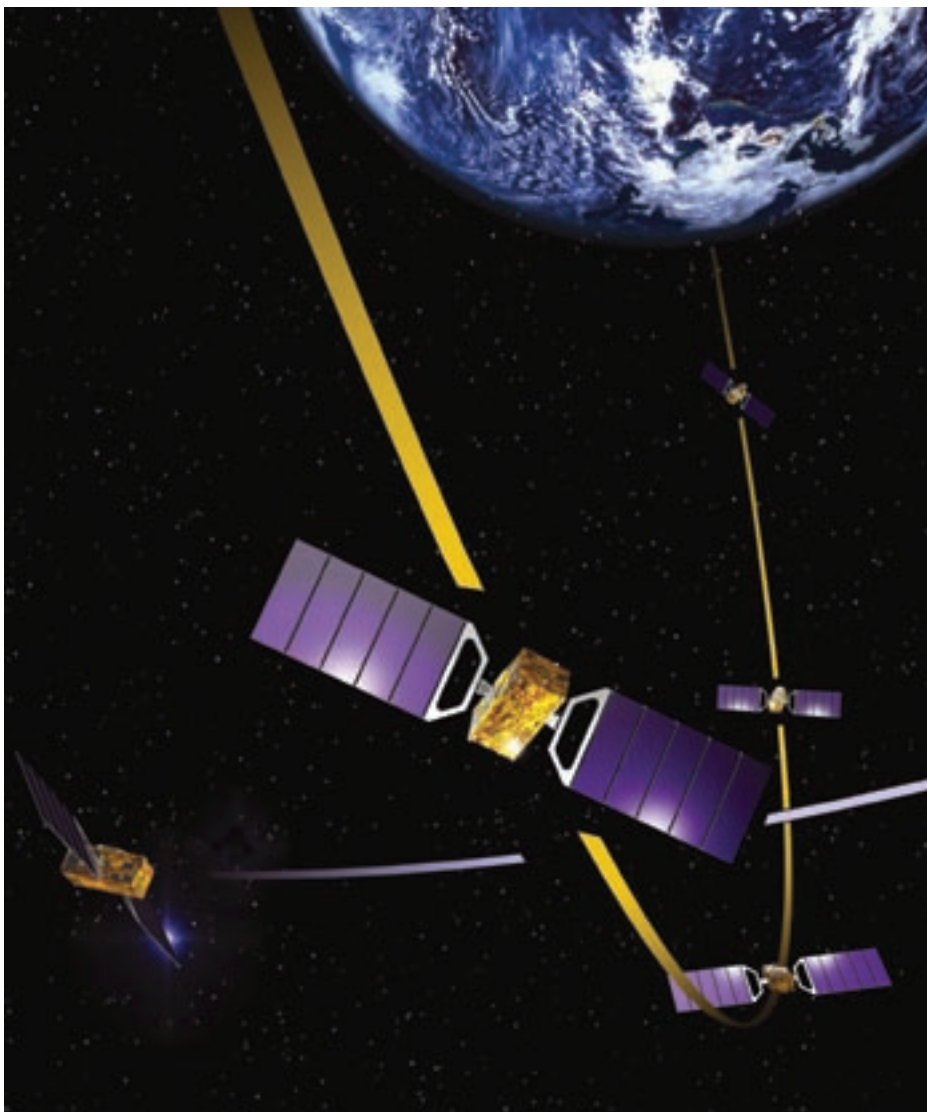


The centre of space and GNSS applications technology



Date	03.04.09	Version Number
Client Code	EMDA	4
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Job Title	Sat Nav brochure	
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Designer	SS	
Artworker	RS/LH/RW	

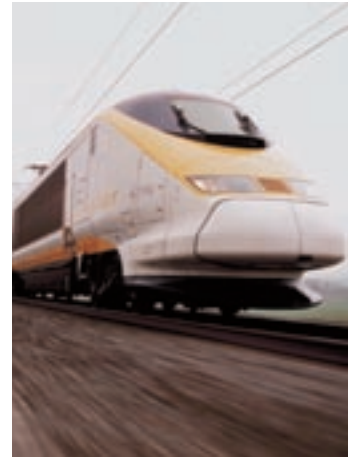
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Design:	<input type="checkbox"/> Approved and ready to proof/print All details checked and confirmed as ready to proof/print.
Copy:	<input type="checkbox"/> Check spelling, grammar and consistency within document.
	<input type="checkbox"/> Check spelling, grammar, consistency and sense within document (we'll flag up if something doesn't sound right but won't rewrite).
Account Manager:	Client signature <input type="text"/>

€50 billion

existing market for downstream applications, products and services growing at 10% per annum

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England's East Midlands – the future of GNSS applications

Applications based on space technologies are revolutionising the way businesses operate and the services they offer. The range of applications is incredibly diverse, meeting the needs of many sectors – from transport to medical, judicial to telecommunications, security and agricultural to name a few.

England's East Midlands is at the very heart of this change and growth. Home to a wealth of organisations and universities with world-class expertise in Global Navigation Satellite Systems (GNSS) applications development – the region is set to take these technologies into a new era.

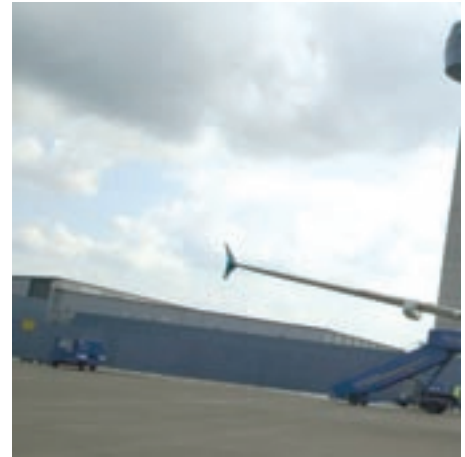
GNSS has quite literally taken the world by storm. The advent of the next generation of Global Positioning System (GPS), Galileo, and other advanced systems are generating a whole new industry of location-based services and application businesses. By 2020, a staggering 3 billion receivers could be in operation and up to 24,000 highly-skilled new engineering roles created within the UK alone.

At the very centre of the UK market, England's East Midlands is leading the way forward for GNSS technology through unrivalled solutions, research and facilities. GRACE (GNSS Research and Applications Centre

of Excellence) is based at the iconic Jubilee Campus of The University of Nottingham. This €14 million state-of-the-art centre is the UK's only facility devoted to developing GNSS technologies across industry and the public sector, providing specialised business support, incubation and technical facilities. The region is also home to the UK's national test bed for GPS, Galileo and GNSS applications where new technologies can be tested in real-life or simulated conditions.

Be part of our future

Organisations working within this exciting sector and based in England's East Midlands are at the forefront of these innovative developments. Business opportunities continue to boom as the market for GNSS technologies and services grows – making the region an ideal base for your business.



An ideal location for GNSS-based businesses

Organisations working within the highly diverse GNSS applications technology and services industry will be in good company in England's East Midlands. Base your business in the region and you'll be joining industry leaders with access to the UK's leading-edge facilities and support.

As powerful applications continue to emerge within the GNSS earth and space arenas, England's East Midlands continues to lead the field. In addition to GRACE and the UK's national test bed, the region is also home to MIRA, with 50 miles of test track and 26 fully-equipped laboratories. Used by more than 800 global automotive companies, it is an ideal place to develop transport applications.

From countryside to cities to coastline, England's East Midlands has a diverse range of testing facilities. It's not surprising that many innovative organisations have chosen the region as home – especially as it has so much to offer for all areas of work and life.

The perfect place

England's East Midlands is at the heart of the UK's powerful transport network. Boasting exceptional access to European markets and great rail links to London St. Pancras International, you can travel directly to France and Belgium. With a strong industrial skills base, competitively priced housing, excellent schools and a relatively low cost of living – England's East Midlands is a great place for your organisation to grow.

Expert help and advice

The England's East Midlands team is part of the East Midlands Development Agency, one of nine Regional Development Agencies in England set up by the British Government to bring a regional focus to economic development. Transport industries in the East Midlands are a priority for dedicated support through the investments in innovation and technology. This includes a targeted innovation support network (iNET) to underpin relationships between business and universities and to drive up the level of innovation in the region. We help companies from all over the world establish firm bases within the region, liaising on their behalf with government, public and private sector organisations. Our services are confidential, free of charge and include:

- Provision of regional information (economic, demographic, labour)
- Property and site searches, including an online property directory at www.empod.co.uk
- Co-ordination of regional tours and visits
- Introduction to research centres of excellence
- Access to leading experts and researchers in your field
- Introductions to relevant government bodies and private sector companies
- Access to financial assistance and grants



24,000

highly-skilled new GNSS applications related engineering roles within the UK by 2020





3D Laser Mapping

The Light Detection and Ranging experts

Bombardier

Using GPS to transform railway networks

As an industry leader in Light Detection and Ranging (LiDAR) and laser scanning systems, 3D Laser Mapping also delivers 3D mapping systems to multinational companies worldwide including De Beers, Anglo American, National Grid and the British Geological Survey.

By integrating laser scanner hardware systems with 3D Laser Mapping's own software, the company creates innovative solutions for sectors including mapping, mining, environmental and manufacturing. It also distributes Riegler hardware and TerraScan software.

3D Laser Mapping's team of experienced engineers and geomatics experts have developed StreetMapper – Europe's most accurate and advanced mobile mapping system. The system can capture highly accurate measurements at speeds of up to 70km per hour, and when combined with a vehicle's Global Positioning System (GPS) can achieve positional accuracies of up to two centimetres within data sets.

High quality consultancy and training

3D Laser Mapping also delivers consultancy and training on surveying, geo-engineering, programming, project management and 3D modelling and visualisation.

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www.3dlasermapping.com

Bombardier Transportation is globally renowned as a leading force within the rail sector. The organisation has embraced Global Positioning System (GPS) technology and harnesses its powers every day to ensure the smooth running of highly complex railway networks and the UK's rolling stock.

Accurate tracking

Modern trains do not need sat nav for route selection. Yet GPS technology is invaluable in determining the exact location of individual trains. This information is continually transmitted to operational control centres – providing an accurate and up-to-the-minute view of a train's progress to central controllers. As the GPS information is stored, so are many other types of data including speed, passenger count, freight load and time. By analysing this data, railway operation can be improved in many ways. Examples include optimising energy use, adjusting journey times and train capacity to match passenger numbers and helping engineers to resolve faults on the train's subsystems.

Identifying issues

A train's GPS records can even help engineers to spot problems with railway infrastructure. Faulty overhead lines can be pinpointed by combining a GPS-derived location with on-board voltage sensing. Track that has become too slippery can be identified with GPS data and on-board wheel-slip detection. Whatever the problem, the benefits of using GPS are clear. Issues are resolved promptly before they cause service delays and damage to rolling stock, ultimately resulting in a more reliable and punctual train service.

Bombardier Transportation UK Ltd, Litchurch Lane, Derby DE24 8AD

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Email: neil.harvey@uk.transport.bombardier.com

www.transport.bombardier.com



Department of Computing and Informatics

Bringing fresh talent to media technologies

The University of Lincoln's Department of Computing and Informatics has a diverse range of expertise in computing and media technologies including:

- Software engineering
- Mobile robotics
- Media technology
- Audio technology
- Games computing
- Internet computing
- Computer vision
- Medical informatics

The department's thriving and inspiring environment encourages students to excel and bring new skills to related industries. Just as importantly, the department's research groups are actively involved in world-leading developments in video surveillance, collaborative software engineering, robotics and pervasive computer gaming, employing Global Navigation Satellite Systems (GNSS) technologies.

Department of Computing and Informatics,
University of Lincoln, Brayford Pool, Lincoln LN6 7TS

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EAPRS Laboratory

Effectively interpreting satellite remote sensing data

Based at De Montfort University in Leicester, the Earth and Planetary Remote Sensing (EAPRS) Laboratory is an interdisciplinary research centre with a strong focus on the analysis and interpretation of satellite remote sensing data, particularly through radar altimetry.

The laboratory's flagship research programme involves the global measurement and monitoring of inland surface water using multi-mission satellite radar altimetry. An expert approach involving precise measurement of several major inland water areas and retrieval of decadal data on lake and river heights worldwide has revealed climate signals to help determine sea levels. Other research initiatives include:

- Multi-frequency altimeter instrument operation concepts, calibration and performance assessment
- Re-mapping Earth's land surface and determining global land surface soil moisture levels
- Determining surface ocean parameters, particularly for coastal zones and ice-covered oceans

Beyond our planet

The scope of the laboratory's expertise and research extends beyond Earth. The EAPRS Laboratory team are currently working with NASA and ESA on the Cassini mission to Titan.

EAPRS Laboratory, Computing Science and Engineering,
De Montfort University, The Gateway, Leicester LE1 9BH

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www.dmu.ac.uk/EAPRS

e2v



e2v

Bringing a new generation
of sensors to space nations

As a world-leading supplier of high performance Charge-Coupled Device (CCD) image sensors, e2v is renowned by the global GNSS instrumentation and space sector for its back-thinned CCDs (also known as back-illuminated CCDs).

The company's sensors are at the very heart of the satellite missions of all space nations. Making new scientific discoveries and gathering invaluable information and detailed images, the sensors:

- Carry out high resolution Earth observation imaging for agriculture and cartography
- Identify climate change on Earth
- Detect new extra-solar planets
- Investigate black holes
- Map Mars at high resolution
- Detect faint stars through star trackers

Extensive range of technologies

e2v also designs and builds image sensors for the astronomy sector and its related scientific research areas. These sensors are used and renowned within astronomical spectroscopy, wavefront sensing, adaptive optics, imaging and auxiliary instrument applications. Technical features are both comprehensive and cutting-edge, and include:

- Back-thinning for the highest quantum efficiency
- Enhanced performance in UV and near infrared wavelength through Anti Reflective (AR) coating
- Extremely low readout noise, even at high pixel rates
- High-performance packaging to guarantee efficient thermal, mechanical and electrical interfaces for instrument systems

Recognised for sheer technical excellence by the world's major space agencies including NASA, ESA and CNES, e2v is committed to constantly developing and evolving its technical expertise. Currently, the company is investing in high performance Complementary Metal-Oxide Semiconductor (CMOS) imaging to meet tomorrow's needs of the global space sector.

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www.e2v.com



Hexagon Machine Control

Taking the machine control market further

innovITS – ADVANCE

Hexagon Machine Control effectively brings together global manufacturing companies developing technologically advanced machine control solutions for the construction industry with the specialist skills and expertise of established distribution channels.

By joining forces, the leading companies within the Hexagon Machine Control Division are bringing new innovative solutions to the machine control market. These solutions use state-of-the-art Global Positioning System (GPS) and Transaction Processing System (TPS) sensors to meet the demanding requirements of civil engineering environments. The end result is a unique generation of modularised Mikrofynd control systems and dedicated SBG software packages, backed by Hexagon Machine Control's leading support team.

Connecting vehicles, highway infrastructure telecommunications networks and navigation technologies is seen globally as the key to ensuring a safe, efficient, environmentally sustainable and affordable road transport system for the future. The innovITS – ADVANCE project aims to create a world-leading UK technical centre that will enable the faster and safer testing and development of such intelligent transport technologies, innovations and products. Examples of the type of systems that might be developed at innovITS – ADVANCE include:

- Collision avoidance and mitigation
- Intelligent signage and road sign detection
- Driver behaviour studies
- Intersection safety
- Vulnerable road user detection
- Traffic management
- Telematics robustness in poor reception areas
- Advanced driver assistance systems (ADAS)
- Time/distance position based charging
- Autonomous vehicles/systems

The centre is in the final stages of planning for construction at the headquarters of MIRA, and represents a collaboration between innovITS, the UK centre for excellence in Intelligent Transport Systems (ITS) and technologies for sustainable mobility, MIRA Ltd and TRL, the UK's Transport Research Laboratory.

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Email: julian.grant@hexagon-machine-control.com

www.leica-geosystems.com

MediaTechnical Ltd

Contact: Anthony Smith

Tel: +44 (0)1273 382 710

Email: avsmith@mediatechnical.com

www.innovits.com/advance



INFOHUB

Taking telematics further

Based in Nottingham, INFOHUB is a research-led company developing innovative telematics system solutions. The company has a wealth of experience in real-time monitoring and control systems, and is renowned for using the latest communication technologies to gain the very best results.

Providing accurate information on city roads

INFOHUB's complete systems development service delivers easy navigation and route finding to motorists through a web-based graphical tool. Travel information can also be provided by SMS – informing motorists of traffic levels, congested areas and adverse weather conditions.

The service is also extremely useful for people using public transport. Triptimes Bus Stop Timetable and Triptimes Mobile gives bus users information on timetables, routes, stops and real-time updates, both at bus stops and by mobile phone. Supporting and enhancing public transport infrastructure, the systems help keep England's East Midlands moving.

Specialist solutions

INFOHUB's specialist information management tools can offer numerous levels of high quality information to help individuals and specialists make decisions when systems are complex or situations uncertain. For example, software programmes can determine the state of traffic by gathering information such as wet conditions (if windscreen wipers are moving).

Live testing

Nottingham is home to the Traffimatics test bed – a 4.5km circular, wireless test area perfect for simulating or testing various traffic scenarios in real life conditions. The scenarios are based on ad hoc mobile wireless networks and all new car-to-car or car-to-wireless technologies, including GPS, can be tested. The test bed provides an invaluable resource to project specific systems development and deployment.

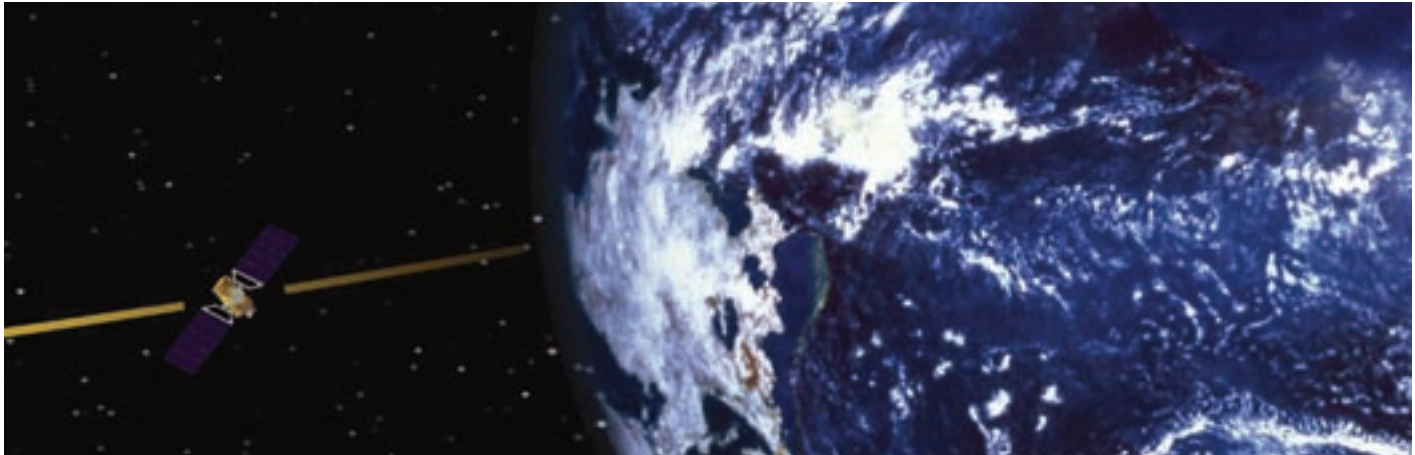
INFOHUB, Unit 15 Heathcoat Building,
Nottingham Science and Technology Park, Nottingham NG7 2QJ

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Email: enquiries@infohub-ltd.co.uk

www.infohub-ltd.co.uk



Infoterra

Archiving and delivering huge volumes of geospatial data

Infoterra is an EADS Astrium company and one of Europe's largest commercial geospatial hosting and archiving facilities, storing and handling over 20 petabytes of geospatial data – serving a range of GNSS applications. It also delivers the data in a secure, quick and cost-effective way.

Infoterra's leading-edge facilities are based in Leicester and are used by a diverse range of organisations including the European Space Agency (ESA). The company operates ESA's UK Multi-Mission Processing and Archiving facility on their behalf – handling around 40 to 50% of ESA's total Earth observation data.

Geospatial information is invaluable to a wealth of applications, from utilities and exploration to land management and government, supporting quick and more informed decision making. Infoterra delivers numerous solutions including:

- Environmental noise mapping
- Digital mapping for telecom network planning
- Geological mapping to support exploration companies
- Land use and forestry mapping
- Data to accurately assess flood risk

Making a difference to climate change

As climate change continues to present the biggest challenge our world has ever faced, Infoterra is playing a critical role through the European initiative, Global Monitoring for Environment and Security (GMES). GMES supports organisations and decision makers who are managing the potential impacts of climate change – many of which rely on Infoterra's high quality geo-information services and data. GMES priority areas covered include:

- Monitoring and periodical mapping of European land use for sustainable downstream applications such as water quality assessment or spatial planning
- Enhanced information services and tools to help monitor risks and manage crises
- Providing geo-information to humanitarian services worldwide to support the relief process, disaster reduction and reconstruction

Infoterra, Atlas House, 41 Wembley Road, Leicester LE3 1UT

Contact: **Dr Richard Hilton**

Tel: +44 (0)116 273 2300

Email: richard.hilton@infoterra-global.com

www.infoterra-global.com



GRACE

Bringing new GNSS applications to business and industry

GRACE (GNSS Research and Applications Centre of Excellence) is the UK's only facility devoted to developing downstream applications using Global Navigation Satellite Systems (GNSS) technology across industry and the public sector.

The centre is based at The University of Nottingham's flagship UNIP (University of Nottingham Innovation Park), a 12-acre site close to the award-winning Jubilee Campus. Located just one mile from Nottingham city centre with great access to The University of Nottingham's University Park Campus, it offers dedicated R&D facilities, an innovation centre and both multi-occupancy and single occupancy buildings – the perfect setting for high-growth businesses and our ever increasing number of world-class research teams.

UNIP will provide businesses with a geographic proximity to University research and technical facilities as well as facilitating and nurturing industrial links and partnerships. As a research and technology-focused innovation park, the facility will aid technology transfer and will allow locating businesses to access a vast array of resources offered by the University, such as expertise in centres of excellence; lab and testing facilities; and industrial and academic networks and markets.

Services and facilities to meet industry needs

With a total investment of €14m GRACE is the only centre of its kind in the UK and is open for business now. It will further establish Nottingham as one of the country's fastest growing 'science cities'. Services and facilities will include:

- GNSS research laboratory and training services
- GNSS applications development
- Access to GNSS simulation, test bed and testing facilities
- GNSS performance observatory
- Dedicated training suites
- Business incubation units
- Business support services
- National project offices
- Galileo cluster

University of Nottingham, University Park, Nottingham NG7 2RD

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Email: paul.bhatia@grace.ac.uk

www.grace.ac.uk



IESSG

A new era for the UK Centre for Satellite Navigation

As an internationally recognised centre of excellence in satellite navigation-based technology and applications, the Institute of Engineering Surveying and Space Geodesy (IESSG) works with leading industry organisations including the European Space Agency, the British National Space Centre and the UK Meteorological Office. The group has been active for almost 40 years and is involved in the development of satellite-based systems including Global Positioning System (GPS) and Galileo. Based at The University of Nottingham, the institute covers a diverse range of research topics including:

- Navigation and positioning systems
- Photogrammetry
- Communications
- Remote sensing
- Sensor integration
- Geodesy
- Environmental research
- Geographical information systems

A talented student body

Both PhD and MSc students are based at the institute and gain a wealth of highly specialised expertise within the satellite navigation-based technology field. Approximately 30 staff are involved in research at the institute and the associated Centre for Geospatial Science (CGS). There is always a large population of postgraduate candidates with around 50 reading for an MSc, and another 20 for PhDs.

A new state-of-the-art facility in Global Navigation Satellite Systems (GNSS)

As the UK's only facility focusing solely on GNSS, GRACE is located at The University of Nottingham's Innovation Park (UNIP). It brings together the globally renowned research and teaching of the IESSG and the CGS to provide vital research and support to industry. With the growth in applications for satellite navigation and positioning systems as its focal point, the multi-disciplinary research centre will enable new technologies to be realised within industry. In turn, attracting investment, encouraging new companies to form and jobs to be created.

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Integrated Navigation Systems (iNS)
 Bringing expert design and consultancy to GNSS

Location and Timing KTN
 Helping industry make the most of location and timing technologies

Integrated Navigation Systems (iNS) is based in Northampton. Providing a diverse range of design services and consultancy in the Global Navigation Satellite Systems (GNSS) arena, the company has a strong focus on applications and solutions that incorporate high sensitivity Global Positioning System (GPS) receivers, and integrating them with other platforms such as General Packet Radio Service (GPRS).

A comprehensive design service

Through a highly skilled team of electronic designers, software engineers and product marketing consultants, iNS is able to design GNSS and GPS systems from inception right through to production. The company can also effectively manage system rollout, maintenance and support.

iNS tracking devices

iNS also develops and produces its own range of assisted GPS/GPRS tracking devices which are designed for use in areas where the GPS cannot always have direct line of sight to the satellites. The range of products include handheld, automotive or trailer tracking based systems. This is just one of the company's innovative approaches to the challenges facing the industry.

Location and timing technologies are already an essential part of everyday life. Global Navigation Satellite Systems (GNSS) receivers are set to be installed in all new vehicles and embedded in mobile handsets within the next ten years. People are already carrying smart cards to pay for public transport and local authority services.

The Location and Timing KTN (Knowledge Transfer Network) helps both public and private sector organisations exploit the full potential of location and timing technologies. As a managed network of more than 450 organisations, Location and Timing KTN researches, develops and applies location and timing technologies. Working closely with industry, the network's team brings together knowledge and connects companies with emerging technologies. It also advises government on the impact of location and timing technologies.

Helping developers and academics build relationships with industry, win funding, reach potential customers and raise their profile, Location and Timing KTN works with all technologies which determine the 'where and when' of people and objects:

- Global Navigation Satellite Systems (GNSS)
- Cellular location technologies
- Radio Frequency Identification (RFID)
- Contact-less smart cards
- Inertial navigation systems
- Terrestrial radio navigation and short range beacons
- Radar and optical technologies
- Time and timing signals and synchronisation

iNS Ltd, Creative House, Royal Ordnance Depot, Harman's Way, Weedon, Northants NN7 4PS

Contact: Clive de la Fuente

Tel: +44 (0)845 644 8081

Email: sales@inavsystems.com

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Location and Timing KTN, National Physical Laboratory, Hampton Road, Teddington TW11 0LW

Contact: Bob Cockshott

Tel: +44 (0)20 8943 6754

Email: bob.cockshott@npl.co.uk

www.locationktn.com



Microlise

Making the most of mobile assets and resources

Microlise's range of innovative technology solutions help companies to run their vehicle fleets more efficiently and support employees who are out on the road. The company has more than 25 years' experience in software and hardware development and deployment.

Through a diverse portfolio of integrated planning, routing, scheduling, tracking, telematics and navigation solutions, Microlise brings a wealth of benefits to clients with mobile resources. By becoming more efficient, businesses cut costs, improve service, enhance security and can even reduce their carbon footprint by using less fuel.

Based in Nottingham, Microlise's innovative solutions include:

- Advanced planning and scheduling
- Vehicle and trailer tracking and telematics
- Electronic proof of delivery/collection
- Mobile workforce task management
- Asset tracking and management
- Fleet management and document compliance

Microlise, Farrington Way, Eastwood, Nottingham NG16 3AG

Contact: Gordon Wilkinson

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www.microlise.com



MIRA

Taking testing to new limits

MIRA is renowned as a leading design, testing, consultancy and certification organisation. By integrating innovative design and simulation techniques with validation in over 30 major test facilities, MIRA provides pioneering expertise across the entire range of transport technologies. The company is highly specialised in:

- Aerodynamics
- Thermal management
- Noise, vibration and harshness (NVH)
- Dynamics
- Electrical systems and power management
- Environmental engineering

MIRA's expert team of engineers brings together Computer Aided Engineering (CAE) tools including Finite Element Analysis (FEA) and Computational Fluid Dynamics (CFD) with physical test methods to build incredibly accurate models. The team has 50 miles of test track and 26 fully equipped laboratories to test models, making MIRA the ideal place to develop telematics and GNSS-based applications.

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Contact: Mark Fowkes

Tel: +44 (0)24 7635 5000

Email: mark.fowkes@mira.co.uk

www.mira.co.uk



Space Research Centre At the forefront of satellite instrumentation

The University of Leicester is home to the Space Research Centre – the UK's national centre for satellite and Earth observation instrumentation.

As an international force in the development of satellite instrumentation for Earth observation, planetary astronomy and high energy astrophysics the centre leads the way in the bespoke design and build of satellite-based imaging devices. There is a particularly strong focus on infrared, optical and X-ray bands, as well as technologies used for bio-medical imaging.

The centre also carries out contract research and consultancy, and develops both upstream and downstream applications that are used with Global Monitoring for Environment and Security (GMES). Working with a diverse range of partners, the centre has strong links with ESA, NASA, BNSC and the Russian Space Agency.

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€400 billion

GNSS product and service sales
predicted by 2025





The National Space Centre

Bringing space science and technology to the public, industry and education

As the UK's foremost science visitor centre, the National Space Centre is leading the way in increasing understanding of the importance of space science and technology and how it affects all of our lives in the 21st century.

200,000 people visit the centre annually, including space specialists and industrial companies. The centre's resources and its people's expertise are invaluable to government, industry, universities and the education sector – and the role of space in science education is an integral part of the centre's work.

The National Space Centre provides the gateway to the prestigious Leicester Science Park, a new 7.5 hectare site providing 3 hectares of fully serviced development plots for science-based companies.

A space age industry resource in the heart of Leicester

The centre is a showcase for the significant and pioneering role that the UK's space industry plays in European space programmes – including the importance of space in international communications. It's also used as a venue for major space events and regularly hosts exhibitions and events on Galileo and Global Navigation Satellite Systems (GNSS) technologies.

The future of space and aerospace

Backed by East Midlands Development Agency funding, the centre has joined forces with the Universities of Leicester and Nottingham and the regional Science Learning Centre to set up the country's first Space Academy. As a powerful science education resource, the academy brings space education to students from nine to 19 years old through summer space schools, road shows and conferences focusing on the science, technology, engineering and maths (STEM) agenda whilst future proofing regional skills in science and technology.

Career fairs help students to link with universities and employers in the space and aerospace sectors, and the academy will also be hosting a national Space Conference for science teachers from 2009. Ultimately, the academy will encourage and nurture a young and talented community of scientists, engineers, technologists and science-trained managers for the future.

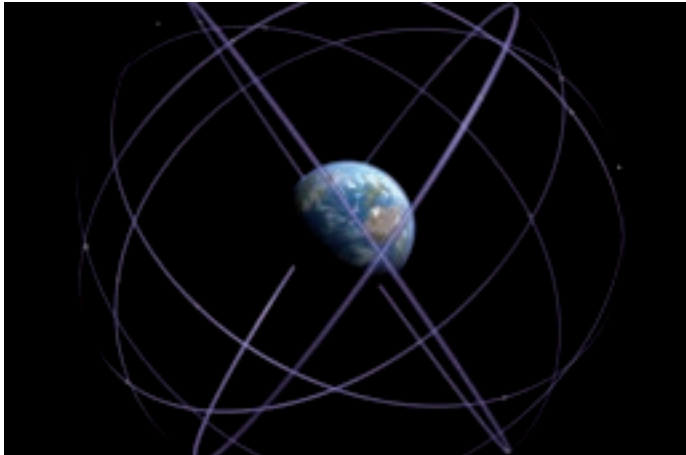
National Space Centre, 4 Exploration Drive, Leicester LE4 5NS

Contact: Anu Ojha

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Navtech Systems
 Bringing GPS aided video transmission systems to airborne surveillance

Nereus
 Building a better future for space technologies and applications

Based in Northampton, Navtech Systems delivers high quality video down-links for law enforcement airborne surveillance worldwide. Using Global Positioning System (GPS), the company's high performance long-range systems steer directional antennas. This innovative technology was recognised by a prestigious Department of Trade and Industry Foresight Award. The company also specialises in other GPS applications including:

- Encoding video with GPS
- Audio encoding of GPS
- High accuracy GPS compass devices
- GPS aided long-range video transmission systems
- GPS-Epoch© Telemetry for multiple data telemetry links using a single radio carrier frequency

Committed to customer support, Navtech Systems produces applications that are tailored to clients' needs. The company's team also addresses the very latest developments in video microwave links including digital techniques.

Nereus (Network of European Regions Using Space Technologies) is a non-profit making organisation with a permanent secretariat based in Brussels. The East Midlands is one of the network's founding members and is leading the way forward with an East Midlands sub-group.

Nereus has an essential role to play in influencing European and National policy to support the development of space technologies and applications. The network is also encouraging closer coordination between member regions to present a more united front to European institutions and European and national programmes.

Already, there are many ways in which Nereus is opening up fresh opportunities and perspectives for the space technology and applications sector. These include:

- Creating innovation and research opportunities
- Developing new work opportunities
- Bringing the benefits of EU space programmes, Galileo, Global Monitoring for Environment and Security (GMES) to regions in terms of using and applying data, technological development and space infrastructure maintenance
- Generating territorial planning and environment resources management opportunities
- Putting across the excitement of space technologies and applications to the public

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€400 billion

global GNSS product and services
sales Predicted by 2025



Nottingham Scientific Ltd (NSL) Delivering critical positioning and navigation technologies

Nottingham Scientific Ltd (NSL) specialises in developing positioning and navigation technologies that are robust and reliable enough to cope with the most demanding of situations and applications.

Working with a wide range of sectors including air, marine, rail and road transportation and the Government, NSL is the expert in Global Navigation Satellite Systems (GNSS) where applications impact on people's safety, mission or are business-critical.

NSL's services include:

- The development of intellectual property related to better positioning techniques, integrity algorithms, error classification and applying GNSS
- Mission-critical software development for space programmes
- GNSS best practice consultancy
- Business and technology forecasts
- Monitoring and analysing GNSS performance
- The development of prototype systems to enable new applications and demonstrate benefits

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Novacom

The GPS, sat nav and telematics industries' trusted supplier

NXP

Superior semiconductor solutions

Based in Lincoln, Novacom supplies the Global Position System (GPS), sat nav and telematics industries with the high performance components their demanding applications and specifications require. From antennas to amplifiers, chip capacitors to crystal oscillators – the company delivers technically advanced components that can also meet the cost demands of high volume markets.

Novacom also has a range of highly accurate timing and frequency systems that use GPS receivers. Applications include:

- Synchronisation of 3G UMTS networks
- Sat nav ground stations
- Telecommunications
- Power stations and other utilities
- Industrial
- Military ranges

Originally founded by Philips more than 50 years ago, today NXP is a global leader in semiconductors. The company specialises in developing semiconductors, system solutions and software that deliver improved sensory experiences in mobile phones, personal media players and cars to name a few.

NXP's Global Positioning System (GPS) and software group is leading the way in the latest GPS developments. The group has developed an innovative range of semiconductor solutions built on highest-sensitivity, lowest-power and fastest time-to-first-fix (TTFF) technologies. Ideal for the wireless handset and mobile consumer electronic devices market, the solutions are testament to the NXP team's experience, expertise and forward thinking approach.

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Race Technology

Driving auto-testing technology forward

Based in Nottingham, Race Technology has built a strong reputation with both drivers and engineers for its high performance range of automotive electronic solutions. It's a range that includes innovative products such as Global Positioning System (GPS) data loggers, Controller Area Network (CAN) communications, sensors and instrumentation, as well as race technology customised software solutions for high speed processing of real time GPS data.

A multitude of applications

Race Technology's products and services are used worldwide in a wide range of applications. From accident reconstruction to drag racing, Formula One boats to delivery vans – the company also brings their technology to some of the world's leading car manufacturers.

Race Technology also provides consultancy services with particular expertise in standard and precision GPS positioning software. Development projects are incredibly varied and have included:

- A GPS-based system for measuring breaking distances during driver training
- An advanced GPS and inertial measurement system to be used for accident reconstruction by the UK's forensics departments
- A high speed locking GPS system (under 60mS per lock) for tracking mammals in the North Sea

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ROAD ANGEL™



Road Angel

Improving driver safety through GPS technology

Since 2002, Road Angel has been leading the way with a new generation of driver safety systems. The Road Angel range includes several dash-top units that detect accident black spots, speed cameras and speed traps through Global Positioning System (GPS) technology.

The range is constantly developing to protect motorists further. New features include voice alerts, warnings if a motorist is over the speed limit and schools alerts.

Based in Northampton, Road Angel is renowned as the UK's leading manufacturer of GPS speed camera detectors, valued by the consumer, motoring press and industry.

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Sarantel

The smallest antennas delivering the biggest results

Sarantel develops and manufactures the world's most advanced miniature filtering antennas for mobile, wireless and handheld devices. The company's innovative product range enhances the performance of Global Positioning System (GPS) phones, satellite phones, asset and personal tracking devices and emergency location services.

Developed through years of experience and expertise, Sarantel antennas' technical properties address many of the issues which product designers and manufacturers encounter:

- The antennas do not detune or lose efficiency when close to people, objects or other antennas
- They are small and unobtrusive, making them ideal for slim devices and technologies such as mobile phones
- As the antennas do not disturb or interact with other components, they are easy to integrate into devices
- They maintain signal integrity even in the most challenging of environments

Accurate navigation from mobile phones

For mobile phone designers and manufacturers looking to incorporate reliable GPS receivers into their products, Sarantel antennas present a considerable opportunity. They are physically small enough to be embedded into the slimmest of handset designs. Yet at the same time, they are able to deliver the reception efficiency needed for accurate autonomous navigation.

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Scanlaser

A trusted supplier for machine control solutions

Effective machine control solutions demand leading-edge technology and a tailored approach to meeting industry requirements. Scanlaser is able to bring this combination to specific applications and projects through laser, total station, Global Positioning System (GPS) and computer technology.

From initial evaluation to full installation and after-sales support, Scanlaser's highly experienced team of engineers offers expert technical knowledge and a comprehensive range of services. The company also delivers end-user training incorporating state-of-the-art machine control technology.

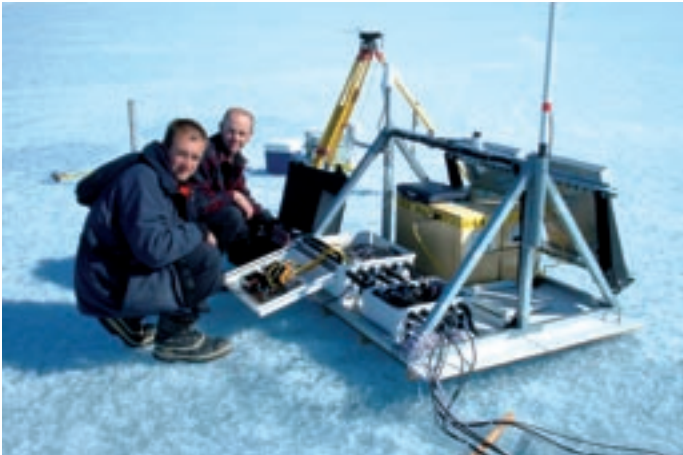
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The Mixed Reality Laboratory

Unleashing the potential of different realities

Based at The University of Nottingham, the Mixed Reality Laboratory (MRL) brings together academics, research associates and PhD students from a highly diverse range of fields to explore and realise the true potential of ubiquitous, mobile and mixed reality technologies.

Combining a user-centred approach to research with technical expertise in interaction and distributed systems, MRL is rapidly prototyping new interactive technologies including:

- Human computer interaction
- Ubiquitous and pervasive computing
- Computer supported cooperative work
- Virtual environments
- EScience
- Distributed computing

These innovations are relevant to many areas including transportation, games, the environment and in critical situations. Examples include game experiences that combine virtual and physical elements, Global Positioning System (GPS) and wireless mobile protocols that enable large numbers of geographically distributed users to communicate where there is little or no network infrastructure.

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Tag Guard

Protecting people, property and vehicles through wireless technology

Based in Lincolnshire, Tag Guard is a leading expert in security systems based on core wireless technology including Global Positioning System (GPS). The systems have proved to be invaluable to the property, building and construction sectors where security is paramount and can include:

- CCTV
- Alarms
- Vehicle and construction plant tracking devices
- Lone worker protection systems

Groundbreaking developments that are cutting crime

Renowned for generating innovative technologies, Tag Guard has brought new wireless fire alarm detection and warning systems to the market. A pioneering system for detecting copper cable theft from environments such as quarries and power distribution networks has also been developed. As the price of copper has risen, so have the levels of theft of the metal – making the system extremely advantageous to companies who mine and own it.

The company is enjoying considerable success in European export markets and has been granted several Department of Trade and Industry awards for innovative work in the development of wireless transmission of video in the security industry.

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The ideal business location

In England's East Midlands, you will be at the geographical centre of the UK. Located in the 'golden triangle' of motorway access, you can also travel by train to London direct in under two hours, whilst two international rail terminals give you express access to Europe.

A short drive from central Nottingham is East Midlands Airport, the UK's largest air freight terminal which also provides over 180 passenger flights every day to key international destinations. The economic base of the region is strong and diverse, boasting world-leading companies, eight major research universities, and a highly skilled workforce. Home to both beautiful countryside and thriving cities, the region also offers a fantastic quality of life. With competitively priced housing, excellent schools, a myriad of cultural and leisure opportunities and a relatively low cost of living, there really is no better place to secure the future growth of your organisation.

Expert help and advice

Whether you need assistance with relocation, expansion or collaboration, the England's East Midlands team is here to help. Our services are free of charge, confidential and include:

- Provision of regional information (economic, demographic, labour)
- Property and site searches
- Co-ordination of regional tours and visits
- Introductions to research centres of excellence
- Access to leading experts and researchers in your field
- Introductions to government and private sector companies
- Access to financial assistance and grants

To find out more about business opportunities in England's East Midlands, please contact us:

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