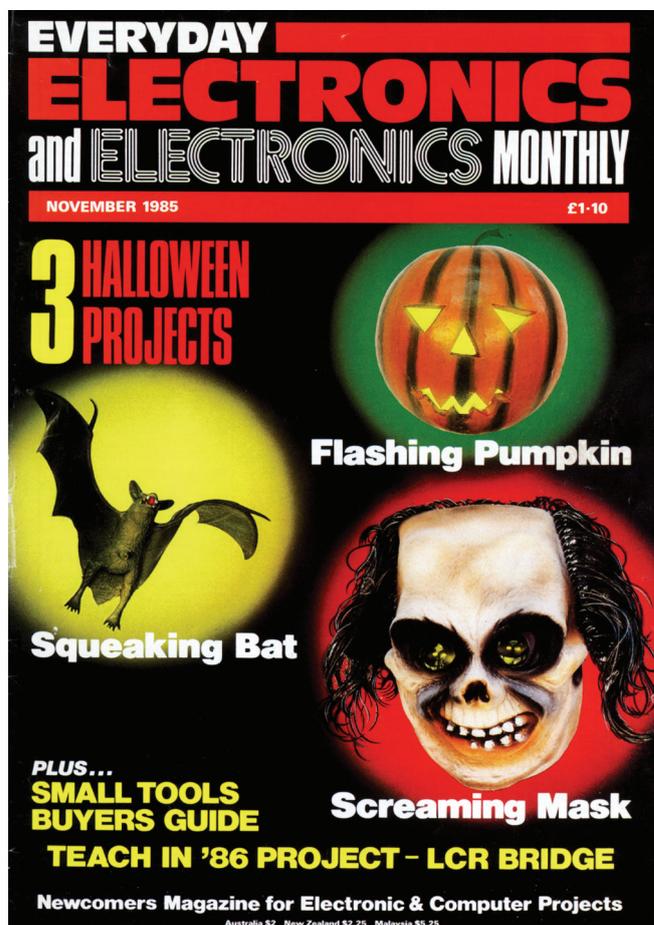
By now, *Everyday Electronics* was revitalised and on the march, and bought up the interests of *Electronics Monthly*; so from the November 1985 issue the title changed to *EE&EM* and it enjoyed a buoyant run for the next seven years. A new publishing company owned by its editor Mike Kenward acquired the title *Everyday Electronics* in a seamless transition, so it was business as usual for readers. Indeed, in March 1986's editorial for *EE*, the first issue produced by the fledgling Wimborne Publishing Ltd, Mike reported a revitalised interest in constructional projects and a resurgence of courses in schools and colleges. He added that magazine readership had increased dramatically over the past few months, with sales of books and boards at an all-time high. One theory was that readers' interest in the new computing phenomenon had sparked an interest in interfacing and building peripherals.

## The rise of the MCU

I will never know how events at *Practical Electronics* were panning out in the late 1980s, but I suspect that the writing was probably on the wall. Suffice to say that when I visited the *Everyday Electronics* office in late 1992, with a *Mini Lab* and *Micro Lab* under my arm to discuss *Teach-In '93* with editor Mike, there on the noticeboard was a mock-up of next month's magazine – sporting the brand new title of *Everyday with Practical Electronics* ('incorporating *Electronics Monthly*'). That's how I learned of the merger, as Mike, being



The first *Electronics Monthly* of November 1984, which in turn was snapped up by *Everyday Electronics* just a year later

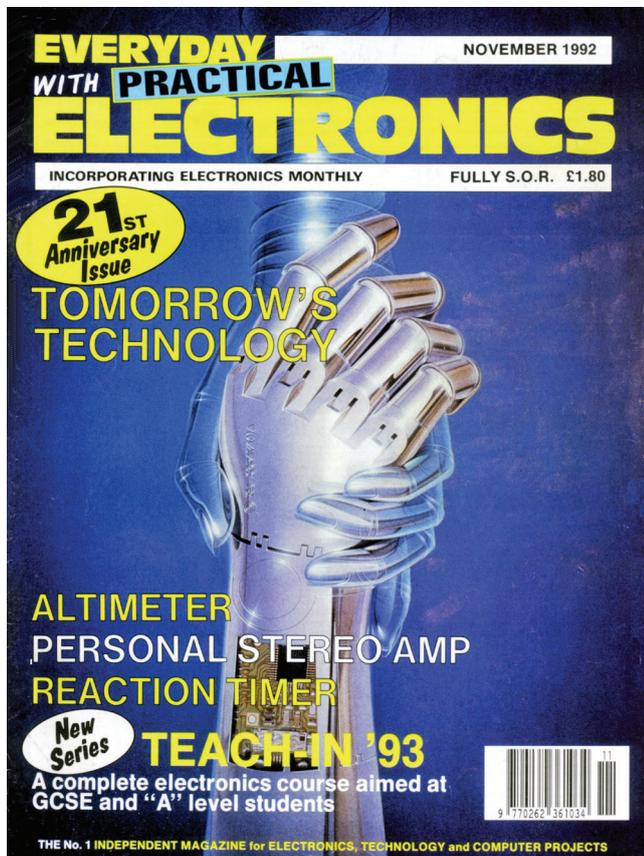


Another rebranding exercise and *Everyday Electronics and Electronics Monthly* is launched! The Screaming Mask was just a co-incidence, we think...



progressive as always, had very skilfully acquired the rival title and brought its readers back under his umbrella. *EPE* was duly born from the November 1992 issue, which was celebrating the 21st Anniversary of the original *Everyday Electronics*. 'Never before had we encompassed such a wide spread of articles,' said Mike in his November Editorial.

In the electronics hobby as a whole, techniques and technologies were changing faster than ever, and our hobby often trailed developments within industry itself. In a

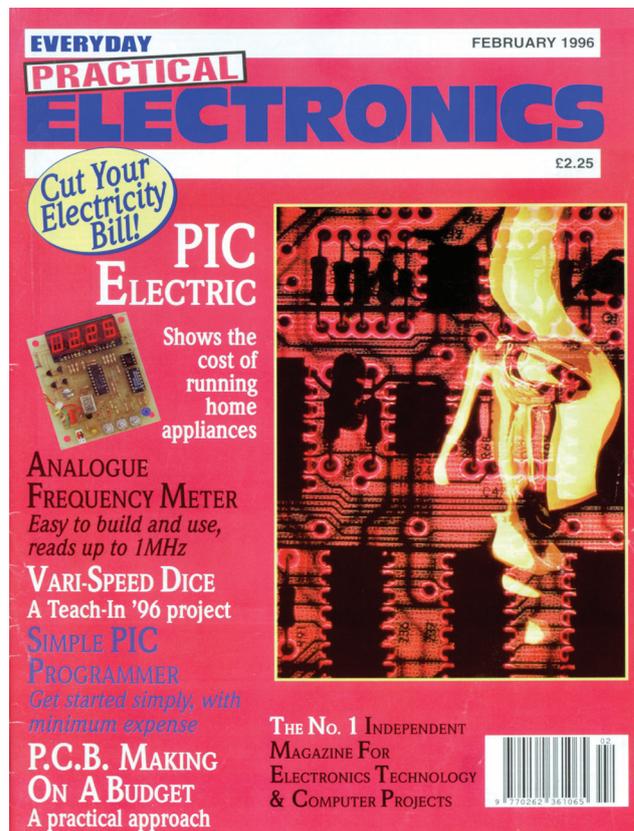


The next iteration was *Everyday with Practical Electronics* (incorporating *Electronics Monthly*) from the November 1992 issue – *EPE* was born

burgeoning magazine market, the home computer sector was by now extremely buoyant and home users grappled with Microsoft Windows 3.1, floppy disks and modems. There was much more competition for a reader's pocket money, with video games and bulky computer magazines elbowing their way onto the scene.

Hobby electronics was perhaps in danger of suffering from another cyclic downturn, but one very clear trend was rapidly emerging as the hobby turned yet another corner in its evolutionary lifecycle: the microcontroller unit had arrived. The MCU would change the face of hobby electronics more than any other device in the past twenty years, and a powerful 'PIC' micro would eventually be cheaper than the 555 timer had been in its own era. March 1995's issue carried an article *Understanding PICs*, and PIC-powered projects soon followed thick and fast, many expertly written by John Becker who was now *EPE*'s technical editor and who skilfully designed complex PIC projects apace. John realised the PIC's potential straight away, and starting from scratch he began utilising PICs in his projects with an impressive breadth of imagination. Other contributors, such as the much-missed Andy Flind, also produced some unforgettable designs, including the *EPE Mind Pickler* mind entrainment and relaxation system. The hobby was re-inventing itself all over again.

February 1996's issue included a small project that would have a profound influence on *EPE*'s PIC-hungry readers:



PIC microcontrollers were fast becoming mainstream building blocks in our hobby. This February 1996 issue promised a *Simple PIC Programmer* by Derren Crome and a *PIC Electric Meter* by John Becker

a *Simple PIC 16C84 Programmer* by Derren Crome. Built on stripboard, this little project kickstarted the prospect of readers experimenting with these devices for themselves, and *EPE*'s pages filled with ever-more appealing PIC designs that brought new levels of project functionality to hobbyists, along with a major reduction in their constructional complexity. Included in this issue was a *PIC Electric Meter* by John Becker. Hobbyists could now program a single PIC on a home computer rather than struggling with boards full of logic, and this transformed hobbyists' capabilities.

### Microchip PICs

Early on, *EPE* decided to focus on the Microchip PIC family rather than spread itself too thinly across other devices and run the risk of being a digital 'Jack of all trades but master of none'. That is just how it happened, with the early interest shown in the PIC and the great support received from Microchip ensuring that *EPE* would soon dedicate itself to that family of devices. The fact that *EPE* also gave away its PIC microcontroller project source codes (many resulting from John Becker's unstinting efforts) as free downloads when an FTP site opened in 1996, further cemented the relationship with the PIC. (However, magazine articles could still be delivered to a fax machine using *EPE Fax on Demand!*)

There are far too many glorious and memorable PIC projects to list individually, but their legacy source codes are preserved at [www.epemag.net](http://www.epemag.net). John Becker's *PIC Tutorial* series (March – May 1998) was proclaimed as the best ever PICmicro course, and was also released on CDROM. He went on to write *Teach-In 2000*, easing us into the new millennium with a PC-based tutorial series supported once again by generous levels of free interactive software that often accompanied his work. Sadly, John passed away in June 2009, but he left us his incredible legacy of material for future generations of hobbyists to enjoy.



## The Internet arrives

The expansion of the Internet also influenced the magazine and its readership. In the mid-1990s, *EPE* had to explain to its readers what the Internet was about, starting with an article by the writer published in July 1996 (*The 'Net – what's in it for you?*). The *Net Work* column arrived a month later, giving readers updates on Internet trends and techniques.

A website URL slipped onto the October 1996 cover and a simple website went online, and for the first time our overseas readers, previously frustrated by the costs and delays of airmail, could feel more engaged thanks to the real-time website and email. Part of the original site is still online in our Resources section at [www.epemag.com](http://www.epemag.com).

## Silicon Chips

Humour occasionally crept into our pages. The April 1980 *Practical Electronics* issue announced some discoveries by a Welsh high-tech company (Llys Electronics) that mined its own pure silicon from sand found on Prestatyn beach. Their powerful new ZMOS transistors featured a 'HEX-NUT' package and had micro-bore pipework that needed water cooling from a 30-gallon header tank. BBC Wales was duly taken in by this Silly Electronics April Fool, causing much mirth at the time. April 1996 *EPE* broke the story of *Chromo Floristics* – electronic colour control of plants using 'chromatic irradiation' with computerised LEDs. An impressive prototype with parallel port was shown along with a purposeful-looking BASIC program. This brilliant parody was again written by John Becker and the nation's media clamoured to learn more about the exciting discovery. The series *Ohm Sweet Ohm* offered some genteel humour in the 1990s and was written by Max Fidling – a pseudonym of the present writer, the surname picked at random from the phone book.

## Download revolution

The Internet was clearly not going to go away and *EPE*, which had never rested on its laurels, became (we believe) the first magazine in the world that could also be downloaded from the web. As online payments were very hard to implement in the UK, our US team designed a custom system. In the late 1990s a new US operation run by Clive Maxfield (whom I had bumped into online, on Usenet), Dean Hudson and Alvin Brown created the website behind *EPE Online*. At last, anyone with Internet access anywhere in the world could download their own issue at the speed of light (nearly anyway). Clive ('call me Max') still blogs for *EPE* today. Then, right at the end of the decade, in addition to a new *EPE Online* graphic, March 1999's *EPE* sported another name change and a familiar logo, becoming *Everyday Practical Electronics with ETI*.

## Testing times

Into the new millennium, and *EPE's* tried and tested formula was sorely challenged when several factors conspired in a perfect storm that created much uncertainty in the early 2000s. If there wasn't a general downturn in magazine circulations then a surge onto the world-wide web was widely predicted (incorrectly) to spell doom for printed magazines everywhere. The magazine presentation was looking tired and there were worries it would not appeal to the younger readers whom the hobby needed to attract and who were critical for its future. Key *EPE* staff also went into semi-retirement midway through the new decade, including founder member Dave Barrington who had been with *Practical Electronics* since Issue 1 in 1964, and John Becker sought a well-earned retirement as well.

Arguably, mainstream interest in traditional discrete electronics and its physics and principles was falling too, as witnessed by the decline



March 1999's *EPE* sported another name change and acquired the *ETI* logo, now so familiar to many readers

in quality contributions to the reader's own column of circuit ideas, *Ingenuity Unlimited*. In earlier years, an entire supplement of *IU* ideas could be printed due to the volume of contributions, but not now. More than anything, the old-school model for using freelance contributors finally ran out of steam. With pressure on editorial and technical resources rising fast, it became difficult to handle external material the traditional way, especially when it needed substantial re-working to make it publishable to the high standards that readers rightly expected.

## A new publishing model

If *EPE* was to survive then drastic measures were needed. With the old way of doing things no longer viable, *EPE's* owner Mike Kenward took the brave and radical decision to use projects produced by Australia's *Silicon Chip* magazine. Their designs were thoroughly tried and tested in-house and the material was prepared to a very high, if differently styled, standard of presentation. *EPE* would therefore publish its constructional projects by joint arrangement with *Silicon Chip* and the January 2006 issue was in full colour for the first time, as Mike invested heavily in making the magazine more attractive. *EPE's* editorial features continued largely unchanged, with home-grown series such as *Teach-In*, *PIC n' Mix*, *Circuit Surgery*, *Net Work*, *New Technology Update* and *Actually Doing It* all appearing as before.

With most electronics magazines in the USA shutting down altogether, the deep financial recession of 2008 could have sounded the death knell for the hobby electronics magazine. Further streamlining took place at *EPE* when in 2012 our US site closed down, but an all-new website quickly sprang up in Britain: it had come home again! A new editor was also appointed, and *EPE* is now safely in the hands of Matt Pulzer, who has a very long association with the publishers and its readers. In 2012, a Pocketmags version for tablet users was released, followed by a new PDF version for online subscribers.



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The world gets smaller, and after a dizzying voyage the final iteration – it is hoped – saw a redesign of *EPE* as high-quality projects from Australia's *Silicon Chip* were incorporated. The magazine was printed in full colour for the first time

### Here comes the future

In the Anniversary edition of November 1989, *Practical Electronics*' Editor John Becker celebrated the past 25 years and mused about life 25 years hence – today in 2014. He correctly predicted driverless cars (Google), computer speech recognition systems and reckoned that the 50th Anniversary review could be spoken into a computer. We also have some low-energy products that he felt would be forced onto us by legislation – how very true. The EU recently banned the production of vacuum cleaners rated more than 1600W; lawnmowers, kettles, car air conditioning and hairdryers may be next in the firing line.

And what might *EPE* readers – and their families – see in the next 25 years? Products and devices in 2039 will be more mobile, networkable and always-on, wirelessly charged, wearable, disposable and recyclable than they are now. Today, much of our ADSL and FTTC depends on decades-old copper wires connected to our home, but tomorrow the 'cloud' will host most of our software services, made feasible



by greater bandwidth and better fibre optic and wireless communications. There will undoubtedly be many ID and security-related challenges that will impinge on our personal freedoms, with biometric and scanning systems playing a major role in tracking citizens going about their everyday lives. Predictive text, speech and AI will result in computer systems second-guessing more of what we want to say or do, and then doing it for us. I am not sure that losing the need to use our brains will actually be a good thing!

Thanks to NASA's Space Launch System (SLS) a space shot to Mars is now a real possibility and there is no doubt that tomorrow's engineers will provide solutions that are smaller, faster, more accurate but use less power than before. The hobbyist will still be here, joining in the electronics revolution in one form or another.



Image: NASA/MSFC

Whether there will be magazines like *EPE* still printed on 'dead trees' or there will be anything left that the home constructor can properly solder and coax into operation, only time will tell.

Celebrating this 50th Anniversary of *Practical Electronics* – with some *Everyday* experience included – has been a very humbling experience, with much awareness on the writer's part that we 'stand on the shoulders of giants', to quote an uncharacteristically humble Isaac Newton. Every issue since 1964 has represented much hard work and dedication by its contributors and staff, not to mention printers and distributors, all committed to enthusing the hobby electronics fraternity, embracing new developments head on and offering readers satisfying new projects to build. It has been thanks to Fred Bennett for having the foresight to drive *Practical Electronics* onwards to success and also *EPE*'s publisher, Mike Kenward, his family-owned company and team, that we can still produce a hobby electronics magazine in Britain. Most of all, it is also thanks to you, our readers, for staying with us for the past 50 years and enjoying the ride along the way. Fingers crossed, here's to the Diamond Jubilee in 2024 and beyond!



A very rare photo of the 'boss' Fred Bennett and young assistant editor Mike Kenward presenting a prize to *EE* reader David Riley (right) in the December 1973 issue of *Everyday Electronics*

Editor John Becker in at the deep end: John toasts readers after reaching the milestone of 25 years of *Practical Electronics*, in a special November 1989 issue

