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"Oxford Space Systems is an example to other companies of how to identify and exploit a market opportunity."

GRAHAM PITCHER
GROUP EDITOR
Findlay Media Engineering Design Division

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NEW MARKETS OUT OF THIS WORLD

The allure of space should prove attractive to electronics and engineering companies alike

GRAHAM PITCHER
GROUP EDITOR
Findlay Media Engineering Design Division

The space industry is quickly becoming attractive to product developers and investors alike. And it is big business, even though it might not seem like it.

A recent study by London Economics found the UK's space sector employs around 37,000 people directly and generates almost £12billion a year. It's said to be 'punching above its weight' and has amibitions to generate £40bn a year by 2030. Globally, the market is estimated to be worth $200bn a year, so there appears to be a lot of business available.

One company going after a slice of this is our Grand Prix winner Oxford Space Systems (OSS). Just two years old, the company has already raised more than £1million in investment and will see one of its products launched into space next year.

OSS has also won the Start Up of the Year. In the opinion of the judges, OSS has demonstrated everything you could plan and hope for from a start up; a viable range of innovative products and demand for its technology from the global space industry. "It's a huge success story for UK manufacturing plc," they said. And it's an example to other companies of how to identify and exploit a market opportunity.

Yet again, the entries to the BEEAs highlighted the fact that the UK's manufacturing and design industries are in good shape.

Amongst our winners are the developer of a prosthetic hand addressing the needs of children, women and others with small hands. There's an innovative test system, licensed by many semiconductor manufacturers and IP developers, that makes sure the video you see on your screen is what you should see. We've got a design team that has created the world's first radar controlled traffic management system and a small company developing motion control systems that is taking on multinationals.

Please join me in congratulating everyone who entered this year's BEEAs and the winners in particular.

"Yet again, the entries to the BEEAs highlighted the fact that the UK's manufacturing and design industries are in good shape."

LAUNCHING INTO A MARKET WITH HUGE POTENTIAL

Start up in leading position to supply innovative technology to help the space industry save space, weight and money

If you're familiar with *Star Trek*, you'll know that space is the final frontier. But it's a frontier often associated with large rockets, rather than satellites that you can place on your hand. Today, the 'small' end of the market is booming; it's estimated that 2000 micro and nano satellites will be launched in the next five years.

All of this is making space a big business; the industry is estimated to generate $200billion a year, with some $9bn of this spent on the design and manufacture of satellites. A recent report from US researcher CB Insights says $1.75bn was invested in space technology during the first six months of 2015.

Despite all this activity, there's a general belief that the UK doesn't 'do space', except for the odd token astronaut. Yet consultant London Economics says the UK's space sector supports the jobs of around 37,000 people directly and generates almost £12bn a year. Not bad for an invisible sector.

The chief executive of the Space Applications Catapult, which has an enabling role, says the success of the UK's space sector is encouraging entrepreneurs to take it seriously and one company taking advantage of the opportunities is Oxford Space Systems (OSS).

Founded two years ago by serial entrepreneur Mike Lawton, OSS has just raised £1.2m in its latest funding round, helping it on the way to its aim of being the leading supplier of deployable space structures. And these structures will be lighter, less complex and less expensive than current solutions. OSS believes it can address a market worth $1bn a year with its technology.

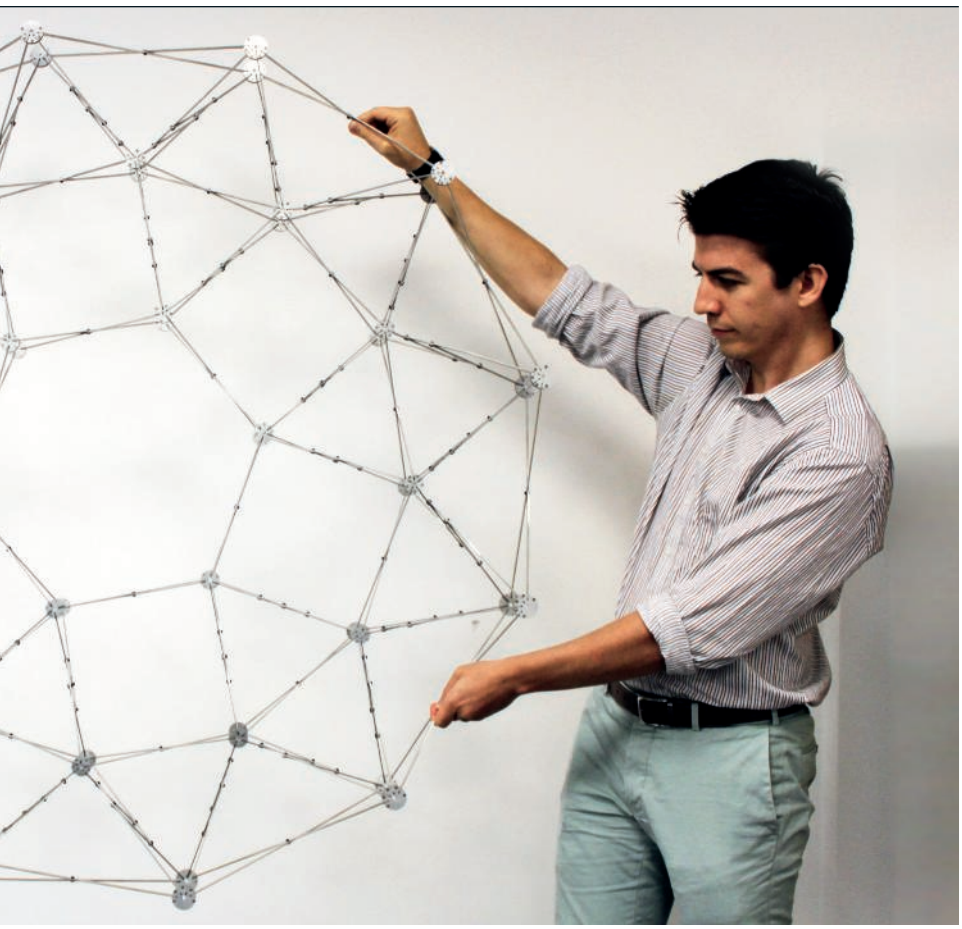
Every satellite that has been launched has required some form of deployable structure. These satellites share the common problem of needing to improve stowage efficiency of their deployable structures – the smaller they can stow, the smaller the launch rocket they can fit on and thus the lower the launch cost.

At the heart of its products is AstroTube, a proprietary rolled composite material that unfurls like a tape measure. This allows structures such as antennas, panels and booms to not only be lighter and smaller, but also less complex. To achieve this, OSS is working with a world leading expert in origami techniques.

OSS has already signed five 'significant' development contracts and expects the first flight of its boom technology to happen next year. While the typical development cycle for such technology is 10 years, according the European Space Agency, OSS will see its technology flying in just three years.

OSS says it is succeeding because it has 'genuinely innovative and distruptive

Oxford Space Systems is using origami techniques to create deployable structures



technology, strong backing from investors and demand from companies in the US, the UK and Japan. While much space activity is focused on micro and nano satellites, traditional satellite builders are interested in OSS' technology. According to Lawton, all potential customers share a common need to reduce weight, complexity and cost.

The OSS team is encouraged to 'think big' and to not be scared of proposing apparently 'wacky' ideas. In Lawton's opinion, there is no such thing as a 'daft idea'. "History," he says, "is littered with so called experts saying that the technology we take for granted was impossible."

WHAT THE JUDGES SAID

"Since its launch in 2013 Oxford Space Systems' success has been out of this world. Its range of deployable antennas, telescopic booms and composite hinged panels has won support from Innovate UK, the European Space Agency and the UK Space Agency. Successful engineering organisations need successful leaders; Mike Lawton is an inspirational leader with energy and enthusiasm rarely matched in UK industry and his team clearly enjoys working in a fast moving environment developing innovative and disruptive technology."

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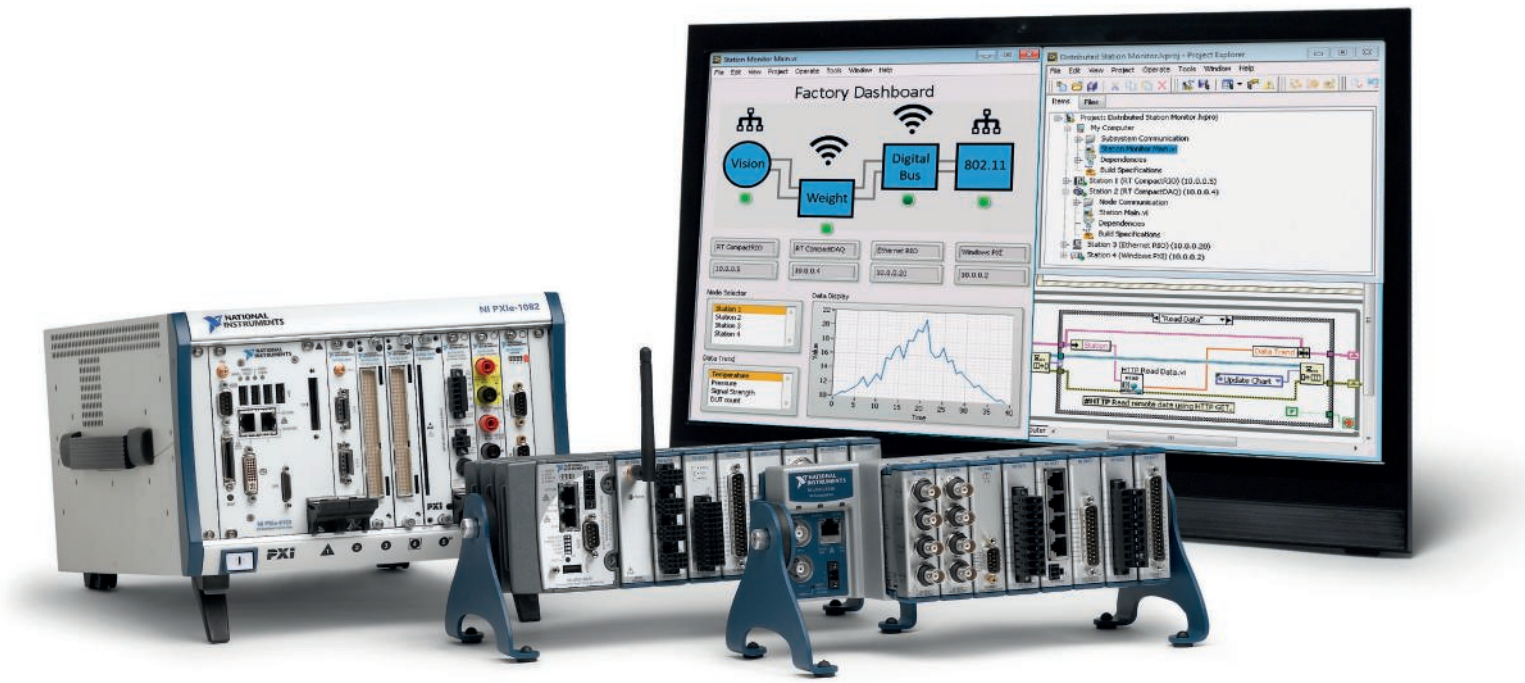

From the inception of an idea to the commercialisation of a widget, NI's unique platform-based approach to engineering and science applications has driven progress across a wide variety of industries. Central to this platform is LabVIEW system design software, a development environment with a graphical programming syntax that simplifies the visualisation, creation and coding of engineering systems.

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A SENSE OF PURPOSE

Consultancy adds medical expertise to its portfolio as growth plan brings global success

Selecting the Consultancy of the Year is one of the more difficult tasks for the judging panel, simply because of the mix of specialists and generalists and small and large companies.

In choosing the winner, the Judges looked for evidence of how quickly projects have been developed, the range of technologies applied and the degree of innovation. The Panel was also interested in the ratio of consultancy staff to the number of projects delivered, the number of staff applied to those projects and how the consultancy had developed during the last five years.

Standing out amongst shortlisted companies was Kinneir Dufort, a design, innovation and product development consultancy established in 1977. Headquarted in Bristol, it works across markets ranging from consumer goods to defence, with a number of multinational companies as customers.

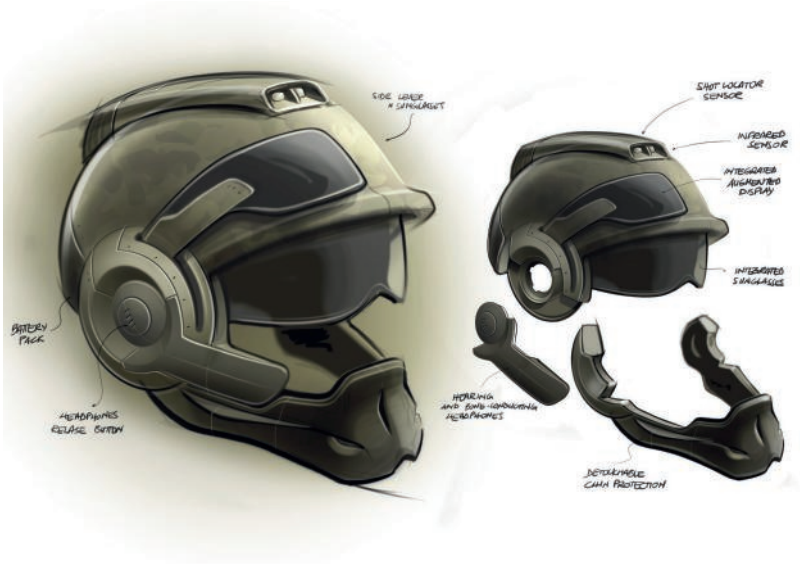
Over the past five years, headcount has grown to 75 engineers, designers, researchers and software experts – a 26% increase on 2011. During the same period, revenue has grown to £7million, driven by growth across all sectors, with the medical and fast moving consumer goods markets showing particular growth. An example is the design for AGPlus Diagnostics of a point of care diagnostics tool for both medical and veterinary applications.

Whilst the company's heritage is in industrial design – the development of products remains a core activity – it has always looked to combine this with a strong technical capability, so the design delivers performance and manufacturability, as well as ergonomic excellence.

The company says it has established a strong competitive advantage and maintains this through the implementation of carefully considered strategies designed to produce long term commercial growth.

Design led innovation programmes – including Optimisation, Discovery and Momentum – can be tailored to specific needs. Optimisation identifies business efficiency opportunities, including product improvement in quality, cost and manufacture, while Discovery helps to explore potential business opportunities. Momentum, meanwhile, is an innovation camp integrating user insight, co-creation workshops and concept testing in order to generate and develop new ideas.

With two sites already in Bristol, Kinneir Dufort recently opened a Medical Device Design Centre of Excellence in Cambridge. The centre will take advantage of the company's experience in integrating design, engineering, electronics and software to boost its growth in the medical sector.



WHAT THE JUDGES SAID

Kinneir Dufort has demonstrated a real sense of purpose and has delivered fantastic results by following a clear five year plan: it has grown headcount and turnover, created excellent design work across hundreds of innovative project solutions. It has worked successfully over a wide range of markets and sectors and achieved significant export success.

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ON THE MOVE!

Motion control specialist proves doubters wrong with investment and focus

Small companies are the lifeblood of the UK economy; in fact, many of these have fewer than 20 employees and those are the organisations which are eligible for this category.

But the Judges were also looking for a company with a sound business plan, a product that meets a market need and the successful reception of that product. Beyond that, the Judges wanted to see evidence that the company was either taking on the 'big boys' or exploiting a viable market niche.

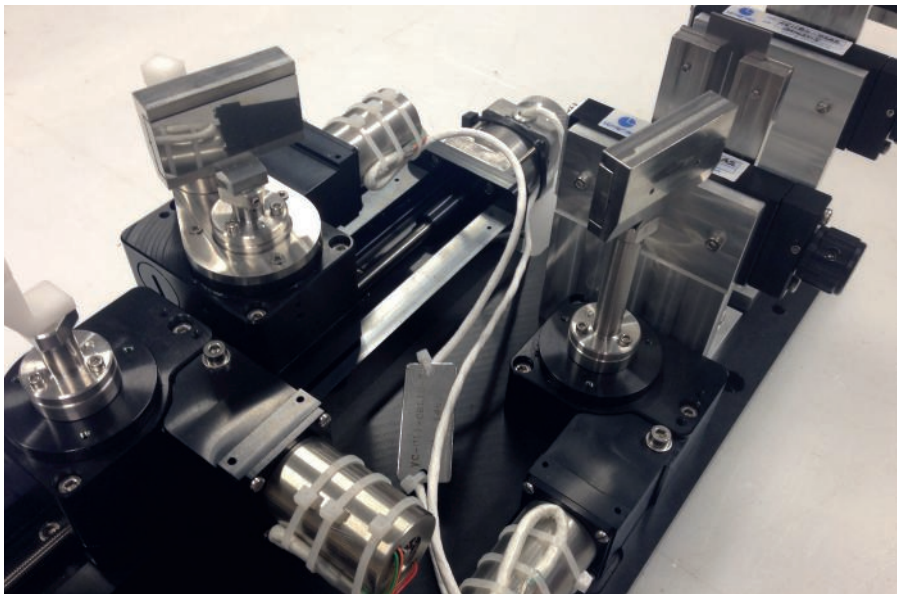
This year's winner has a familiar history; it was established following a redundancy. According to Gary Livingstone, managing director: "Despite the banks telling us that it was madness to set up a manufacturing company, I'm pleased to say they were wrong."

The growth has been based around a controlled increase in head count, the early adoption of an apprentice scheme and continual investment in people and plant.

The company provides automation technology to emerging and leading companies across research and high technology industrial markets ranging from laboratory automation and medical equipment to motorsports and film and theatre. Many of these applications are characterised by the design, assembly and supply of customised motion control sub systems.

LG Motion is a specialist systems integrator with innovation at its core. It notes that innovation is not only applied to the physical design solution, but also extends to creativity, with staff and management empowered to develop more efficient and motivating ways to work.

While some clients know which components they want, others know the end product and need help to integrate the right components into an existing system or even replicate it. Some clients, however, know what they want to achieve, but aren't sure how to get there.



LG says its broad knowledge and experience means it has usually come across similar projects, whether hardware, software or a combination of both.

With its own design, manufacturing and assembly capability, LG Motion can respond quickly on an 'engineer to engineer' level; something which, it says, larger competitors can't offer. Livingstone noted: "As a lean company with no 'inertia' in our organisation and a short communication chain, we can respond quickly and confidently with a solution."

Congratulations to GWR Fasteners, whose entry was Highly Commended by the Judges

WHAT THE JUDGES SAID

Operating in many industrial sectors and offering a range of complex integrated engineering solutions, LG Motion has built itself an impressive customer reference list. Continuous investment has led to more success and its focus on people includes employing apprentices to develop its home grown talent.

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UNFOLDING A NEW TECHNOLOGY

Our Start Up of the Year is pioneering innovative satellite structures

Three companies made it to the shortlist for the Start Up of the Year, each bringing a different definition of what makes a start up.

One, starting from a kitchen table, offers a range of design services. Another is looking to use smartphones as the basis for a range of medical devices aimed at bringing better diagnostics to practitioners. But the winner of this year's award is involved in one of today's hottest technology sectors – space.

Founded less than two years ago, Oxford Space Systems is pioneering the development of deployable structures that are lighter, less complex and less expensive than those currently available.

According to OSS, more than $9billion is spent each year on designing and building satellites. And it believes that it can address a $1bn slice of this market.

Mike Lawton, OSS' founder, pictured, identified the opportunity from the large number of small satellites which companies plan to launch. A recent market report believes upwards of 2000 micro and nano satellites will be launched in the next five years. OSS says each will need lighter, less complex deployable structures.

Even though OSS is still in an R&D phase, its technology is gaining global attention. At the heart of its technology is AstroTube, a rolled composite material that unfurls like a tape measure. Requiring a fraction of the volume needed by a conventional system, the approach not only saves weight, but also reduces complexity.

OSS received £100,000 from InnovateUK, then £500,000 from an investor – the largest seed investment in a UK space start up. Since then, it has won a €1million grant to develop a large deployable antenna and closed a £1.2m funding round.

It has exceeded its first year business plan by signing five significant collaborative development contracts and will see its boom technology flying next year – less than three years after the company was launched and much quicker than a typical development cycle.

OSS says it is succeeding because it has genuinely disruptive technology and is meeting a declared need. It points to strong backing from investors and the UK Space Agency strategy and says its 'fast and lean' approach, combined with proprietary materials, will allow it to get solutions to market more quickly than its competitors.

WHAT THE JUDGES SAID

"Oxford Space Systems has demonstrated everything you could plan and hope for from a start up: with an initial grant from Innovate UK, it has developed a viable range of innovative, deployable structures and created a demand among the global space industry. It's a huge success story for UK manufacturing plc."

OXFORD SPACE SYSTEMS

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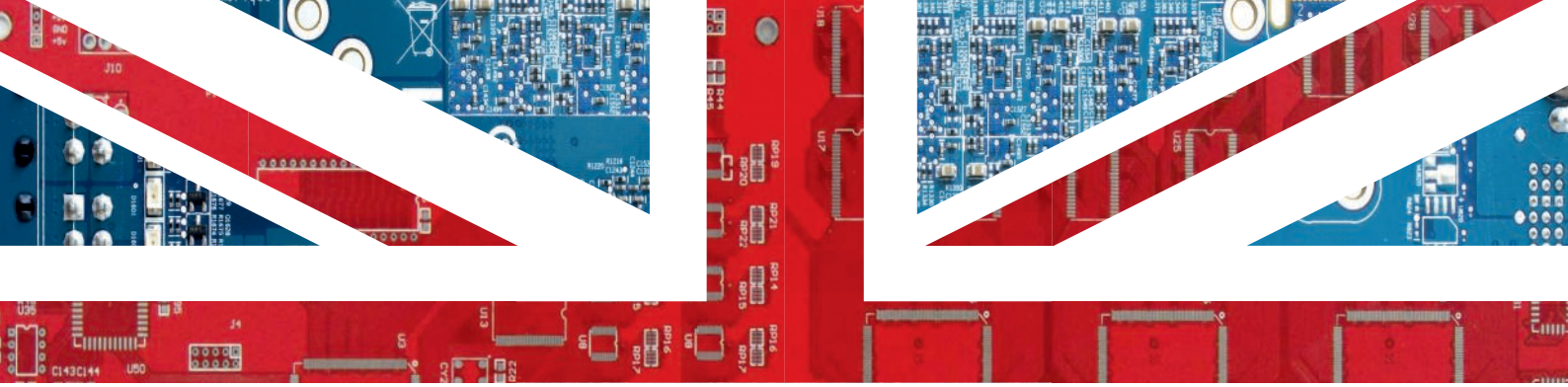

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Design Team of the Year

RADAR SYSTEM KEEPS TRAFFIC FLOWING

A strong team was needed to bring the first radar based traffic monitoring system to market

Without teamwork, Navtech's innovative ClearWay product – the first radar based traffic monitoring system – would not have been delivered on schedule. In fact, the company says the project would not have been possible.

It cites as one of the reasons the many different areas of expertise required; ranging from code writing to mechanics and radar engineering to circuitry creation.

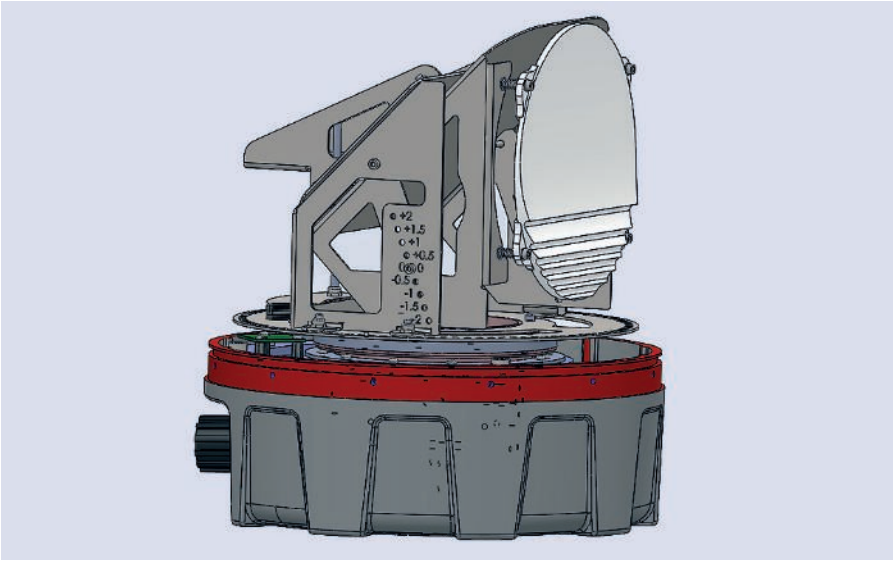
One of the key milestones – and something that required input from each of the six members of the hardware team – was the development of a radar prototype that not only met the size specifications of a roadside sensor, but also at a cost that made the product commercially viable. This meant designing a radar half the size and half the cost of Navtech's existing radars.

Hardware's key project milestones were: the development of an operating 77GHz microwave beam splitter; creating a radar sensor prototype; testing the detection abilities of the prototype; a trial system; and product qualification and introduction to production.

For the three person software team, the milestones were: the reliable tracking of vehicles on a highway; the development of rules that would generate alarms if anything out of the ordinary is detected; and providing a complex system that can cover a large site to customers in a simple and usable way. Working under the agile methodology approach, the two teams focussed on 'micro-milestones' in two week sprints, working towards the larger targets.

All significant milestones were met and team work was fundamental in this success

Software development also relied heavily on teamwork in order to meet the milestones. Throughout the process, the team used a centralised automated build system.



Each member would write code for the current phase and input this into the build system, which would then combine all team members' sequences, analyse their compatibility and create feedback reports. This 'many hands make light work approach' enabled the team to meet targets ahead of time and to identify and fix issues.

The software and hardware teams worked together to create a product that can count and classify traffic on roads, whilst providing alerts of vehicles that may be slowing, stopped or reversing, as well as whether pedestrians or debris are on the road.

ClearWay, the first radar based traffic monitoring system, has a response time of less than 10s and each unit scans up to 1km of road surface, detect vehicles at 500m and people at 350m.

WHAT THE JUDGES SAID

"In a fiercely contested category, the Navtech team provided clear evidence that its multidisciplinary team was fast and efficient at delivering new technology to new areas across multiple markets. Its design solutions were inspired and innovative and the team clearly has huge potential: it has all the parts required to solve complex design puzzles in-house."

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SOLUTION CENTRED ON MATERIAL SPECIFICATION

With low friction on one side and high friction on the other, this spacer meets industry's needs exactly

The choice of material can make or break an engineering product. In this category, the Judges were looking for evidence of how the product designer exploited material properties in order to solve a design challenge.

Within the oil and gas industry, the generic word 'plastic' is often associated with low grade applications. But Nylacast say it has changed perceptions with its Pipe in Pipe spacer, where the best properties of different materials have been used to maximise performance.

Pipe-in-Pipe spacers are a fundamental element in the oil and gas industry. In sub sea applications, the production pipe is housed within an outer pipe, keeping it dry and maintained at a temperature that allows the oil inside to flow. The outer pipe acts as an environmental shield. Pipe-in-Pipe spacers are used to centralise the inner pipe.

Material choice was key in creating a product that met the design brief. Nylacast selected a custom formulated grade of cast Nylon PA 6, combined with a patented metal coating. The low friction, self lubricated top surface allows the outer pipe to easily sleeve the inner pipe, eliminating damage and the need for greases and lubricants.

Meanwhile, the patented high friction under layer allows the spacer to create a strong grip on the inner pipe, withstanding force during installation and operation. This high friction layer also avoids the spacers 'bundling up', which could unbalance the inner pipeline and potentially result in damage.

According to Nylacast, the combination of ferrous and non ferrous materials delivered enhanced performance for the finished product. The combination also eliminated the disadvantages of each material, with the polymer excelling where the metal would not be suitable, and vice versa.

Nylacast says its Pipe-in-Pipe spacers are being used on projects with service lives ranging from five years to more than 25 years. To date, hundreds of thousands of spacers have been deployed within thousands of kilometres of pipelines around the world, with no reported failures, defects or other issues.

WHAT THE JUDGES SAID

"Nylacast's pipe-in-pipe spacer was the stand out winner because it clearly met and solved real world application demands. Used extensively in the oil and gas sector, the system uses the company's custom polymers, with low friction on one surface and a patented ferrous metal underside where high grip was required. This clever application demonstrated a real understanding of an industry's needs."

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CREATING THE RIGHT IMAGE

Bitstream test system ensures chips meet latest video standards

As display resolutions, such as High Definition and 4K, become more popular, the amount of data that needs to be transmitted increases dramatically. This means the data needs to be compressed so that it can be transmitted at lower bit rates or stored in smaller memory areas.

Looking to meet these requirements, the MPEG video standards body has defined the HEVC codec, also known as H.265. Google and YouTube, meanwhile, are looking to stream 4K video over the internet and have defined the VP9 high compression codec.

Both codecs are intended to provide much higher rates of compression than previous codecs. This means the encoding process is far more complex and the bitstreams generated by the codecs are equally complex. Decoders, therefore, have to be able to handle thse complex bitstreams without error in order to display the video as intended. However, both codecs are relatively new and the specifications are not stable, which can introduce incompatibilities.

Argon Streams is a set of encoded video bitstreams that can be used by decoder developers to verify that their products can handle the latest video standards. The product is targeted at those semiconductor companies who are designing and manufacturing. It is also of use to IP developers, who license decoder designs to those building hardware products. In both cases, the end products will be used in devices such as smartphones, tablets and internet streaming systems. The ICs in these products will decode and play video bitstreams.

Because the IC development process requires significant investment, it is crucial that the design is proved to be correct before it is 'signed off' for manufacture.

The value in the Argon Streams approach is said to be indicated by the fact that it has revealed 105 bugs in the HEVC standard and around 50 bugs in the VP9 standard, all of which have been reported for correction.

In this way, Argon Design is helping to ensure that new video codec standards are stable, consistent and well defined.

Argon Design has now signed 22 licenses for Argon Streams – 14 more than its 'optimistic' forecast.

WHAT THE JUDGES SAID

"Developing decoders for highly compressed video streams is a challenging task. While there might only be a small number of customers for Argon Stream's product, it is of critical importance, helping them to ensure their chips get to market in a timely fashion, on budget and that they work. It's an inspired idea that has achieved successful sales in a difficult market."

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BOOSTING QUALITY OF LIFE

A complex design for a prosthetic hand needed to meet volume, weight and performance targets

People can lose the use of their hands for one of many reasons, ranging from trauma to genetic causes. Some people are unfortunate enough to be born without a hand. Until recently, there was no helpful prosthetic device which could provide them with some degree functionality.

A number of designs have appeared in the last couple of years, but almost all have been 'one size fits all' and created with larger people in mind. Steeper's bebionic small is aimed at females, adolescents and those of smaller stature, including Eastern Asians, who need a prosthetic hand. In fact, the youngest known user of this product is 10 years old.

Such a device has a number of requirements, including: different grip patterns; proportional speed control; wrist options; and soft finger pads.

The starting point for the design was a skeletal structure created from the hand of a 50 percentile American female. All the elements needed to fit into this volume. The device also needed to be a similar weight to a small human hand – around 390g – as well as having the weight distributed towards the wrist. A large hand could weigh around 600g

The device provides a maximum grip force of 140N and this grip opens and closes in less than 0.5s. It can support loads of 25kg per finger and a maximum safe load across the knuckles of 90kg.

Individual rare earth magnet motors allow the user to move the hand and grip objects in a natural way. Motors have been positioned to optimise weight distribution and a patented encoding system monitors the position of each finger for precise control. Movement is controlled via myoelectrical signals collected from the surface of the user's skin.

And, recognising that each user is an individual, bebionic small features software and wireless communications technology within the hand that allows the device to be customised.

WHAT THE JUDGES SAID

With significant sales under its belt, the bebionic small robotic hand is an engineering success which is making a positive improvement to the lives of people who have suffered serious upper limb trauma. The device has impressive and elegant packaging of complex mechanical systems and electronic controls.

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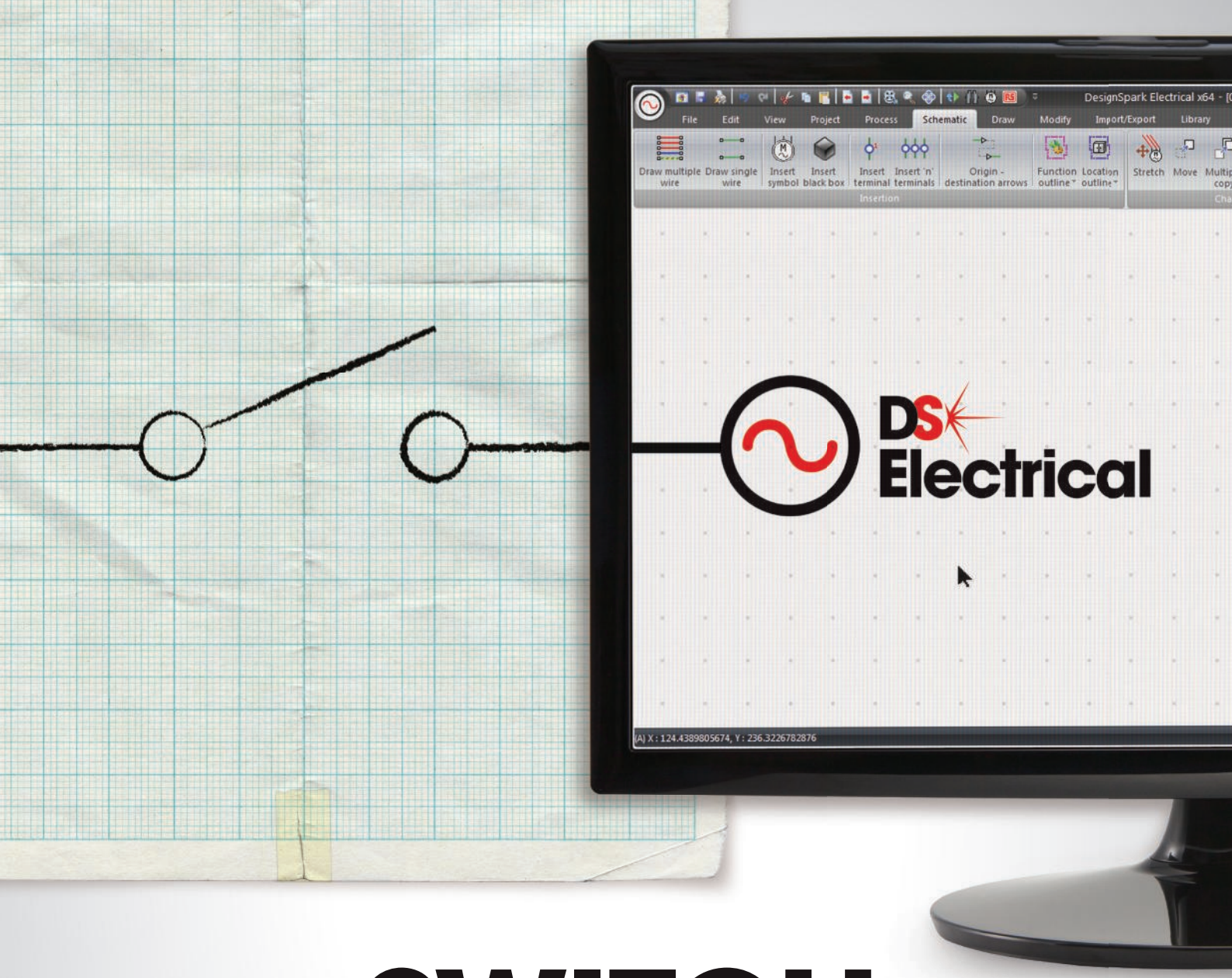

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NOT BOXED IN!

Our Young Design Engineer of the Year has already packed a lot into his short career

Although organisations continue to worry about the long term future of the UK's engineering sector, quality graduates are emerging from UK universities and playing an important role in product development in companies around the country.

The Young Engineer of the Year Award was of great interest to the Judges, who wanted to find someone who has 'hit the ground running'; someone who has applied knowledge and innovation to projects, who is motivated and who is acting as an ambassador for their chosen profession.

Dan Stamp joined Kliklok as an assistant engineer in August 2011, having graduated from Bournemouth University with a Masters in Engineering. During his four years with the company, he has established himself as a trusted and key member of the engineering team, acting as project engineer for smaller designs and taking on elements of larger projects, in association with senior engineers.

In the past year, Dan has worked on a number of machine design projects with international companies. One of these projects – a complete packaging line for a leading toy manufacturer – incorporated a solution that can handle more than 100 different carton sizes in a variety of styles.

Dan is involved with a number of patent applications, including one for technology used in the toy manufacturer's system.

According to Kliklok, Dan is an efficient young engineer who is intuitive and learns quickly. He can take projects from concept to installation and has established himself as the company's 'go to' person for servos and pneumatics.

Dan has been able to discuss how other packaging manufacturers can encourage young people to explore careers in the indusy and has looked to capture the imagination of young engineers by discussing the interesting challenges that engineers face.

Dan has developed a parametric design model specifically for use with Kliklok's Top Load cartoner tooling. This has resulted in a standard set of design data that allows manufacturing drawings to be produced automatically using a 3D CAD system. The software is now in every day use.

He is now working on a 3D printing concept, which is exploring the use of 3D printed components in order to provide a quick turnaround of change parts and to improve customer service.

Congratulations to Jenna Allen of A-one+, whose entry was Highly Commended by the Judges.

WHAT THE JUDGES SAID

"Dan Stamp has demonstrated his technical excellence and proven his engineering skills by making innovative contributions to product design, patent applications and through his work inspiring young engineers. He's a brilliant and enthusiastic ambassador for engineering design."

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LEADING FROM THE FRONT

A driving force in the development of engineering skills at radar specialist

Engineers are often the unsung heroes; they design the products that bring success to an employer, but may not always get the acclaim they deserve.

Occasionally, engineers can see the benefits of the hard work they have put in and Richard Poulton is in that fortunate position. He joined Navtech in 2008 as the company's sole hardware engineer and has played a central role in its success. Since then, he has helped to expand the hardware engineering team to eight people, providing their induction and internal training, as well as making a significant contribution to their professional development. In fact, the company says his skills and experience are 'pivotal' to its success.

Although an electronic engineer by training, Richard has become well practised in all aspects of radar engineering – from design and creation of PCBs to making significant input into software development and mechanical engineering efforts.

Richard's role in Navtech is described as 'all encompassing'; handling product lifecycles from concept to product maintenance. He is also responsible for legacy designs and dealing with obsolence issues, as well as consulting on non standard repairs.

His project management and leadership skills were demonstrated during the development of the company's ClearWay traffic management radar. This features the CTS350-X radar sensor and has a 360° field of view – unique in the 77GHz frequency market. During development, it became obvious it had to be much smaller than Navtech's previous devices. As project manager, Richard ensured the complex project was finished ahead of schedule and with a bill of materials cost that made it commercially attractive.

Richard has worked in collaboration with the Knowledge Transfer Partnership and the University of Bath, sponsoring two young engineers' programmes. Acting as industrial supervisor to both, he has taken an active interest in furthering these students' skills and knowledge. One of these is currently working on a project which will extend the range of Navtech's current longest range radar.

Richard also takes a personal interest in encouraging young people into engineering and regularly attends events at local schools. This has resulted in students gaining work experience at Navtech. One such placement inspired the student to alter his career path and consider becoming an engineer.

WHAT THE JUDGES SAID

"A driving force in the development of complex, multidisciplinary projects, he is not only developing his engineering staff, but also encouraging the next generation of engineers."

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PHIL MAYO, CHAIRMAN

Phil founded Premier EDA Solutions and is a visiting industrial fellow at the University of Hertfordshire and a member of the University's Industrial Advisory Group and Industrial Certification Committee. Committed to the success of the UK electronics industry, Phil believes engineering skills should be high on the list of national priorities.

ERIC WILKINSON

Chief operating officer for Cambridge Consultants, Eric has managed projects as diverse as the development of the latest in anti terrorism radar, a machine to produce premium frozen drinks and the world's most intelligent iron. A materials scientist by training, Eric is a regular speaker at international conferences

DR ANDY SELLARS

Andy completed an industrially funded PhD at Strathclyde University, then joined Rolls-Royce. He then joined Spirent Communications, where he developed electronic instruments, and Electron Tubes. More recently, he has worked as an independent consultant and as lead technologist for high value manufacturing with the Technology Strategy Board.

PHILIPPA OLDHAM

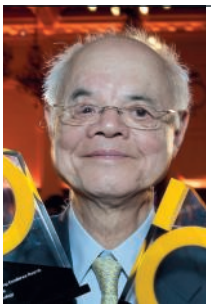
A chartered mechanical engineer, Philippa discovered her love of technology at her local garage. She joined QinetiQ as a mechanical design engineer and rose to become product manager for its £150m aerospace business.
In May 2011, Philippa moved to her current role as head of transport and manufacturing with the IMechE.

PETE LOMAS

A trustee of the Raspberry Pi Foundation and director of systems engineering with Norcott Technologies, Pete has developed more than 100 electronic products containing some 280 PCBs during a 30 year career. A more recent claim to fame is as the designer of the Raspberry Pi, with the remit to create a simple credit card sized PCB.

MIKE FRANKLIN

Mike Franklin, chief design engineer with Crawley Creatures, has 34 years of industry and design experience: from shoe wear to designing animatronic prehistoric creatures for the Natural History Museum and bespoke military test platforms. He is keen to inspire new design engineers at a local and international level and to promote the importance of design engineering.



DR PETER POON MBE

A world-leading expert on rolling bearings, Dr Poon is president of Romax Technology, which he founded in 1989. Since then, he has worked with leading transmission and engineering companies, providing consulting services and bespoke software. He has a PhD in Mechanical Engineering from Bristol University and has a research fellowship at Cambridge University.

GRAHAM PITCHER

An engineer by training, Graham has covered developments in the electronics industry for 35 years. For the past 20 years, he has been involved with the development of New Electronics.
As group editor of Findlay Media's Engineering Design Division, he is responsible for New Electronics and Eureka magazines.

TIM FRYER

Trained as a mining engineer and then an electronics engineer, Tim has spent the majority of his career writing about electronics. He joined Findlay Media as Deputy Editor of New Electronics at the start of 2013 and became Editor of Eureka at the end of 2014.

JUSTIN CUNNINGHAM

Justin has a first class honours degree in Aerospace Engineering and spent 15 months following graduation with Astrium Space, working on future concepts of spacecraft. Since then, he has been working as a technical journalist and is currently editor of Engineering Materials and deputy editor of Eureka.

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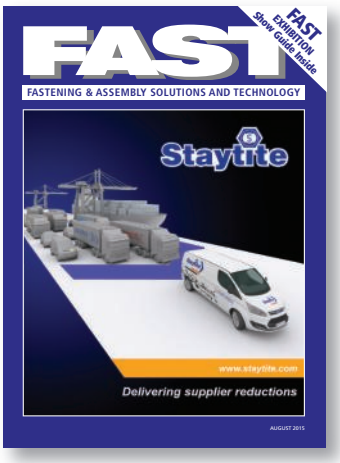

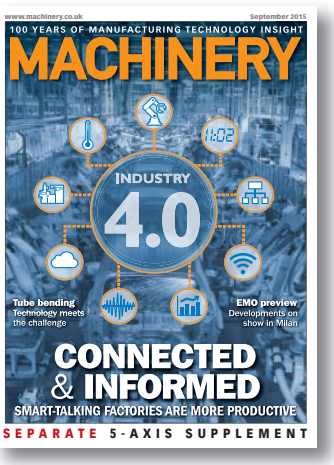

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