

Aston KTP graduates help masterful SME

FactoryMaster Ltd provides manufacturing, warehousing and wholesaling software solutions for small to medium companies in a wide range of manufacturing sectors including aerospace, automotive and food & drink. The company has over 160 customers in the UK, and exports through representatives in Europe, the USA and Asia. Now, working in partnership with Aston University, they have taken on two KTP Associates to enable them to satisfy existing clients' demands more fully and compete more widely and effectively for additional higher-level (and more profitable) business.

The first associate, supervised by Marketing specialist Dr John Rudd from Aston Business School with support from Dr Ian Combe, is working on the business strategy project which aims to reposition the company, specify new target markets for existing products, facilitate customer-led product enhancements, develop a brand image and marketing collateral and also identify new delivery channels. It will recommend target markets and prepare for the launch of the products initially developed by the second associate's project, and subsequent

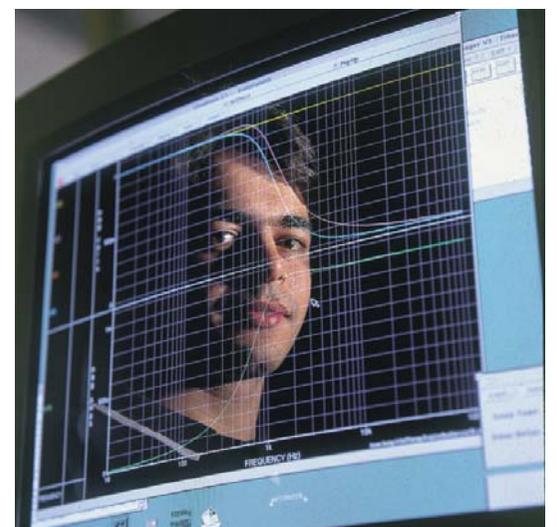
enhancements to those products and their delivery channels.

The second associate, supervised by Professor Ian Nabney from Aston's Computer Science Research Group, with support from Mathematics lecturer Dr Jort van Mourik, will work on modelling complex scenarios. This will enable FactoryMaster to address an already identified need (within its existing customer base and markets) for tailored and more sophisticated scheduling software packages that it is currently technically unable to fulfil. In addition it will enable the company to develop bespoke solutions for a range of scheduling problems. As a result the company will have the capability to enter new sectors, including the consultancy marketplace.

Business Strategy project supervisor Dr John Rudd said "This project will contribute to my current research interest in International Sales & Marketing and small business strategic decision making. The work will contribute to the research output of the Business School and is also expected to identify further research related opportunities into development and implementation of strategy" Supervisor of the complex scenario modelling project Professor Ian Nabney said, "This project will enable Dr van Mourik and myself to test out some of our ideas for scheduling algorithms on practical problems and enrich

our research in the area. The relationship fostered by the KTP partnership will enable the development of other co-operations, including internships, student placements, and Master's projects. There is also clear potential for follow-on commercial projects with Aston Active Software Engineering (a company set up by Aston to enable the commercial exploitation of student work)."

FactoryMaster Managing Director Darran Neary said, "This project will take the company from being a technically excellent, but largely product-focussed organisation, to one that is market oriented, and operating on a higher plane of expertise."



What is KTP?

Knowledge Transfer Partnerships (KTP) is a UK government scheme to enable knowledge transfer between universities and UK companies. It is a successful programme that has been successfully in operation for over 30 years.

KTPs are formed between a university (Knowledge Base), a UK company and a graduate (KTP Associate). The Partnerships focus on innovation projects that are central to the strategic development of the company partner. The projects are supervised by an

academic and staff member from the company and are implemented by recently qualified graduates who are recruited to the partnership. KTPs are flexible enabling associates to be employed for up to 36 months, although typical projects last approximately 24 months.

Each KTP is part-financed by a Government grant made to the university, which is complemented by funds from the company partner. At Aston, the budget is calculated using Aston's Full Economic Costing model.

The University and company complete the grant application and proposal document with input and advice from the Business Partnership

Unit (or university equivalent). There are approximately 10 submission deadlines per year. Typically it takes approximately 8 weeks to complete a proposal.

At Aston, each School has a dedicated Business Development Manager in the Business Partnership Unit who can help with the development of KTP proposals. Following each submission deadline a "Project Approval Group" (PAG) meets to review and decide which of the latest submitted applications to recommend to Government for the award of grants. The majority of proposals submitted receive funding, although PAG may ask for additional information or for changes to be incorporated. A response is usually

received in 4-6 weeks. On approval, the University will be provided with a grant offer. Once acknowledged this marks the point at which the partnership can proceed to appoint a graduate (or graduates) to undertake the programme of work.



Stepping up the PACE to beat the recession

Pace Systems International Ltd teamed up with Aston University to carry out cutting-edge research and development programmes to beat the recession.

The local specialist vehicle design and electronics company based in Rugby, sponsored a top young engineering designer in a partnership with the University and the Knowledge Transfer Partnership (KTP) scheme.

The company has a strong belief that investing in research and development and the KTP programme, particularly in the depths of a recession, is the key to successful business in the future.

Pace Systems International Managing Ltd Director Les Leek said, "We believe the way forward in this recession is to invest in knowledge and our unique partnership with the University, where some of the world's most brilliant young design engineers are studying, has helped our business to beat the recession. We were delighted to sponsor Syed Kazmi, Aston University Design and Research engineer, here at Pace Systems and it has brought immense benefits to the company and its future."

Syed who is an Aston University MSc graduate, was involved in innovative and exciting design work; as well as steering the company through the ISO 9001 process. He led projects in UAV's (Unmanned Aerial Vehicles) and their civil and military applications, which included potentially lifesaving aspects.

Syed received a "Business Leader of Tomorrow" award at the Knowledge Transfer Partnerships 2010 Awards ceremony. The award is for KTP associates who demonstrate clear potential to be future business leaders; five winners were selected nationwide. The judges agreed that Syed had considerably exceeded the parameters of the initial scope of the project. Syed's project work at Pace was also recognised in the Innovation and Technology Award at the Ernest Grant-sponsored Business Awards event held at Villa Park on the 19th November 2010.

Syed has received certificates from Lord Mayors of Birmingham and Rugby and has been hired by EAS as a teaching fellow. In addition, he is now a consultant at Pace for two days a week. The company was visited on Friday 24 July 2009 by Jeremy Wright, Member of Parliament for Rugby and Kenilworth, who met the Research and Design team and Professor Geoff Tansley from Aston University.

Project supervisor Professor Geoff Tansley said "This has been a really successful project, generating case studies and projects for our undergraduate and postgraduate students as well as producing 2 posters and 2 conference papers on engineering design. Syed has also been an excellent KTP associate, exceeding the original expectations of the project and strengthening our relationship with Pace Systems."

Aston expertise to enable low carbon electricity networks

Central Networks West plc is the electricity distribution business for the Midlands, delivering electricity to 4.9 million customers and is part of E.ON, one of the world's largest power and gas companies. Central Networks is not an energy supplier/ producer, its primary objective is to deliver electricity through their network on behalf of electricity supply companies to homes and businesses. It is essential that this is a reliable and high quality service to efficiently manage electricity supply both now and in the future.

E.ON UK's 'Changing Energy' strategy is designed to support the Government's energy objectives of delivering 20% renewable energy by 2020 and an 80% reduction in CO2 by 2050. To achieve these objectives there will be a need for a large quantity of low-carbon Distributed Generators to be connected to the Distribution Networks. Existing distribution networks were not designed to accommodate distributed generation connections and new approaches to network design need to be explored.

E.ON has joined forces with Aston University's Power Engineering Group to look at maximising the connection of low carbon generation onto standard 11kV and 415V networks whilst minimising losses by looking into the feasibility of meshing existing 11kV and low voltage (LV) networks using newly available smart grid switches. These networks are traditionally arranged by using radial feeders with normally open links between them. This project will look at increased generation on a typical network under three different scenarios; traditional radial feeders, fixed meshed network and a meshed network with a dynamically changing topology.

The academic team, led by Dr Dani Strickland, with support from Drs Andrew Cross, Nagi Fahmi and Mr Steve Luke have extensive experience in teaching and research in electrical power systems. In working with

Aston University, E.ON will be able to access new knowledge, skills and software modelling tools and techniques they are unfamiliar with. This expertise will be transferred to the company by assisting with the development of models and help with the definition of the capacity, loss, fault level and protection studies. Likewise Aston will also benefit from the partnership in developing their knowledge of practical operation of distribution networks, industrial standards and codes and conventional network designs and their rationale.

The envisaged outcome of the project is that it will enable more low-carbon distributed generation to be connected to the network. The expected reduction in losses in a distribution network will also offset carbon emissions from large fossil fuel power stations. The aim is also for E.ON to increase their environmental credentials as a result of the study as it will facilitate the connection of small scale generation units e.g. PV, wind, biofuel plants and fuel cells to the network.

Lead academic Dr Danielle Strickland said "As well as developing our knowledge of the practical operation of distribution networks this project will create teaching case studies for up to 30 Foundation Degree students on our Electrical Power Engineering course. It will also strengthen our relationship with E.ON creating the potential for further collaboration."

Company supervisor Dr Martin Aten said: "This KTP project should enable E.ON to make reductions in CO2 emissions by allowing more low carbon generation. There is also the potential to reduce customer minutes lost during faults with the potential to save up to £5/ customer/ minute. The access to the latest research at Aston will undoubtedly be of benefit to E.ON."



KTP project cements long-term relationship

A second Knowledge Transfer Partnership (KTP) has been completed which has again brought together the complementary skills of Salts Healthcare Ltd – a family owned company that manufactures hydrocolloid polymers for skin contact applications – and Aston University Biomaterials Research Unit (BRU). The academic team, led by Professor Brian Tighe with support from Dr Allan Amass and Dr Val Franklin, have extensive experience in the design, synthesis and application of polymers for use in biomedical applications.

Salts manufacture and supply stoma-care and wound-care products to the NHS and other healthcare providers across the world. The company has ambitious growth plans which include an increased focus on improved products for more technically demanding markets.

Salts Healthcare hydrocolloid products consist of two major types

of components, a polymer based adhesive and fluid absorbent hydrocolloid powders. The KTP project supported these product improvements by enhancing the understanding of the synergistic effect of the hydrocolloid powders within Salts current product portfolio and the interaction between devices and the human body. This provided scientific support for the selection and design of hydrocolloid systems for use in the two key application areas.

The KTP enabled Salts to gain a greater understanding of the physical characteristics of hydrocolloids and their behaviour as biomaterials using the analytical capabilities and expertise available within BRU.

The benefits from the project are both social and economic. Salts is a medium-sized company competing successfully against multi-national companies with much larger in-house R&D facilities. In order to continue this success, grow the business and maintain competitiveness, continual product range improvement through development of advanced materials is required. These developments can significantly improve the quality of life of patients. In economic terms, products with skin contact applications have an enormous and

increasing financial impact in Europe and the USA – a feature of an aging population.

The relationship between the company and Aston has led to 3 KTP & 2 CASE awards and the company licensing Aston Intellectual Property. This has led to 100% increase in company manufacturing capacity, with Salts winning a Lord Stafford Award for innovation in 2004 and becoming a finalist in the National Business Awards in 2005.

Leading academic Professor Brian Tighe said, "This project has further strengthened our relationship with Salts Healthcare which will continue beyond the end of this project and provide further opportunities for co-operation in funded programmes. It has provided an excellent publication opportunity as well as generating case studies and project work for Undergraduate programmes."



The Salts/Aston team collect a Lord Stafford award for development in innovation in 2004

Aston expertise enhancing professional football scouting

Pioneering Scout7 Limited provides scouting and recruitment management solutions to professional football clubs and national associations worldwide. Now, working in unison with Aston University, they are to take on two KTP Associates to expand and adapt to meet market needs, to ensure they continue to play a major role in shaping the future of professional football scouting.

The core of Scout7's product range is PROSCOUT7, which incorporates a unique, live database of over 110,000 professional footballers from over 127 countries. The database, which is updated 7 days a week by an international network of internal correspondents, centralises all essential player information relevant to recruitment, including performance statistics, a disciplinary record, medical history and transfers. Customised versions of PROSCOUT7, tailored to clubs' specific needs, are installed in over 75% of the FA Premier League and at more than 100 other professional teams across continental Europe, North America, Africa and the Middle East.

Scout7 is the acknowledged world leader in its field, but with the explosion of interest in professional football around the globe, the company is being presented with a rare if not unique opportunity. To continue its growth, Scout7 must re-engineer its core product (its football database) to meet changing market expectations. The academic team of Drs David Evans, Dympna O'Sullivan and Tony Beaumont from Aston University's Knowledge Engineering Research Group have both the academic knowledge and the practical experience of partnering with commercial organisations in the development of object-oriented database structures, applications interfaces for novel access channels, and software methodologies.

Two KTP Associates are working on this exciting new project. One associate is

focussing on the development of "Football Data Centre" (FDC); an adaptable data resource to be encapsulated within a web-service oriented architecture. The second associate is focussing on application services enabling the client to present and manipulate the data to meet their specific requirements in an integrated framework. The objectives will be the creation of software processes and a framework to deliver and maintain high quality software.

The combination of Scout7's successful model, with the expertise that the KTP associates will offer in conjunction with Aston University, will give Scout7 the knowledge and capability to move forward in this fast-paced market.

The Lead academic Dr David Evans, Senior Lecturer in Computer Science, said "This project will help the academic team further our real world experience of service oriented computing. It will generate case studies for taught programmes at undergraduate and postgraduate level as well as excellent material for final year project students with real practical relevance. All of this combined shows the clear benefits of the programme to the academics involved."

Scout7 Operations Director and project supervisor, Mr Bradford Griffiths, said, "The work being carried out by our 2 KTP Associates is core to the release of Scout7's next generation products. The project will allow us to easily customise solutions to meet our client's needs, as well as providing a generic platform for continued expansion and the integration and delivery of 3rd party applications and data to our clients."



Aston helps to develop your business...

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companies. They can also help organisations attract industrial and commercial research funding and manage projects to help develop their businesses. You can speak to the Business Development Team or arrange a free

company visit using the contact details below:

Phone: 0121 204 4242
Email: bpu@aston.ac.uk
Web: www.aston.ac.uk/bpu

Smart move for Accutronics

Accutronics Ltd is a developer and manufacturer of rechargeable batteries for professional applications, supplying OEMs worldwide in the medical, military and industrial sectors. It has particular expertise and a high profile in the development of "smart" battery systems, with features such as charge control, fuel gauging and device communication. To maintain its commercial advantage, it has entered into a KTP Partnership with Aston University, which will embed an operations strategy process, extending into the continuous review and improvement of its manufacturing systems and facilities.

Four decades at the cutting edge of battery design and manufacture have ensured that Accutronics, though an SME, has built up an excellent network of suppliers and customers, and gained a keen understanding of its markets. It is now recognised as one of the world's leading specialist suppliers, able to compete successfully against much larger international companies for business in its smaller-volumes niche.

This, together with the rapidly growing demand for higher value-added "smart" systems, presented Accutronics with a major opportunity for business expansion. However, it recognised that it must move quickly, before its competitors moved to satisfy the needs of the market. It was keenly aware that it had insufficient time to build its own expertise in design and development of business and manufacturing strategies and processes, and the reconfiguration of its facilities.

Accutronics have teamed up with Dr Ming Lim from Aston University's Engineering Systems and Management Group and Dr Doug Love from Aston Business School's Operations & Information Management Group, who have expertise in operational strategy, responsive and reconfigurable manufacturing, enterprise simulation and logistics and supply chain management. They also have a long history of working with SMEs, often under fluctuating commercial pressures, which will ensure that the capability is successfully embedded in Accutronics.

Working closely with the management team, with guidance from the academic supervisors, the KTP Associate has carried out detailed design reviews of the process and facility needs of the business, and will be carrying these forward into implementation.

This project, harnessing together the battery technology expertise of Accutronics and the business and operational process understanding of Aston University, will allow confident bidding for a wider range of contracts at higher margins, and result in growth in sales and profitability.

Company supervisor Gareth Hancox said, "This KTP project will allow Accutronics to diversify into new market sectors which is essential for the long-term security and growth of the company. Coupled with the savings we will make as a result of improved manufacturing efficiency and reduced operational costs, this will ultimately result in the growth in sales and profitability of the company."

Project supervisor Dr Ming Lim said "The project will deliver excellent case study material for taught undergraduate and post graduate programmes in both EAS and ABS. It will also contribute to the research output of both Schools through the REF, and should enable the academic team to identify further joint research related opportunities."



Rotec Engineering fired up by New Product Development Process

Rotec Engineering Ltd., based in Evesham, employs the latest high-speed machining technologies to produce components, assemblies and finished products for customers in the aerospace, oil, automotive, defence, medical and packaging sectors. It is now working in a KTP Partnership with Aston University, which will build an advanced design and prototyping capability within the company, to deliver a range of new products to market.

Rotec has always been ready to enhance the skills of its workforce and to invest in the latest capital equipment. It has also been willing to listen attentively to its customers, and then provide a solution to their problem, rather than just delivering a component. On these foundations the company has built an excellent reputation for specification and service, and developed long-term business relationships. In doing so, Rotec has been gradually moving up the value chain, for example in the field of aviation-related fire-fighting equipment.

Its success with this limited product range has shown Rotec the potential for supplying developed versions of fire-fighting equipment into many markets world-wide, for use on small or remote airfields, particularly in the Third World, and in helicopter operations servicing off-shore industries or on luxury yacht helipads. To penetrate these markets Rotec will have to be confident that it can develop and launch products, which will have to be demonstrated to meet appropriate safety standards, to tight time-scales and cost parameters. It recognised that to do so effectively it will have to build its knowledge and expertise in mathematical modelling, design and prototyping, and embed this into a new product development process.

The academic team consists of Mr Brian Price, from Aston University's Sustainable Environment Research Group and project supervisor Dr Mark Price from Aston's Mechanical Engineering & Design Research Group. The team have expertise in product design and development research, and in the use of sophisticated mathematical modelling and prototyping techniques. Furthermore, they have extensive experience of partnering with SMEs such as Rotec, which will ensure that the partnership is successful in raising the capability of the company.

The KTP Associate will create the higher-level CAD capability, as a first step to introducing solid modelling, FEA and CFD, and linking these through in an integrated new product development process to underpin Rotec's manufacturing and business operations.

The partnership of Rotec and Aston University will complete the transformation of the company from its

original position as a component subcontractor to its future role as a supplier of a range of systems solutions. Project supervisor Dr Mark Prince said: "This project will offer a real challenge in developing a robust design process to deal with the diverse range of products provided by Rotec Engineering. The project will give us the opportunity to investigate the use of rapid prototyping in a "real-world" commercial situation. The work should also lead to the presentation of 2 posters and 2 conference papers, create case studies and individual project work for undergraduate students and generate further related research avenues and opportunities."

Company supervisor Mr Paul Howard said, "This project will help Rotec to reduce our dependency on a relatively small group of customers by entering a market where there is little or no competition. The partnership will contribute significantly to the future growth and stability of the business and establish a capability to deliver innovative new products."



KTP with Aston provides Key to software developments

Key Traffic Systems Ltd is the UK market leader in software solutions for highways and traffic management. Working with Aston University's School of Engineering and Applied Science, this Knowledge Transfer Partnership aims to introduce improved versions of traffic engineering software to enable the Company to enter multiple markets.

For over 20 years, Key Traffic Systems Ltd has been developing software solutions for highways and traffic management. The Warwickshire firm now offers a comprehensive range of computer-aided design (CAD) and database applications for traffic engineering, road safety, street lighting and highways maintenance engineering, with customers including councils, sign manufacturers and police forces.

By working with practising traffic engineers and potential users during the design and development phase, Key have been able to develop leading-edge products that meet its customers' needs and maintain its customer base. Two of its products, KeyLines and KeySignals, were initially created as enhancements to AutoCAD software, to allow road traffic engineers to design road marking and traffic signal plans more easily. The software has proved popular, dominating the UK market, but Key were aware that the products were becoming increasingly difficult to maintain and their coding precluded adaptation for overseas markets. This KTP was initiated to introduce a structured software development methodology to Key and completely rewrite the original two products to overcome these problems.

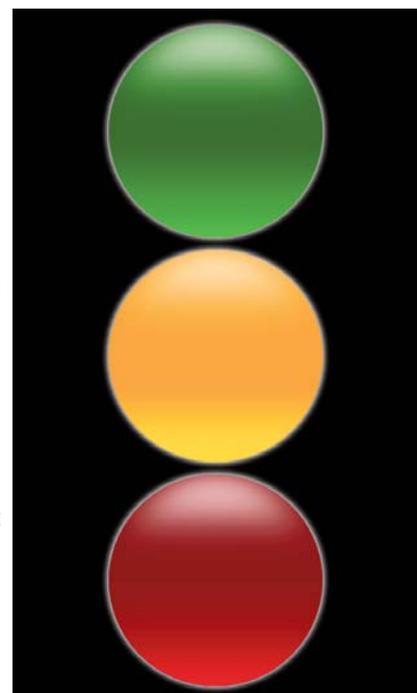
"KTS benefitted greatly from the KTP, gaining access to expertise which would not normally be readily available," said Dr Jeremy Ellis, Director, Key Traffic Systems Ltd. "The on-going relationship with Aston University has also been a huge advantage to us."

Having access to the expertise of the academic team (led by Dr Dan Cornford and Dr Michal Konecny) within Aston University's School of Engineering and Applied Science has greatly benefited Key. The collaboration successfully introduced the Rational Unified Process into the Company, and demonstrated its effectiveness in the design and development of the new KeyLines and KeySignals software. This structured development methodology is now being applied to the wider management of the Company's other products. The modified products incorporate several innovative software practices that will extend Key's competitive advantage, and enable it to increase its home market share and enter overseas markets.

The applications can now be readily tailored to meet the traffic rules and needs of different markets without any software changes, enabling rapid updates should traffic regulations change. They can also be ported more simply into other CAD packages, through use of an appropriate generic interface, opening the products to non-AutoCAD users.

The project has put in place a structured development methodology, benefiting all future development work. It has also created the potential to enter export markets, with additional sales worth £100,000 per annum predicted.

"The KTP projects have enabled two academics to experience the reality of software development in an SME while also contributing to winning an EU funded project on real-time mapping," said Dr Dan Cornford, Reader in Computer Science at Aston University. "The ongoing relationship with Key arising from the KTPs has provided input more broadly into the Computer Science degree at Aston."



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