EUROPEAN
SATELLITE NAVIGATION
COMPETITION
2009
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GALILEO
Masters

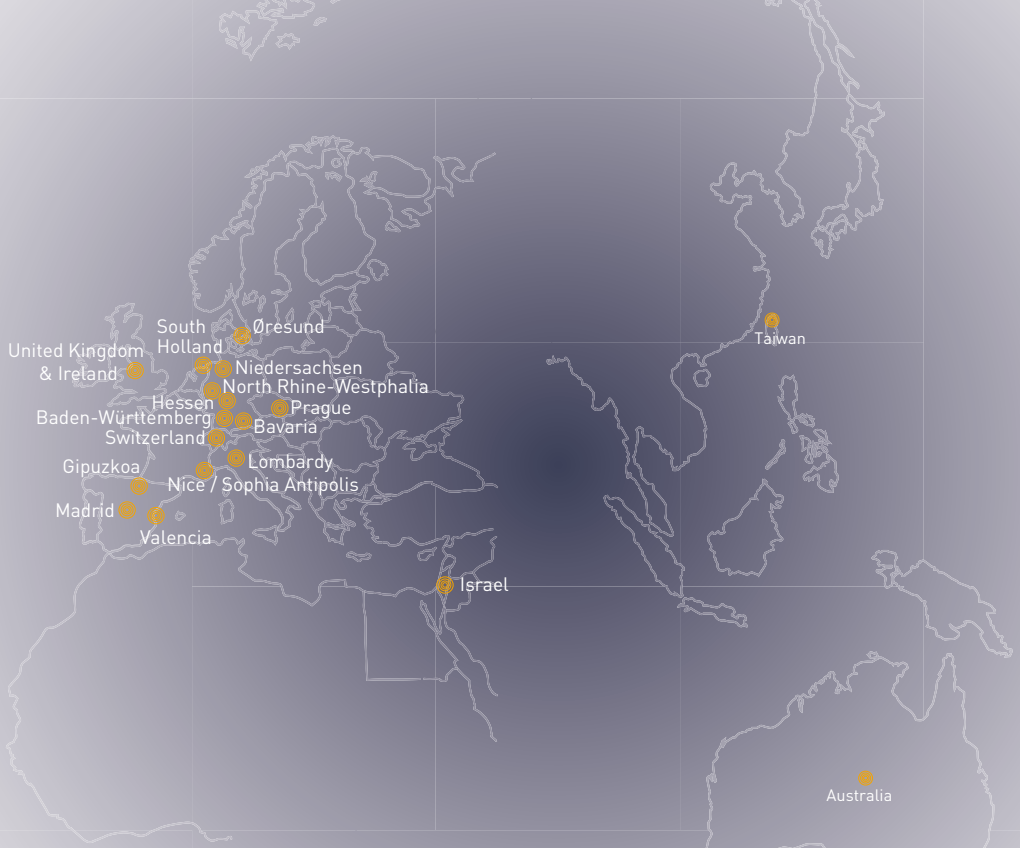
THE RESULTS
EUROPEAN SATELLITE NAVIGATION COMPETITION 2009

discuss & discover
beyond bits and bytes.

ANWENDUNGSZENTRUM
Oberpfaffenhofen

European GNSS Supervisory Authority

Martin Zeil
Bavarian State Minister
for Economic Affairs,
Infrastructure, Transport,
and Technology



The European Satellite Navigation Competition – Globally Networked Innovation

Europe's own global satellite navigation system, Galileo, is catapulting satellite navigation to a new level. It provides reliable and extremely precise position and movement data and opens up a host of possibilities for innovative applications.

Bavaria identified early on the importance of the space industry and all its benefits and future opportunities. In close cooperation with our European and global partners, we have leveraged our activities to forge an excellent network that creates added value and employment by interfacing satellite navigation technologies with other key industrial sectors.

As of 3rd August 2009, the Free State of Bavaria – together with the European Space Agency, the German Aerospace Center and the local bank Kreissparkasse München Starnberg – began supporting the fourth ESA Business Incubation Centre (BIC), which will further establish Oberpfaffenhofen as a major hub for aerospace research, operations and industrial activities. The goal of this new business development centre – run by Anwendungszentrum GmbH Oberpfaffenhofen (AZO) – is to support 40 company start-ups on-location in the next four years. The partners of the ESA BIC will contribute EUR 6,3 million toward these efforts to incorporate aerospace technology and expertise into start-up companies in new fields of the economy with a view to creating sustainable jobs for highly skilled individuals.

For the sixth year running, the Bavarian State Ministry of Economic Affairs, Infrastructure, Transport, and Technology has awarded the best applications developed on the basis of satellite positioning technology. It is convinced that the creativity sparked by the European Satellite Navigation Competition boosts entrepreneurship on a global scale.

Congratulations to all the winners of this year's competition and all the best with your efforts to realise your ideas!

Martin Zeil

International experts meeting in Stevenage / UK, September 2009

EUROPEAN
SATELLITE NAVIGATION
COMPETITION
2009

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Intro

From May to July, 289 participants from 30 countries submitted their ideas for the innovative use of satellite navigation in a wide range of application areas as part of the European Satellite Navigation Competition. The winning submissions reflect the manifold opportunities made possible by this future-oriented technology: from healthcare and leisure to traffic management and other rail, sea, and air transport logistics, individuals and entire industries alike can benefit from satellite navigation. In addition, the public sector strongly profits from Global Navigation Satellite Systems (GNSS) – particularly in situations where human lives are at risk (see the statistics on page 5).

Furthermore, the fact that 80% of all of this year's ESNC participants also submitted their ideas for one of the competition's special topic prizes demonstrates the enormous potential satellite navigation has in providing solutions to specific industrial issues. Special thanks is due to the ESNC's title sponsor, T-Systems, which took advantage of the creative impulses of the competition for the third time – this year in searching for integrated healthcare solutions. We would also like to thank both the European GNSS Supervisory Authority (GSA) for once again advancing the market for applications that exploit the special features of the European Geostationary Navigation Overlay Services (EGNOS), and the world's leading provider of digital maps – NAVTEQ – for boosting application development in the field of location-based services. In addition, we would like to thank the first-time sponsors of Forum SatNav MIT Baden-Württemberg and the Comunidad de Madrid for their engagement in searching for the best secure transport and safety-of-life applications. Further thanks goes to the German Aerospace Center (DLR) and the European Space Agency (ESA), who have trusted in the ESNC's innovation potential and supported the competition since the very beginning.

With 18 global partner regions – and more to join in 2010 – the European Satellite Navigation Competition can boost a proven track record of success in supporting the development of a future market and fostering international networks. Together with the competition's international network of 150 experts, regional support programmes, and the four ESA business incubation centres, these regions will help the many applications and business cases submitted realise their full potential as successful products from exciting new companies.

Meanwhile, a cooperation involving the ESNC and the European Network of Living Labs (ENoLL) – a user-driven innovation platform in real-life environments – is set to facilitate yet another step towards seamless integration of downstream GNSS application services.

We would like to thank all our partners for their outstanding support and already look forward to an exciting European Satellite Navigation Competition 2010. Next year's iteration will be launched in line with the first Galileo Application Days from 3rd to 5th March 2010 at the Charlemagne Conference Center in Brussels, which will be organised jointly by the European GNSS Supervisory Authority (GSA), the Application Center for Satellite Navigation Oberpfaffenhofen (AZO) and with the support of European Space Agency (ESA). The event will focus on demonstrating progress in the evolving GNSS market and inspiring product and service development with live demos of running applications, while at the same time offering a unique platform for international collaboration and exchange.

We look forward to seeing you in Brussels!

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ANWENDUNGSZENTRUM
Oberpfaffenhofen

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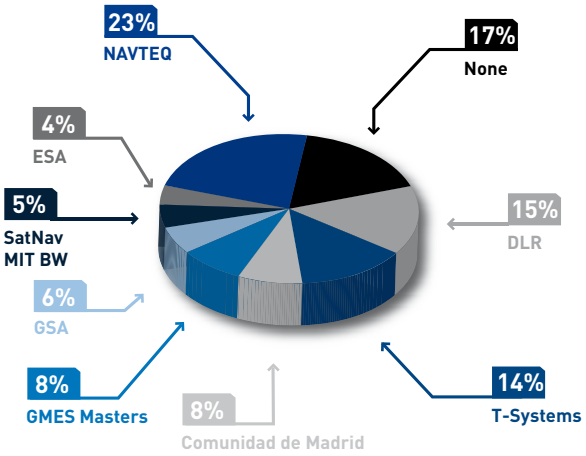
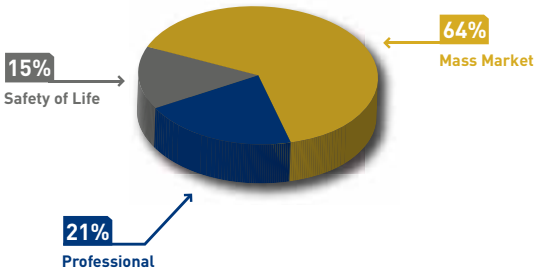
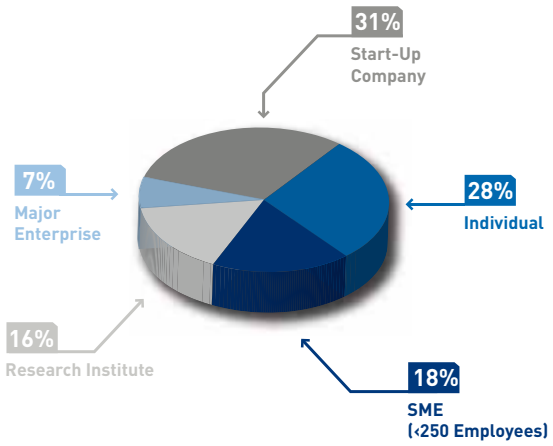
Participation in the 2009 Special Topic Prizes



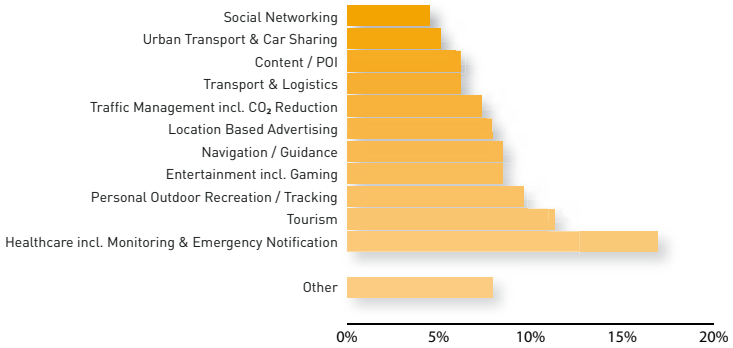
ESNC - Total Market
289 Ideas



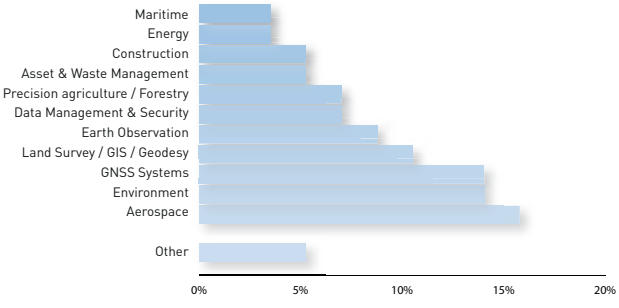
Form of Organisation



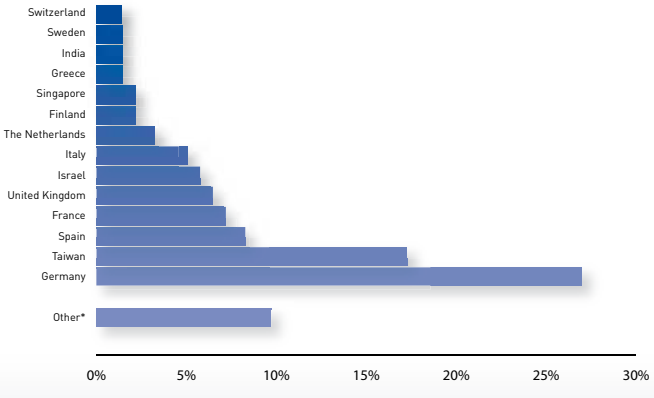
Mass Market



Professional

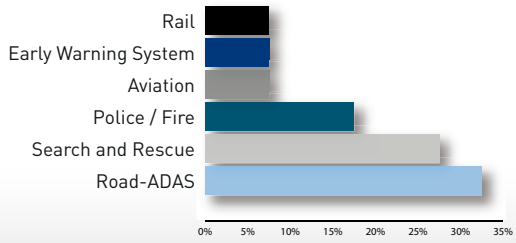


Ideas from countries



*Australia, Austria, Bangladesh, Bulgaria, Czech Republic, Hungary, Indonesia, Ireland, Lithuania, Nigeria, Poland, Portugal, Puerto Rico, Russia, South Africa, Turkey, Ukraine, USA

Safety of Life



GALILEO
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ESNC 2009

GALILEO MASTER

WINNER OF THE SPECIAL TOPIC PRIZE :: Comunidad de Madrid
REGIONAL WINNER :: Madrid / Spain

The Winner:
Dr José Caro Ramón

The Idea:
Osmógrafo®: Wind Measurement and Positioning to Determine the Area Covered by Search-and-Rescue Dogs

DESCRIPTION

Earthquakes, landslides, avalanches, collapsed buildings...There are many situations in which a person could suddenly become trapped and unable to free him or herself without the assistance of search-and-rescue professionals.

Canine teams are used worldwide for rescue operations, for which the dogs receive rigorous training in locating victims. The dogs rely on their keen sense of smell in combination with their training in order to scout devastated regions and detect the telltale scent of a human being trapped amongst the wreckage. The dog moves within the search area, following its nose and the instructions of its handler. When it detects the scent of a trapped person, it indicates the area where it believes the person to be by remaining in the area and barking or using other indicators it has learned.

In the search-and-rescue process, wind is a key factor that can aid the dog by allowing it to cover large areas much more rapidly and efficiently. With a moderate wind of a few kilometres per hour, the olfactory range of the dog can increase to up to a few dozen meters. This allows the dog to cover the entire search zone in fewer passes.

When the total number of victims is unknown, the responsibility for determining that an area has been completely covered falls to the rescue operation coordinator. This decision will initiate a change of search area or the use of heavy machinery to clear debris. In both cases, the consequences could be fatal if there are still undetected survivors in the area.

This decision currently relies solely on the opinion of one person. To determine whether any areas remain unsearched, the coordinator has to remember all of the routes the teams have travelled, as well as and the direction and speed of the wind. In practice, this requires spending more time in any one zone than should be necessary in order to ensure that the zone has been fully searched before moving on to look for other victims, for whom any delay could be fatal. Currently, this decision is taken without any technological help.

INNOVATION

Osmógrafo® assists the rescue coordinator in determining whether an area has been fully searched by canine teams. It consists of a GNSS tracking device attached to the dogs and a wind sensor that sends information to a central monitoring unit.

2nd Place: Overall ranking

"ShadowGuide: Group-Guiding Solution Combines Leisure and Peace of Mind"
Yi-Cheng Chung & Chi-Chun Chen, Industrial Technology Research Institute // Taiwan

3rd Place: Overall ranking

"ATMOSPHERE Collaborative Network: An Aeronautical GMES Service"
Jean-Marc Gaubert, ATMOSPHERE, Systèmes et Services // France

The central unit combines positioning, wind properties and dogs' scent capabilities to display areas already searched.

Osmógrafo® is fully adapted to search-and-rescue operations, including a database with dogs' olfactory capabilities, hiding places, the possibility to geo-reference an image of the search area, definition of the search area itself, management of victims and their status, and automatic reports of search operations.

TARGET MARKET

The target market is mainly composed of canine search-and-rescue teams used by official (police units, fire brigades) and non-official (usually non-governmental) organisations.
It is also possible to apply the invention to other uses of detection dogs:

- Identifying the origin of forest fires
- Locating poisoned bait traps
- Improving drug searches
- Searching for truffles in forests and fields

The system also targets researchers in the field of animal scent capabilities and their dependency on the environment (humidity, temperature, etc.).

CUSTOMER BENEFIT

Users benefit from a support tool that determines areas yet to be searched, which improves efficiency and also stores all relevant information on operations and training for future review.

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2nd & 3rd Place: SPECIAL TOPIC PRIZE :: Comunidad de Madrid

"FIRESTORM - A solution for quick and effective fire-fighting day-and-night from the air" **Pablo Haro // Spain**
"A solution for enhanced group travel experiences: a simple, yet essential navigator and corresponding system"
Shen-Ming Chung & Mei-Ju Tu, Industrial Technology Research Institute // Taiwan

2nd & 3rd Place: REGIONAL WINNER :: Madrid / Spain

"Wireless sensors for real-time mapping of urban environmental quality" **Michael Setton, Nicolas Lantz & Benjamin Vadon, SENSARIS // France**
"FIRESTORM - A solution for quick and effective round-the-clock fire-fighting from the air" **Pablo Haro // Spain**

The region

Madrid

The region of Madrid is the centre of excellence for the aerospace sector thanks to the presence of the leading sector companies and the most relevant research and training institutes. Madrid Regional Government has officially declared the aerospace industry as a strategic sector. 74.9% of Spain's aeronautic engineers work in Madrid. It has the largest Aeronautic Engineering School; top-class non-university programmes and the most prestigious post-graduate and business schools. Over 60% of the aerospace sector employment and 62% of its annual turnover in Spain is concentrated in Madrid, including key institutions that increase technology transfer and leverage technological cooperation: INTA - National Institute of Aerospace Technology; CIEMAT - Centre for Energy, Environmental and Technological Research; aeronautical and telecommunications engineering schools.

Comunidad de Madrid

The regional organiser

IMADE

IMADE, the Madrid Institute of Development, is an organisation that falls under the aegis of the Economic and Consumers Affairs Department of the regional government of Madrid. Founded in 1984 as a public body, its main objectives are to promote development in the region through initiatives that encourage economic growth and employment. IMADE provides local companies and entrepreneurs with services aimed at encouraging innovation, business creation and enhanced competitiveness. It is an instrument of the regional government to foster, develop and strengthen business networking in the Madrid region, promote the creation of employment, and achieve higher productivity and competition rates at both the national and international level. IMADE has various strategic channels of activity designed to promote balanced, sustainable development in the entire region of Madrid. One of the main goals of the institute is to provide high-quality physical spaces for production network operations in accordance with their real needs, including innovative technologies, globalisation and competitiveness, and environmental and knowledge management.
www.imade.es

Instituto Madrileño de Desarrollo
www.imade.es

The regional partners

Madrid Network, Park and Cluster Network of the Region of Madrid

Innovation and knowledge are essential elements of competitiveness. Our region must therefore take action to promote environments where companies can innovate and, in turn, enjoy the greatest benefits possible from research, development, and innovation. With this goal in mind, Madrid Network was born. This network is promoted by the Madrid region, the CEIM and the Madrid Chamber of Commerce and Industry and boasts more than 400 companies integrated into our 11 clusters and five science and technology parks. Our objectives include creating stable collaboration networks among firms within the same sectors, identifying common interests for collaboration, encouraging the participation of organisations involved in European projects and networks, communicating with administrations to monitor and coordinate public policies, and determining priorities in research and innovation in each sector.
www.madridnetwork.org

Madrid Network
AERODESPACIAL

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Madrid
The Experts

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Galileo Project Director
Aena International

Pedro Luis Molinero
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GMV

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DEIMOS

Alvaro Urech
Head of Business Development Division
Ineco

Dr Felix Bellido
Deputy Managing Director
Madrid Aerospace Cluster

Carlos Belmonte
Head of Programmes
INDRA Espacio

Madrid
The Decision

The intention of this prize was to reinforce the importance of GNSS in safety-critical applications. What was the decisive factor that made Osmógrafo stand out?

We received several very good proposals. The evaluation panel considered in this edition not only the scientific approach, innovativeness, property rights protection, and economic impact of the winning idea, but also its ability to provide immediate, valuable support to rescue teams as they go about their difficult and dangerous work.

The direct impact in terms of time and efficiency – and thus on human lives – for canine rescue teams using Osmógrafo is a very tangible benefit. In this sense, it is important to underscore the relevance of Osmógrafo in both real-life and training situations. Such training schemes bear obvious relevance in safety-critical applications management. This case was an excellent candidate to appear in our SoL applications and services showcase.

Madrid
About the Galileo Safety of Life Center

The Madrid region will host the Galileo Safety of Life Centre, seeking to reinforce the importance of GNSS by supporting this critical area with its special topic prize. As a Galileo Service Centre, the new Safety of Life Centre (SoLC) in Madrid will provide specific services to developers of critical applications, thereby reducing barriers Europe and bridging a gap between Galileo SIS services and SoL user needs in the current Galileo architecture. The Safety of Life Centre will be a multimodal centre covering the necessities of the four main modes of transport – by air, rail, sea, and road – as well as other potential industrial segments.

Through IMADE and the Madrid Aerospace Cluster, the Madrid Regional Government is striving to reinforce the transregional role of this world-class initiative in cooperation with the academic and industrial stakeholders.

In this edition, the initiative enjoyed additional sponsoring support from three world-class Madrid-based firms active in the fields of space and satellite navigation: Deimos, GMV, and INDRA. This cooperation serves as a remarkable example of a region's players working together to reinforce their global competitiveness.

ESNC 2009

WINNER OF THE SPECIAL TOPIC PRIZE :: T-SYSTEMS

The Winners:

Dr Thomas Schweizer, Dominik Wegertseder, Nancy Gimpel, Klaus Roleff, Nils Böffel

The Idea:

AiperCare - Monitoring System for Home Care and Elderly Patients

DESCRIPTION

In Germany alone, 2.25 million people are in need of care; 1.54 million of them are cared for at home. Many are supported by close relatives who need to be constantly aware of their wards' condition and activities and are constantly afraid that something might happen when they are not present.

AiperCare detects critical situations – such as when the person in care wakes up in the night or leaves the house – and locates the individual. The system also notifies care providers or relatives via text messages or other channels if certain conditions arise. This allows care providers to leave the house when their charges are sleeping, for example, and be notified in case anything occurs at home, such as if a person falls out of bed or wakes up and wanders aimlessly around the house.

The system consists of wearable hardware (a physical activity gauge, a localisation module and a data transmission module) and a back-end infrastructure.

INNOVATION

There are currently two types of emergency systems: conventional home emergency systems – which requires a person to actively push the emergency button – and standard location-based systems. AiperCare integrates the advantages of both of these solutions into one and adds the innovative function of detecting when the patient gets out of bed or falls down. This is especially helpful with those who are mentally unable to recognise their own situation.

TARGET MARKET

AiperCare focuses on close relatives and people providing care to people who need it, particularly those suffering from dementia, Alzheimer's, or other forms of reduced mental capacity. The solution could also be used in homes for the elderly. It is ready for integration into various service solutions and could be commercialised with service providers in elderly care and telecommunication infrastructure companies.

CUSTOMER BENEFIT

AiperCare provides an integrated solution to monitor persons in need of care. It meets the needs of both parties in care situations: the person in need of care, as well as the person providing it. AiperCare imparts a sense of security to those in care and gives close relatives more free time for social activities while remaining aware of the situation at home. This results in increased emotional security. AiperCare also makes new business models possible for providers active in the field of care for the elderly.

Aipermon
Welcome Your Health

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2nd Place:

"ANGELS: rapid and effective attention and information services in emergency situations "
Angel Martinez-Cavero & Juan Pablo Lazaro-Ramos, ITACA // Spain

3rd Place:

"Emergency crash detection, remote surveillance, and localisation"
David Worm, BodyTel Europe GmbH // Germany

T-Systems
The Experts

Ralf Nejedl
Managing Director
T-Systems Belgium

Jurry de la Mar
Account Director
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Thomas Leiber
Corporate Customers
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Deutsche Telekom Laboratories

Annette Böhmer
Specialist Emphatic Research & Ideation, Creation Center
Deutsche Telekom AG

Uwe Berg
IT Partner Management
T-Mobile Deutschland GmbH

Klaus Büllesfeld
Marketing Manager
T-Mobile Deutschland GmbH

T-Systems
The Decision

T-Systems was looking for an intelligent healthcare solution to support the elderly in their everyday lives. What is the most innovative aspect of AiperCare?

If an individual leaves the house alone at night, a mobile solution attached to the clothing automatically sends a message to the caregiver, who can determine the individual's current position using the navigation system and send help. The technical components of the idea won us over with their clever combination of motion sensors for activity detection based on typical movement patterns and emergency profiles with satellite positioning and mobile communications.

Does the application meet your requirements with respect to, for example, usability, wearability, and hard- and software components?

The application has very promising features: For instance, it can be integrated into fabric and cannot be removed actively or by accident. Prototypes are available that already meet a lot of relevant requirements, from usability and robustness to improved battery life.

What was the convincing element of the business model?

This idea has the capacity to improve the quality of life of its target users and their caregivers enormously without being too obtrusive to anyone involved in its application.

T-Systems
About T-Systems

We shape the networked future of business and society and create value for customers, employees and investors thanks to innovative ICT solutions. T-Systems is Deutsche Telekom's corporate customer arm. Using a global infrastructure of data centers and networks, T-Systems operates information and communication technology (ICT) systems for multinational corporations and public sector institutions. With offices in over 20 countries and global delivery capabilities, T-Systems serves companies in all industries – from the automotive industry to telecommunications, the financial sector, retail, services, media, energy and the manufacturing industry all the way to government agencies and the healthcare sector. Approximately 46,000 employees worldwide use their industry expertise and ICT know-how to provide top-quality service. T-Systems generated revenue of around EUR 9,3 billion in the 2008 financial year.
www.t-systems.com

ESNC 2009
WINNER OF THE SPECIAL TOPIC PRIZE :: DLR
REGIONAL WINNER :: North-Rhine Westphalia / Germany

The Winners:
René Rütters, Prof. Dirk Abel, Martin Baier, Björn Schäfer

The Idea:
Safety - Relevant Accuracy Enhancement and Signal Verification of GNSS Signals for Rail Applications

DESCRIPTION

Presently, satellite-based positioning services are virtually unutilised in train control. Crucial issues in train control include accuracy and integrity, as well as availability. A new approach to integrity and augmentation can help improve conditions in each of these areas. This solution makes use of the European Train Control System (ETCS) balises that are mounted standard on new European railway lines. A balise is an electronic beacon which represents a defined point on the track. In the moment a train passes a balise, its exact position is known. This core information is used in the new system. Once the train passes a balise, its position is saved in geo-coordinates and compared with the position determined via GNSS. This information corrects the train's position by compensating for GNSS positioning errors partly caused by signal disturbances in the atmosphere. By generating a model of the atmosphere, the accuracy of GNSS positioning can temporarily be enhanced for a large regional environment. Additionally, a plausibility check is performed. The solution thus documents the integrity of satellite signals. Systematic manipulation of GNSS with an interfering transmitter can be detected as well.

INNOVATION

The solution's innovation lies in its combination of ETCS components and a GNSS receiver. Presently, research in this field focuses on the use of GNSS receivers as additional sensors without using information from the onboard ETCS unit. In contrast, this new integrity and augmentation system uses information from the existing ETCS infrastructure to improve the accuracy and integrity of GNSS positioning data.

TARGET MARKET

The new integrity and augmentation system targets railway infrastructure providers.

CUSTOMER BENEFIT

Among other uses, balises are currently applied in resetting drift errors in vehicle data obtained with odometry. The new system can help to reduce drift errors: an integrity check facilitates the achievement of high security standards in train control. Thus, the number of balises on a line can be reduced and railway infrastructure providers can reduce the effort and costs in constructing, maintaining and operating their railways.

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2nd & 3rd Place: SPECIAL TOPIC PRIZE :: DLR

"Freighter Berthing for the Future"
Dr Kutz Arrieta, iSaski Software Consulting SL // Spain
"System for compensation of systematic reflection effects" **Joachim Bamberger, Andrei Szabo & Marian Grigoras, Siemens AG // Germany**

2nd & 3rd Place: REGIONAL WINNER :: North-Rhine Westphalia / Germany

"Circuits for a combined GPS/Glonass/Galileo device"
Dr Ralf Wunderlich & Stefan Heinen, RWTH Aachen University // Germany
"GPS-enabled mobile solution for loggers"
Kari Kivisto, MSG Software Ltd. // Finland

DLR
The Experts

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Head of Technology Marketing
German Aerospace Center (DLR)

Dr Ulrich Theis
Head Navigation
DLR Space Agency

Dr Thomas Weber
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DLR
The Decision

The most decisive criteria for the DLR were precision, security, and freedom from interference. Does the winning solution meet all these requirements?

The concepts of our three winners bring the essential advantages of the GALILEO system from space down to earth. The focus is on learning more about signal verification and interference susceptibility in high-speed rail traffic and precision navigation for freighters – fields that place a premium on security and accuracy – as well as in the signal itself. All this is fully in line with our expectations of truly advanced applications that benefit both industry and the general public.

How will the DLR apply its expertise in supporting the further development of the application?

DLR is contributing its proven expertise in the characteristics of the ionosphere and multipath signal distribution, the consideration of orbits and highly precise time facilities, and of course, in safety-of-life (SoL) applications. These issues are fundamental to the quality, reliability, and ultimately, the success of every professional solution based on satellite navigation. The winners and DLR have also already started to develop joint work programmes to realise technical demonstrations.

DLR
About the DLR

The German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt, DLR) is Germany´s national research centre for aeronautics and space. Its extensive research and development work in aeronautics, space, transportation and energy is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been tasked with planning and implementing the German space programme by the German federal government, as well as with representing Germany's interests internationally. Approximately 6200 people work for DLR; the center has 29 institutes and facilities at 13 locations in Germany. In determining the focal points of its research, DLR is to a large extent guided by the industry's demand for innovative products and services. In addition, it invests in promising technologies and offers its research and development capacities to customers for their own use. Numerous products have been successfully developed in this way and brought to market in cooperation with innovative enterprises.
www.dlr.de

The region

North Rhine-Westphalia

North Rhine-Westphalia is home to over 500 companies involved in satellite navigation. The most populous federal state is also home to the German Aerospace Center, which has some of the most important basic research establishments. The North Rhine-Westphalian association of users for integrated satellite navigation solutions (NAVISAT) wants to pool these skills in the federal state and promote the industry in expanding its activities in the field of satellite navigation. The focus is on the provision of support to commercial applications and services on the basis of existing and future satellite navigation systems (GPS, GLONASS, GALILEO) by incorporating satellite positioning technologies into concrete applications. In addition to pooling the skills that exist in North Rhine-Westphalia in the field of satellite navigation, it seeks to promote a cross-sectoral exchange of ideas, knowledge and information among its members.

www.nrw.de

The regional organiser

NAVISAT

On 20th March, 2006 NAVISAT was founded on initiative of the Ministry of Economic Affairs and Energy of the State of North Rhine-Westphalia (MWME) by ten industrial enterprises. The association wants to establish the location North Rhine-Westphalia as a constant player in the GNSS scenery.

NAVISAT with headquarter in Herne wants to condense the competences of North Rhine-Westphalia in the sector of satellite navigation and promote its development. The support is primarily directed to applications and services of the satellite navigation systems GPS, GLONASS and Galileo. Therefore the members want to promote the exchange of experiences and intensify the contact to apprenticeship and research. With common research and developing plans the know-how of the measurement branch should be also open up to other technology branches, to use the potentials of satellite navigation. The Ministry of Economic Affairs and Energy of the State of North Rhine-Westphalia (MWME) and the economic promotion Herne support the initiative.

www.navisat.de

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ESNC 2009
WINNER OF THE SPECIAL TOPIC PRIZE :: GSA

The Winners:
Dr Sara Brockmans, Dr Raphael Volz, Dr Markus Noga

The Idea:
nogago - Leisure Navigation for Smartphones

DESCRIPTION

Nogago is leisure navigation software for smartphones. It provides routes, maps and travel guides based on open content without restriction to particular regions. Nogago makes content available for offline use and keeps data up-to-date by means of a novel synchronisation algorithm. Since it consumes very little power, nogago can be used all day without needing a phone recharge. Nogago's navigation capabilities are available for free, while using maps and travel guide functionality requires a monthly or yearly payment.

INNOVATION

Our core USP is the ability to take maps and travel guides offline and keep them constantly updated by synchronising changes whenever the customer is online. Instead of licencing certain regions separately like other solutions, nogago's subscription fees give the customer access to maps and guides all over the world. In addition to the free basic version of nogago, customers can decide to use the premium features either for a single month or a whole year.

TARGET MARKET

Nogago is oriented towards smartphone consumers. According to the Gartner Group and other analysts, around 200 million smartphones are in use today, and this number is expected to grow to 500 million by 2013. We expect the majority of smartphone users to be interested in nogago, as many of them travel internationally and/or participate in outdoor activities such as hiking, running and biking. According to U.N. World Tourism Office, 922 million people travelled internationally in 2007. Meanwhile, the study "Outfit 6" found that about 50% of Germans cycle, 28% run, and 25% hike. In other Western countries, outdoor sports enjoy similar popularity.

CUSTOMER BENEFIT

Our customers can use their smartphones as a personal navigation tool instead of buying expensive dedicated devices from leading outdoor device manufacturers. They can also use nogago to replace paper maps and travel guides. Unlike other smartphone navigation software, nogago does not require online connectivity and is therefore very useful for international travels (where data-roaming fees are very high) and other offline activities such as mountain biking, hiking, and canoeing. Furthermore, nogago automatically keeps its maps and travel guides up-to-date. Nogago's low power consumption makes it possible to use the device all day as a travel guide / outdoor navigation tool, and this navigation is highly precise through the use of the EGNOS-signal.

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2nd Place:

"Challenging the World Sailing Cups – a smart GNSS-based racetimer system for sailing regattas "
Ainhitze Etxeberria // Spain

GSA
The Experts

Boris Kennes
R&D and Market Monitoring Officer
European GNSS Supervisory Authority (GSA)

Carmen Aguilera
Market Development Officer
European GNSS Supervisory Authority (GSA)

Philippe Hamet
Policy Officer (Galileo Applications TREN.G4)
European Commission

Cedric Seynat
Programme Officer (EGNOS Programme TREN.G3)
European Commission

GSA
The Decision

The GSA was looking for the most promising application exploiting the special features of the European Geostationary Navigation Overlay Service, EGNOS. What was Nogago's best feature?

We were impressed that by using the smart phone platform, Nogago can reduce the cost of outdoor navigators for users while taking advantage of the rapid innovation currently taking place in the smart phone market. Plus, using open source for content reduces costs even more, and ensures it stays up to date. We also liked the fact that there is already a functioning version available albeit on a single platform.

In which way does the application profit from improved integrity and accuracy of EGNOS?

EGNOS corrections will greatly enhance performance in outdoor situations where map matching cannot compensate for GPS inaccuracies. Also, in most outdoor use cases the EGNOS geostationary satellites will be easily visible.

How advanced is the penetration of EGNOS in the market for outdoor navigation and will this award promote the usage of EGNOS in leisure applications?

It may come as a surprise, but outdoor navigators were early adopters of EGNOS and of its US equivalent, WAAS, precisely for the reasons mentioned above. One of our aims with this award is to ensure that we can leverage this position in the rapidly growing smart phone market.

GSA
About the GSA

By developing a new generation of global navigation satellite systems (GNSS), Europe is opening new doors for high-technology industry development, job creation and economic growth. With Europe in the driver's seat, Galileo has the potential to become a cornerstone of the global radio navigation positioning system of the future. Given the strategic nature of European satellite positioning and navigation programmes, (which include Galileo and EGNOS) the European GNSS Supervisory Authority, a European Community Agency, was established in 2004 to be the regulatory authority for the European GNSS Programmes, while laying the foundations for a fully sustainable and economically viable system.

The GSA will:

- Ensure the security accreditation of the system and the operation of the Galileo security centre;
- Contribute to the preparation of the commercialisation of the systems with a view to a smooth functioning, seamless service provision and high market penetration;
- Accomplish other tasks entrusted to it by the Commission, in particular the promotion of applications and services and ensuring the certification of the components of the systems.

www.gsa.europa.eu

ESNC 2009
WINNER OF THE SPECIAL TOPIC PRIZE :: ESA
REGIONAL WINNER :: Hesse / Germany

The Winner:
Dr Tim Springer

The Idea:
High-Accuracy GNSS Solutions and Services

DESCRIPTION

Today's high-accuracy Global Navigation Satellite System (GNSS) market, meaning positioning at the 1-100 mm level, is mainly a field for universities and scientific institutes. In the near future, this market will expand to include highly specialised commercial companies. PosiTim wants to become the main player in this very technical field by hiring and educating the required specialists and ensuring the acquisition of software solutions and services suited to this „(rapidly) growing" market. In addition, the modernisation of both the existing GNSS systems (the US-based GPS and the Russian-based GLONASS) and the advent of new GNSS systems like Europe's Galileo and China's Beidou/Compass, have greatly enhanced this market's potential. Regional augmentation systems such as WAAS, EGNOS, and QZSS have also contributed to the overall market. In fact, new systems and other modernisations will require very significant software upgrades and thus also open up the market for new software.

INNOVATION

PosiTim GNSS solutions, powered by the ESA/ESOC GNSS software NAPEOS, facilitates significantly improved performance and unification in GNSS systems, leading to positioning accurate down to the millimetre. PosiTim GNSS services also offers a very short time-to-market to all GNSS service providers and network operators.

TARGET MARKET

PosiTim offers high-accuracy turnkey GNSS solutions and services that can be used for a multitude of applications, including:

- Oil and gas offshore and maritime positioning services (centimetre accuracy)
- Seismic monitoring (millimetre accuracy)
- GNSS-assisted weather predictions
- Precise orbit determination of low Earth orbiting satellites (e.g. GMES)
- Real-time precise positioning of any GNSS receiver anywhere in the world

CUSTOMER BENEFIT

Our GNSS services will help our customers get up and running in a very short time by avoiding the lengthy and cumbersome process of learning and understanding scientific GNSS processing packages. Our turnkey GNSS solutions will empower our customers to achieve their goals rapidly and without needing to find and hire GNSS experts.

PosiTim

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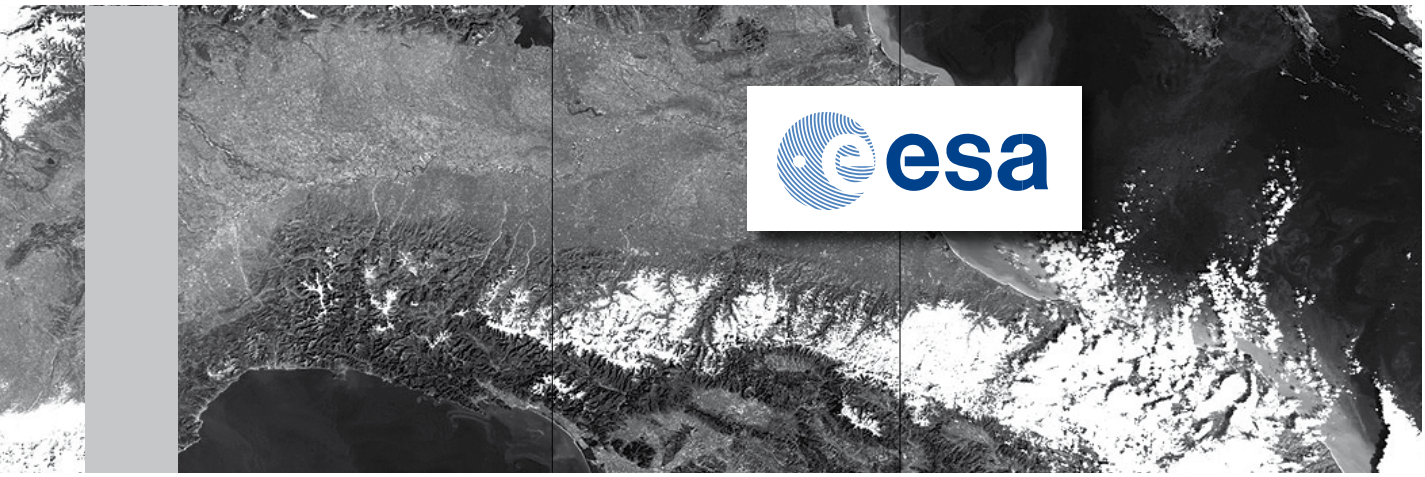
2nd & 3rd Place: SPECIAL TOPIC PRIZE :: ESA

"Galileo M3 Log Book"
Gerhard Bernot, BERNOT Information Technology // Germany
"Advancing the management of anaphylaxis using a drug delivery system integrated with GNSS technology" **Mike Rhodes. Mike Balmfort & Henry Steinmetz, Allerayde Uk Ltd. // United Kingdom**

2nd & 3rd Place: REGIONAL WINNER :: Hesse / Germany

"Mobile forest-fire management with ArcGIS Server and mobile ADF"
Matthias Nagel, INTEND Geoinformatik GmbH // Germany
"High-precision positioning product with enhanced mobile interfaces for surveying" **Ricardo Marvao, Nuno Duro, Andre Brito & Rafael Perfeito, Evolve Space Solutions // Portugal**



ESA
The Experts

Bruno Naulais
European Space Incubators Network Manager
European Space Agency

Cornelis J.J. Eldering
Technology Transfer Officer
European Space Agency

Luigi Fusco
Senior Advisor for Earth Observation Applications
European Space Agency

Callum Norrie
Technology Transfer Officer
European Space Agency

Frank M. Salzgeber
Head of Technology Transfer Programme Office
European Space Agency

ESA
The Decision

In awarding its innovation prize, ESA focused in particular on the winner's underlying business concept. Why are you convinced that PosiTim will be a commercial success?

PosiTim is using a space-developed software package capable of rapid computations, which facilitates relatively short processing times. Its excellent quality and high-speed performance make it very well suited to a broad range of high-precision and (near-) real-time GNSS applications.

Was the multitude of potential fields of application a decisive factor in choosing this idea? In what area do you expect the idea to see its first commercial use?

There is a large market opportunity. The company intends to focus on the oil and gas sector as its initial target market and has already signed a contract with its first launch customer. The company should be operational by February 2010.

What will be the next steps to facilitate joint implementation?

Beyond the GNSS relationship, there is also a space technology transfer since the company's core business will utilise intellectual property that ESA has developed in connection with GNSS software to meet the demand for increased positional accuracy. The ESA Business Incubation Centre is an excellent place to start for new ventures and PosiTim has been invited to deliver a pitch in front of the ESA BIC Evaluation Board.

ESA
About the ESA

The main mission of the Technology Transfer Programme (TTP) of the European Space Agency (ESA) is to facilitate the use of space technology and space systems for non-space applications and to further demonstrate the benefit of the European Space Programme to European citizens.

The Technology Transfer Programme Office is responsible for defining the overall approach and strategy for the transfer of space technologies and systems, including the incubation of start-up companies and its funding.

www.esa.int, www.esa.int/ttp

The region

Hesse

Hesse is the fifth largest federal state in Germany and holds the third position with regard to the gross domestic product per inhabitant. Located in the heart of Europe, the region is characterised by an excellent infrastructure with various traffic hubs for air (Frankfurt Airport) road, rail and Internet. The region of Hesse is very strong in logistics, IT, automotive, biomedical, optical and production technologies. Hesse is heavily involved in new media technologies, a considerable amount of IT/software providers are located in Hesse. Hesse is repeatedly the top region in Germany for multimedia. With its high density of innovative IT-companies/enterprises and its unique infrastructure (the central data transfer hub DE-CIX, which carries over 90% of the German and more than 35% of the European Internet traffic is located in Frankfurt), Hesse provides high potential for the development of satellite navigation based applications, services and products. The Hessian Ministry of Economical Affairs supports the development, deployment and usage of new technologies and the technology transfer.

HESSEN

The regional organiser

cesah

The Centre for Satellite Navigation Hesse is a competence, information and incubation hub supported by its shareholders. These include the German region of Hesse, the city of Darmstadt, the Technical University Darmstadt, the University of Applied Sciences Darmstadt, VEGA Deutschland GmbH & Co. KG, T-Systems International GmbH and the INI-GraphicsNet Foundation. cesah is partner of the ESA Business Incubation Initiative and is located near the European Satellite Operations Centre (ESOC) in Darmstadt. cesah supports the development of business ideas and start-up companies in the field of satellite navigation.
www.cesah.com

cesah
Centrum für Satellitennavigation Hessen

Hessen-IT

Hessen-IT is the programme of the Hessian Ministry of Economical Affairs supporting the Hessian information and communication technology (ICT) sector in their market development, as well as small and medium-sized enterprises (SME) in their efficient and creative use of ICT. Hessen-IT provides information via online databases, news releases, brochures and workshops etc. Hessen-IT furthered and accompanied the satellite navigation activities in Hessen from the beginning and continuously supports the space incubator cesah, the Centre for Satellite Navigation Hesse, by organising workshops and congresses, offering an information and communication platform. Together with cesah, Hessen-IT supported and organised the regional participation in the European Satellite Navigation Competition.
www.hessen-it.de

Hessen IT

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ESNC 2009

WINNER OF THE SPECIAL TOPIC PRIZE :: NAVTEQ

The Winners:
Hui-Kuo Yang, Yu-Hsiang Chuang, Che-Wei Liang, Chi-Chun Kao, Bo-Wen Wang, Shih-Wen Chiang

The Idea:
TravMate – Stay Connected with Locals and New Friends While Travelling

DESCRIPTION

When travelling in a foreign country, exotic sights and cultures ignite one's curiosity and desire to explore new and interesting things. However, things do not always go as planned during trips; unfamiliarity with foreign environments and language barriers are two of the most frequent reasons for travel trouble. TravMate, a novel mobile application, provides travellers with easy and friendly channels to access local services and establish friendships with local folks. TravMate utilises Galileo satellite navigation technologies and NAVTEQ map technologies to provide a highly interactive and straightforward user interface for travellers to get immediate assistance from local helpers. By leveraging the power of community, it forms a positive framework that encourages helpers participating in the community to offer their services, thereby further increasing TravMate's appeal to its users.

INNOVATION

Travellers using TravMate services will be matched by our sophisticated algorithm and receive help from local folks without needing to worry about language gaps. They can also access various services conveniently and efficiently on mobile devices through a friendly user interface that utilises NAVTEQ mobile map technologies.

TARGET MARKET

Our system targets travellers, especially those who visit foreign countries. Europe is the world's most flourishing area of tourism, and the industry continues to make great strides in the Asia-Pacific region due to economic progress in emerging countries. The diversity of languages and cultures in these two grand regions bear out TravMate's potential to succeed.

CUSTOMER BENEFIT

TravMate services offer travellers secure and convenient touring experiences by mitigating their fears of language barriers. A highly interactive user interface ensures that travellers can easily locate where they are and guides them to their desired destinations. By incorporating the concept of community and an attractive operating mechanism, TravMate will attract more service providers to join the community and provide versatile services to travellers.

ITRI
Industrial Technology
Research Institute

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NAVTEQ
The Experts

Marc Naddell
Vice President Partner and Developer Programs
NAVTEQ

Tom Tierney
Partnering Manager
NAVTEQ

Steven Si
Technical Consulting Manager
NAVTEQ

Kellie Prowse
Marketing Manager
NAVTEQ

NAVTEQ
The Decision

What makes TravMate outstanding from existing mobile travel guides?

TravMate's unique concept of weaving participating local community members, participating service providers, and their own call centers into a comprehensive and scalable travel solution makes this application a very interesting concept to develop further and bring to market. TravMate will be able to provide their solution to users traveling for work or leisure, and have existing businesses to approach for mutually beneficial leverage as they seek to build out their offering. There was also an interesting mix of advertising and rental fees, providing diversity and flexibility in their business models.

What will be the next steps to nurture this idea into a running LBS application?

The NAVTEQ special topic prize gives TravMate a 12-month incubation program opportunity that includes one year of free access to NAVTEQ's map data, LBS content, and services, as well as personal technical consulting services and promotions, in total worth approximately Đ75,000. With this support, the next steps for TravMate will be to develop a prototype for a country and pursue the proof of concept. Perhaps approaching the cell phone rental businesses at airports or explore hotels as a next step for distribution. They will also need to select an advertising platform, e.g. NAVTEQ LocationPoint™ Advertising, to embed in their service. NAVTEQ LocationPoint Advertising uses location-tracking technology in mobile networks to target consumers with location-specific advertising on their mobile devices. TravMate gets complimentary access to this and support through the incubation program awarded.

NAVTEQ
About NAVTEQ and NAVTEQ Network for Developers™ (NN4D)

NAVTEQ is the leading global provider of digital map, traffic and location data that enables navigation and location-based platforms around the world. The Chicago-based company was founded in 1985 and has approximately 4,400 employees located in 195 offices and in 44 countries. NAVTEQ Network for Developers™ (NN4D) is a dynamic web portal and global community that provides developers and business partners with the technical and business support needed to build, showcase and launch the most innovative location-enabled solutions. The NN4D includes resources such as mapping APIs, LBS content, point of interest data, routing information as well as geospatial platforms and tools from NAVTEQ and its partners. Members can rely on NN4D when creating GPS-based applications for the web, mobile phones, GIS and portable navigation devices that employ traffic, navigation, location content and location-based advertising for enterprise and consumer use. Connect with the people, tools and resources you need to build and market your location-enabled products by joining today at
www.NN4D.com/joindevelopers.

ESNC 2009

Winner of the Special Topic Prize :: SAT-NAV MIT BW
REGIONAL WINNER :: Niedersachsen / Germany

The Winner:
Klaus Rieck

The Idea:
Galileo GeoSeal

DESCRIPTION

Galileo GeoSeal is an advanced geo-coded seal that uses a dynamic, anti-spoofing code guaranteed and verified by the Galileo GeoSeal Center to contain the spread of counterfeit or potentially dangerous goods.

Galileo GeoSeal system consists of geodata, a trust centre und data storage chips to mark and identify events and goods with a geo-coded seal.

Galileo GeoSeal prevents product piracy and identification fraud. The business case for the Galileo GeoSeal operator involves collecting licence fees, licencing hardware, and dealing with trusted information certified by the Galileo member-states.

INNOVATION

The Galileo GeoSeal, based on the Galileo signal, enhances conventional authentication methods such as personal data or sequences of numbers with time and position data.

The authenticity of this set of data is guaranteed by a trust centre.

TARGET MARKET

There is a wide range of possible applications of this kind of geo-coded seal.

Some examples include a "white internet", characterised by the proofed authentication of users' geoposition; and a system of marking goods. The identification code, stored on a RFID tag, includes the location, time of manufacturing and the licenced programmer.

CUSTOMER BENEFIT

The customer benefits from the Galileo GeoSeal in the form of verified, guaranteed information on the location of a communication partner. This is important for banks and their customers in the case of payment transactions or criminal internet attacks, such as phishing.

The customer is also protected from counterfeit products and can receive detailed information on the lifecycles of goods, including perishable foods, luxury articles, and artwork.

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2nd Place: REGIONAL WINNER :: Niedersachsen / Germany

"Autonomous Logistic Robots" **Miao Wang, Tinosch Ganjineh & Raul Rojas, Free University Berlin // Germany**

3rd Place: REGIONAL WINNER :: Niedersachsen / Germany

"Galileo-enabled and ejectable aircraft black box" **Prof Raul Rojas, Miao Wang & Tinosch Ganjineh, Free University Berlin // Germany**

SAT-NAV MIT BW

The Experts

Dr Rolf-Jürgen Ahlers
Managing Director,
ASG Luftfahrttechnik und Sensorik GmbH
& Director, *Aerospace Forum Baden-Württemberg (LRBW)*

Dieter Geiger
VP Business Development
Traffic Solutions
Siemens AG

Ralph Zimmermann
Deputy Head of Division for Telecommunication, Media and Knowledge Society
Ministry of Economics Baden-Württemberg

Stephan Hellfeld
Research Associate
FZI Forschungszentrum Informatik

SAT-NAV MIT BW

The Decision

The awarded solution goes beyond classic safety and security and is transferable to further sectors apart from logistics. Did that width of potential applications influence your decision?

Galileo GeoSeal allows use scenarios beyond the logistics sector. Our experts took this into consideration. Even so the jury focused on outstanding ideas that bring benefits in the logistics and transport sector. Galileo GesSeal was mainly developed as a logistics solution offering perfect supervision of transport chains and routes, allowing producers as well as carriers to prove the quality of their products and services.
Besides logistics, Galileo GeoSeal may find use cases in other applications, e.g. in geofencing services to handle hazardous goods and devices or the care of elderly people and supervision of probational prisoners.

Which aspect of the system was most relevant for your choice?

The jury was impressed by Galileo GeoSeal as it allows monitoring the entire logistics chain of goods as well as it offers an authenticity certification that cannot be falsified. Furthermore it relies on certain Galileo features, such as the integrity signal, that allow significant cost reductions. Today, main expenditures are caused by the falsification-safe recording, transmission and verification of the data about time and location of production. By using Galileo services these costs will drop sharply.

SAT-NAV MIT BW

About the Forum for Applied Satellite Navigation and Mobile IT Baden-Württemberg

Forum SatNav MIT BW is a consortium of companies, research institutes, chambers, and economic development organisations from the Baden-Württemberg cluster for applied satellite navigation and mobile IT. It is establishing these two fields in the state, making them accessible to a broad entrepreneurial and scientific spectrum, and promoting the economic use of the technologies involved. Through pilot projects and innovative applications, Forum SatNav MIT BW seeks to intensify cooperation and encourage its members to share their experiences.
www.galileo-bw.de

The region

Niedersachsen

Braunschweig Research Airport in Lower Saxony: A Centre of Competence in Traffic Management and Transport Safety and Security. Located in the Federal German State of Lower Saxony, Braunschweig Research Airport is an innovative cluster for intelligent transport systems (ITS) – especially satellite navigation applications. The airport's unique selling point is its concentration of major research establishments specialising in more than one mode of transportation:

- Aviation (with the Federal Office of Civil Aviation)
- Railway transportation (with the market leader in rail automation, Siemens Rail Automation)
- Road transportation (with safety-critical applications in cooperation with Volkswagen)

Braunschweig Research Airport and the organisations in its immediate vicinity are unique in their concentration of expertise related to multi-modal types of transportation, particularly in the safety-critical fields of ITS and GNSS. The airport also serves as a test centre for the transportation sector.

The regional organiser

GAUSS - Galileo Center for Safety-critical Applications, Certification and Services

The Galileo Center for Safety-critical Applications, Certifications and Services (GAUSS) combines and concentrates its members' competencies in safety-critical applications at the national and international level.

As the support association of GAUSS, ITS Niedersachsen represent the interests of more than 100 companies and institutions. It is open to work with partners that have special expertise in the field of ITS, telematics, and the standardisation and certification of GNSS applications.

A cornerstone of the commercial success of Galileo, standardisation and certification represent a unique advantage over GPS. The majority of safety-critical applications need certification to minimise the risk of liability issues and other legal problems.

In its new primary focus, GAUSS supports the implementation of eCall, the European emergency calling system for cars. The eCall system automatically dials 112, Europe's main emergency number, when a car has a serious accident and sends its location to the nearest emergency service. This can halve emergency response times, reduce severity of injuries and save the lives of people who do not know or cannot say where they are.

eCall thus represents an ideal combination of the expertise of Braunschweig Research Airport and the enablement of new safety-critical applications, which is the intention of GAUSS.

www.gzvb.de

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ESNC 2009
WINNER OF THE SPECIAL TOPIC PRIZE :: GMES Masters best private application
REGIONAL WINNER :: Nice - Sophia Antipolis / France

The Winner:
Jean-Marc Gaubert

The Idea:
ATMOSPHERE Collaborative Network: An Aeronautical GMES Service

DESCRIPTION

The project is to develop an airborne collaborative network for real-time exchange of atmospheric conditions. Complementing space and ground observation systems, the airborne network will significantly contribute to Global Monitoring for Environment and Security (GMES) objectives. It will provide a unique observation capability for local conditions in the atmosphere, including wind, temperature, humidity, and also pilot´s reports on weather hazards. On the ground, the data will be distributed to meteorological agencies, airlines, airports, and scientific research agencies. Improved weather forecasting and aviation-specific products will become feasible. The data will also be used for „now-cast" applications, such as noise reduction at airports. Furthermore the collaborative exchange of data between aircraft is an efficient means to improve flight safety.

INNOVATION

From a technical standpoint, the project is based on the concept of Galileo-localised „atmosphere objects" developed by meteorological agencies. Graphical information such as weather radar images can be converted into synthetic objects with a significant bandwidth gain, and information can be exchanged in real time over low-rate satellite communication systems. The miniaturisation of satellite technology has facilitated the development of an autonomous METBOX that can be deployed cost-effectively in general aviation. From the business side, the service is based on a collaborative network model. This win-win scheme will bring direct added value to all stakeholders.

TARGET MARKET

The airborne network will be deployed in the general aviation sector, with a focus on business aircraft and helicopters (100,000 platforms in Europe). On the ground, all flows of business will be managed through the e-AMDAR system. The collected airborne data will be used primarily by meteorological agencies to complement their space and ground observation systems. The scientific community will also use the data for environmental monitoring.

CUSTOMER BENEFIT

The users and stakeholders will have several benefits, ranging from the economical – reflected in more efficient operations - and an enhanced ability to add value, such as with new weather forecasting products, to safety benefits including real-time weather hazard avoidance in flight and additional advantages on the ground thanks to better anticipation of adverse weather. Furthermore, the service will protect the environmental by reducing emissions, mitigating noise at airports, and helping prevent persistent contrails.

ATMOSPHERE

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www.atmosphere.aero

2nd Place: REGIONAL WINNER :: Nice - S.A. / France

"GCP: Geolocalised Communication Platform"
Nicolas Prat, In'TIC // France

3rd Place: REGIONAL WINNER :: Nice - S.A. / France

"EGNOS for the European electronic security market"
Olivier Weber, Alain Daniel, Frederic Widloecher, Patrick Launay & Alexandre Creneau, Groupe Scutum SA // France

ESNC 2009

WINNER OF THE SPECIAL TOPIC PRIZE :: GMES Masters **best public application**

The Winners:
**Ludovico De Cinti,
Barbara Orsola, Iacopo Rossi**

The Idea:
Distributed Network of GPS Sensors (DNGPSS) for Large-Scale Emergent Dynamics Analysis

DESCRIPTION

In recent times, monitoring and better understanding our environment has become much more than a purely academic issue. Comprehending how and why our planet is changing might not only influence our daily lives, but also contribute – through a deeper awareness of the complex interactions between the dynamic systems we live in – to the brightness of our future. Starting from this assumption, DNGPSS has been conceived as a system for the study of large-scale emergent dynamics. It can be imagined as a swarm of GPS sensors for the monitoring and analysis of large chaotic systems such as atmospheric and oceanic currents, tectonic movements, and land/air/sea traffic.

INNOVATION

Through unconventional use of a single processing unit separate from a high number of GPS receiver modules, a unique platform can be created for the collection of huge datasets on different complex and dynamic systems. Such datasets can then be utilised for the study, analysis, modelling and monitoring of atmospheric, oceanic and tectonic movements in the framework of the GMES initiative. In addition, the same system can be used as a powerful aid in land/air/sea traffic monitoring and management.

TARGET MARKET

This concept's potential fields of application range from educational and scientific purposes to navigation services (traffic forecasts), fleet management, logistics optimisation and pollution reduction. The data provided by DNGPSS can also be used to support meteorological forecasting and environmental and security issues, thus contributing to the development of more reliable early-warning systems.

CUSTOMER BENEFIT

This modular system can be deployed and utilised virtually anywhere in the world, as well as easily adapted to monitor different kinds of systems. Furthermore, by separating the expensive elaboration unit from the GPS modules – and taking advantage of the currently low cost of such modules – the system can leverage a great number of sensors to perform highly detailed analyses of dynamic phenomena.

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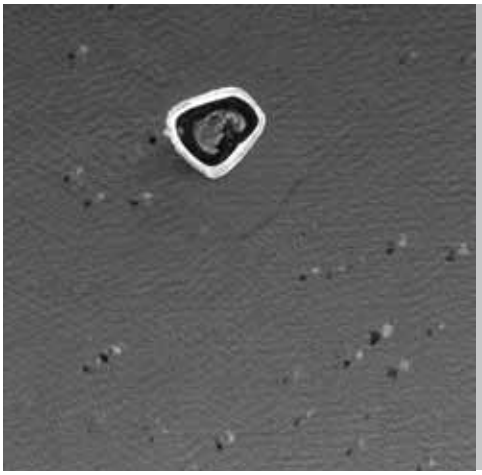

GMES Masters

The Experts

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Germany, CEE & MEA
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Executive Director
sustainable AG

Gunter Schreier
German Remote Sensing
Data Center
German Aerospace Center (DLR)

Véronique Revel
Associate Senior Analyst
Euroconsult

GMES Masters

The Decision

The GMES Masters has been awarded for the first time this year for the best downstream applications based on dynamic earth observation data making use of GNSS. How do you assess the relevance of GMES for the GNSS industry?

As the European initiative for Global Monitoring for Environment and Security, GMES i aims at monitoring and better understanding our environment. In combination with GNSS however there is huge commercial potential to be tapped, eg. in the hot topic of sustainable development but also in mass market GNSS applications such as location based services.

AZO has nominated the best application for use in the private sector and Eco Valley awarded the best solution for use in the public domain. Which main factors did each of you look at?

For the private prize it was important that the awarded application contributes to the objectives of the GMES programme while at the same time commercially exploiting the provided data. The focus for the public prize was on sustainable development especially with regard to potential implementation in line with the Eco-Valley in Nice / France.

GMES Masters

About Anwendungszentrum GmbH Oberpfaffenhofen (AZO)

AZO was founded as an incubator to expand Oberpfaffenhofen, an important aerospace location, into a cluster focusing on European satellite navigation. Established in 2001, the AZO-run Application Center for Satellite Navigation has so far seen through the creation of 38 new companies and more than 600 jobs. As of 3rd August 2009, AZO manages the ESA Business Incubation Center Oberpfaffenhofen, Europe's forth ESA BIC.

About the Ecovalley Project

The Eco Valley in Nice, France, is being developed under the supervision of the French government as part of the first National Interest Project (Opération d'Intérêt National) taking place in a 10 000-hectare area stretching from the Mediterranean coast to the Alpine foothills. Eco Valley is being developed with the aim of welcoming 50 000 new green jobs to the area over the next twenty years and is already prepared to host companies and research institutes involved in the Global Monitoring for Environment and Security (GMES) program. The territory is an ideal test bed for risk management and environmentally friendly real estate planning, as well as an international showroom and a hub for innovation.

The region

Nice - Sophia Antipolis

The Nice - Sophia Antipolis satellite navigation sector is comprised of dozens of multinational companies, SMEs, research labs and international institutes whose activities range from implementing infrastructures to developing end-to-end applications. The Sophia Antipolis leading science and technology park is home to 1,300 companies and 30,000 employees from 68 different nationalities. Sophia Antipolis has developed strong information technologies expertise, in a wide range of sectors: networks, telecommunications, microelectronics, optics, software engineering, Internet, Earth observation, telecom operators. In Cannes, an important space sector has expanded continuously thanks to the presence of Thales Alenia Space, one of the world's leading names in the space industry.

www.sophia-antipolis.net

The regional organiser

Team Côte d`Azur

Team Côte d'Azur is the confidential connection to the Côte d'Azur, serving as a personal partner to investors to ensure a smooth start in the region or to accompany their expansion.
Team Côte d'Azur is experienced in helping corporations evaluate the potential of the Côte d'Azur region and the Sophia Antipolis science and technology park for their business set-up and expansion.
Team Côte d'Azur provides investors with assistance related to:

- A precise evaluation of what the Côte d'Azur can offer with regards to your investment project,
- Free and confidential assistance in preparing your relocation file: feasibility study, identification and follow-up of financial subsidies that could be obtained,
- More detailed information on the firms involved in the information technologies sector on the Côte d'Azur.

For R&D investment in Europe, think Sophia Antipolis, a worldwide IT cluster, where business, academia and bright talent combine resources to pioneer breakthrough innovation.

www.investincotedazur.com

The regional partners

The Alpes-Maritimes County Council

www.cg06.fr

Nice Côte d'Azur Chamber of Commerce and Industry

www.ccinice-cote-azur.com

La Fondation Sophia Antipolis

www.sophia-antipolis.org

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The region

Øresund

The uniqueness of this region lies in the cross-national collaboration between Denmark and southern Sweden, between which Øresund ("the Sound") flows. The Øresund region is among the most innovative and well-developed clusters in the ICT industry with over 100.000 workers, 12.000 companies, 8.000 students at 12 universities, and about 6.000 researchers. This means that ICT is one of the more important sectors in the region. The Øresund Science Region (ØSR) is a potent cluster platform. Its network also includes close cooperation with, for instance, Denmark´s space research centres, satellite navigation clusters, and various universities and research institutes in these fields. ØSR also facilitates collaboration with competent clusters in areas such as IT, food, logistics and entrepreneurship, and the environment makes the region strong and able to present many competencies.

ØRESUND SCIENCE REGION

The regional organiser

Øresund IT / Øresund Science Region

Øresund IT and the Øresund Science Region have been responsible for arranging the Galileo Masters competition for the first time in the region. Øresund IT is a non-profit organisation uniting Danish and Swedish IT firms centred around the Øresund IT cluster. The goal is to make the region more attractive by facilitating access to knowledge and contacts. They deliver unique value by combining the best from the Swedish and Danish systems.

Øresund Science Region is the cluster facilitating organisation in Øresund, developing the strong sectors of the region. They have their offices in Lund and Malmö in Sweden and Copenhagen in Denmark.

Øresund IT

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ESNC 2009
REGIONAL WINNER :: Australia

The Winners:

Dr Alexander Koeppen, Hanno Blankenstein, Michael Heinzel, Tony Culshaw

The Idea:

Hammer Crowd – Location-Based Mobile Community for Truckers

DESCRIPTION

Hammer Crowd is a web- and mobile-based trucker community that provides truckers with useful location-based and messaging services. By integrating partner feeds, it also provides traffic, content or even maintenance information and services, thereby connecting truck drivers with the trucking industry. Hammer Crowd is based on the leading cloud-hosted platform Pocket Life, which delivers various mobile and location-based services across mobile platforms and handsets. This way, Hammer Crowd is fully secure, fully scalable and can be rolled out globally across carriers. Hammer Crowd brings existing trucking communities and their crowd power from CB radio to standard mobile devices and the Internet – leveraging leading location-based services.

INNOVATION

Existing location-based services for trucks and truck drivers neglect the requirements and needs of the most important element: the drivers themselves. For the first time, Hammer Crowd combines social networking with location-based services in the specific context of the truck industry. Bringing these services from proprietary built-in devices to mobile platforms opens up various ways to integrate drivers, manufacturers and content providers. Hammer Crowd thus fosters technical innovation, but also supports the design of new business models.

TARGET MARKET

Hammer Crowd targets drivers of large and medium trucks worldwide (roll-out by region) and will also be offered to logistics and other companies as aggregators. Partnerships include content service providers (traffic information, point-of-interest aggregators, etc.), as well as truck manufacturers to integrate additional value-adding services (maintenance updates and fleet management, for example).

CUSTOMER BENEFIT

Hammer Crowd creates a highly interactive work environment for truck drivers. They can stay in touch with other drivers, find them on maps, share their locations, photos, rated places and other content – all in real time. In addition, it makes both their work and collaboration with co-workers and partners more productive by integrating useful services on user-friendly devices.

pocketweb

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The region

Australia

Queensland, Australia, covers an area of 1.7 m sq km, ranging from densely populated, well-serviced cities to sparsely populated rural areas with densities below one person per sq km. Consequently, Queensland provides opportunities for the development of GNSS applications for both remote areas and cities. GNSS technology is being used in an increasing number of sectors, including industries that underpin Queensland's strong economy. GNSS-related businesses in Queensland currently generate an estimated AUD 350 m annually in goods and services, and employ 750 people, of which 250 are in research and development. Queensland boasts 40 GNSS related businesses, with global significance in GNSS technology for the accurate guidance of machinery used in key industries such as mining, agriculture and infrastructure development, and national significance in vehicle based GNSS, for example intelligent transport systems.

www.qld.gov.au

The regional organiser

IGNSS Society

The IGNSS Society is a market driven not for profit association providing services such as workshops, conferences, trade exhibitions and awards for excellence programmes. Areas of specific interest include space, air, land and marine applications. The IGNSS Society is incorporated in Queensland, Australia – a region boasting enormous growth in the quality and quantity of GNSS products and applications in the last decade. Queensland currently has: 40 GNSS related businesses, with global significance in GNSS technology for the accurate guidance of machinery used in key industries such as mining, agriculture and infrastructure development, and national significance in vehicle-based GNSS, for example intelligent transport systems. The Australian Challenge brings a new perspective to the competition through its emphasis on GNSS solutions to deal with specific Australian concerns, such as sparsely populated areas, large scale surface mining operations, and precision agriculture requirements.

www.ignss.org

The regional partners

i.lab Incubator Pty Ltd
www.ilab.com.au/

Position One Consulting
www.positiononeconsulting.com/

IGNSS Society (International Global Navigation Satellite Systems Society Incorporated)
www.ignss.org/

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ESNC 2009

REGIONAL WINNER :: Baden-Württemberg / Germany

The Winners:
Frank Schubert, Christoph Abart, Jakob Jakobsen, Nagaraj Shivaramaiah, Stefan Kappeler

The Idea:
GUIGO – GNSS-based GUIding GOggles

DESCRIPTION

Swimmers mostly want to swim laps in a pool for their training. In doing so, they can look at the bars painted on the pool's floor to maintain their orientation.

In open waters such as lakes or oceans, a swimmer's only orientation is the coastline. This makes it difficult to do laps in the crawl style. Swimmers have to interrupt their crawling from time to time, raise their heads and try to re-orient themselves with the coastline. This is a very tedious way of swimming and prevents most swimmers from training in lakes or the sea. Additionally, swimmers might stray dangerously far away from shore.

GUIGO (GUIding GOggles) are the answer to this problem. They enhance swimming goggles with a navigation solution based on GNSS/Galileo and a display to guide swimmers in straight laps even while swimming in lakes or open waters. It also prevents the swimmer from drifting too far away from the coastline.

GUIGO is also very useful in many other aspects. For example, the visually impaired can be guided through their daily lives and participate in leisure activities in a more convenient way.

INNOVATION

Connecting GNSS technology directly to goggles offers many innovative approaches to greatly help people in their everyday lives. No other product has ever connected state-of-the-art GNSS technology to the mass market for aquatic sport.

The principle of enhancing goggles with a navigation solution can be applied in other fields: the visually impaired, for example, can take great advantage of this feature. The user is guided using visual and/or haptic interfaces inside the goggles that show the desired route.

TARGET MARKET

The target market consists of sport and leisure swimmers, the visually impaired, and anyone else who needs convenient hands-free guidance and routing.

CUSTOMER BENEFIT

Customers benefit from GUIGO by gaining access to modern GNSS technology in their everyday lives: GUIGO swimming goggles offer a completely new swimming experience in open waters; indeed, they make regular training in open waters possible at all.

For the visually impaired, being fully integrated into daily life is extremely important – and now possible with GUIGO.

GUI-GO

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2nd Place:

"PTV Safe Truck Guidance"
Michael Hubschneider & Andreas Schellmann, PTV AG // Germany

2nd Place:

"FoNa – Forest Navigation: A project researching the forest-mill logistics chain" **Dr. Jörg Föller, Dr.-Ing. J. Föller & Partner / Thomas Wehner, HSM - Hophenloher Spezialmaschinenbau GmbH & Co.KG // Germany**

The region

Baden-Württemberg

Baden-Württemberg is a federal state home to some 11 m inhabitants in southwestern Germany. It is famous for its tourist highlights, such as the Black Forest and Lake Constance; its universities in Heidelberg, Freiburg, Karlsruhe, Constance, Stuttgart, Ulm, and Tübingen; as well as the companies Daimler, Porsche, SAP, and Bosch. The state is also known for its great writers – Friedrich Schiller (William Tell) in particular – and its people are known as „Tüftler", which indicates a great enthusiasm for technical problems and their solutions. Thanks to this open-minded spirit, Baden-Württemberg is ideally positioned to participate in the European Satellite Navigation Competition. Doing so gives its citizens the chance to both take on technical challenges and establish international contacts.
www.baden-wuerttemberg.de

The regional organiser

IHK | TTR | TZK

IHK Baden-Württemberg: The twelve Chambers of Commerce and Industry in Baden-Württemberg represent the interests of around 534,000 companies and provide services to the region's economy. As public legal bodies, they also regulate state duties and act as expert partners and advisors to ministries, courts, and authorities in economic matters.
www.reutlingen.ihk.de

TTR: The shortest way to get where you want to go. Moving from a brilliant idea to a successful product is not just labour-intensive – it also takes time. At Technologiepark Tübingen-Reutlingen (TTR), we're looking to speed up this process by creating an environment where turning ideas into marketable products is easier and faster than ever.
www.ttr-gmbh.de

CyberForum: With some 750 members, the CyberForum is one of the largest regional networks of high-tech companies in Germany. It facilitates new cooperations and the exchange of experiences in the technology region of Karlsruhe.
www.cyberforum.de

The regional partner

Karlsruhe

Located between the Black Forest and Vosges Mountains in the Rhine Valley, Karlsruhe is a metropolis of culture, technology, and science. It is often called the "Fan City" because of its unique arrangement of streets. Karlsruhe is also known as the home of the Federal Constitutional Court of Germany and as the internet capital of Germany. Thanks to the Karlsruhe Institute of Technology (KIT), one of Germany's leading universities, Karlsruhe is a real hotbed of innovation in the country´s southwest region.

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ESNC 2009
REGIONAL WINNER :: Bavaria / Germany

The Winners:
Wolfgang Inninger, Gerd Waizmann

The Idea:
Avalanche Rescue Navigator - ARN

DESCRIPTION

Today, avalanche victims are still located with techniques and searching methods that have been used for decades. Galileo offers the great opportunity to use a state-of-the-art localisation system to improve efficiency in finding people who have been buried. The Avalanche Rescue Navigator is a GNSS-based, next-generation rescue device which facilitates the quick rescue of avalanche victims via accurate localisation. This is achieved by measuring the flux lines from buried transmitters in 3D. The exact location of the measurement is the basis for the location process. The high-precision localisation is realised by a multi-satnav system that uses existing GNSS services and Galileo. With this combination of information, the position of the victim can be calculated relative to the user's current position by means of an algorithm. ARN accordingly provides information on the distance, direction and depth of all detected victims.

INNOVATION

ARN detects buried victims equipped with mobile phones or standardised avalanche beepers and locates the definite 3D position of multiple avalanche victims instantly and simultaneously. Rescue teams are guided to within a metre of avalanche victims quickly and directly via GNSS.

TARGET MARKET

The aim of ARN is to serve the global market for avalanche transceivers by replacing conventional technologies. The system is easy enough for any winter athlete to use. Meanwhile, ARN is also designed for all other kinds of professional search and rescue scenarios in which exact relative positions are needed – for example, when individuals are buried due to an earthquake.

CUSTOMER BENEFIT

Thanks to high-precision localisation, direct guidance, and improved coordination, ARN accelerates the overall search process by up to 40% compared to regular searching methods. This significantly increases the chance of survival. The system also facilitates other value-adding applications such as information and warning services, as well as an optimal order of rescue based on the indicated depths of the victims located.

Fraunhofer IML

proTime Informationslogistik

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2nd Place:

"MasterMind - A virtual brain for medical assistance, healthcare, and life support" **Dr Ernst Pechtl & Johann Geiger, SUPERWISE Technologies AG // Germany**

3rd Place:

"Mega Printer – A robot that prints images in huge proportions in an environmentally friendly way"
Triantafillos Triantafillou // Germany

Tourismusamt München © Bild: Rudolf Sterflinger

The region

Bavaria

The economic region of Munich is one of the top business locations in Europe for aviation, astronautics and satellite navigation, boasting 234 companies and 7 renowned research institutes. With a turnover of EUR 4.7 billion in 2006 and over 15,000 employees in industry and research, aerospace and satellite navigation make a major contribution to the economic power of Munich as a business location. Employees in these industries are highly qualified and specialised, 60% of the staff in aerospace and 83% of those in satellite navigation are university graduates. As a classic high-tech, research-intensive industry, aerospace is constantly providing other industries with significant technological impulses. Satellite navigation, while still young as a commercial industry, is emerging as a sunrise industry with the potential of becoming a key player in the coming years.
Besides big system integrators such as EADS, there are well-known suppliers to the aerospace industry as well as to operations in specialised engineering and machining tools at all tiers of the supply chain in the Munich economic region.
The aerospace and satellite navigation companies in the Munich economic region truly live up to the reputation of their field as being highly research-intensive: On average the aerospace comanies invested 18.9% of their turnover in research and development. That puts them ahead of the national average for the aerospace industry, at 15.8%.
www.bayern.de

source: IHK für München und Oberbayern

The regional organiser

Anwendungszentrum GmbH Oberpfaffenhofen (AZO)

AZO was founded as an incubator to expand Oberpfaffenhofen, an important aerospace location, into a cluster focusing on European satellite navigation. Established in 2001, the AZO-run Application Center for Satellite Navigation has so far seen through the creation of 38 new companies and more than 600 jobs. As of 3rd August 2009, AZO manages the ESA Business Incubation Center Oberpfaffenhofen, Europe's forth ESA BIC. The Free State of Bavaria, the German Aerospace Center (DLR), the European Space Agency (ESA), and local bank Kreissparkasse München Starnberg will contribute EUR 6.3 million toward the aim to support 40 company foundations on location in the next four years. As part of the ESA Technology Transfer Programme (TTP), the ESA BIC Oberpfaffenhofen focuses on incorporating aerospace technology and expertise into start-up companies in new fields of the economy, while benefitting from the direct vicinity to the scientific expertise and development network of the German Aerospace Center (DLR).
www.anwendungszentrum.de

ANWENDUNGSZENTRUM
Oberpfaffenhofen

The regional partners

District Government of Upper Bavaria
www.regierung.oberbayern.bayern.de

Invest in Bavaria
www.invest-in-bavaria.com

Invest in Bavaria
www.invest-in-bavaria.com

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ESNC 2009
REGIONAL WINNER :: Gipuzkoa / Spain

The Winner:
Dr Kutz Arrieta

The Idea:
Freighter Berthing of the Future

DESCRIPTION

Port operations involve a considerable amount of time-consuming tasks and safety gaps. Information and notifications can be stored, connected through networks and synchronised in real time through well-known technologies. Needless to say, there are many different industry applications that can be developed for this side of the issue. As far as positioning is concerned, with GNSS positioning technology (Galileo and EGNOS) we will be able to pinpoint locations precisely, as well as determine the physical characteristics of incoming ships, the port, the docks and ships docked or in motion – all in 3D. 3D imaging and triangulation through Galileo can also automate crane operations during loading and/or unloading. FBF will also facilitate simulations that support training and planning.

INNOVATION

With Galileo, there will be four different navigation services available:

- The Open Service (OS)
- The encrypted Commercial Service (CS)
- The encrypted Public Regulated Service (PRS) and Safety of Life Service (SoL)

In addition, Galileo satellites will be able to detect and report signals from Cospas-Sarsat search-and-rescue beacons in the 406.0–406.1 MHz band, which makes them a part of the Global Maritime Distress Safety System.

TARGET MARKET

Facilitating, securing, optimising and standardising port operations has immediate consequences for the industry surrounding the ports. Therefore, as much as the immediate target market is ports and traders, secondary target markets would almost certainly follow.

- Increased safety margin
- Optimisation of maritime activites
- Interoperability with EU seaway directives
- Real-time monitoring & control
- Identification of primary ship characteristics
- Inclusion of variables into port operations
- Trade-oriented product – cargo & passengers
- International network coordination

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2nd Place:

"CITY-BIKE: Innovating green public transport" **Ion Suberviola, Amaia Añorga Gomez (Fraunhofer IIS), Carlos Abad (Ikusi) & Jon Beguiristain (IBM), Fraunhofer IIS, Ikusi, IBM // Germany**

3rd Place:

"Traffic Management Solution" **Lingga Wardhana, Nuraksa Makodian & Arie Wahyuning Tiyaz // Germany**

© Bild: Iñigo Barandiara

The region

Gipuzkoa

The province of Guipuzcoa, in the Basque Autonomous Community of Spain, has Spain's highest density of universities and research and technology centres, including: seven Institutes for Competitiveness and Cooperative Research, three industrial clusters, three universities, and six renowned research institutes. With a turnover in excess of EUR13 billion in 2008 and over 10,000 highly qualified professionals engaged in industrial research, aerospace, communications, and electronics, this small region has become a hub of technology and innovation.

Behind this profile lies an industrial framework that actively promotes research and is fully supported by both the local public administration and the Basque autonomous government. This foundation enables advanced research in the fields of aerospace, communications, and electronics, which is transferred to partners in the industrial sector and thus brings innovative and competitive products directly to market.

In addition to large integrators such as Sener, IKUSI, and Gamesa, there are many other specialised SMEs that cover the entire supply chain for aerospace, communications, and electronics products.

The regional organiser

Gipuzkoa & Spri

The Provincial Council of Guipuzcoa is committed to deepening its engagement in supporting technological innovation and competitiveness and thereby promoting an environment for industrial development and economic progress.
Aware of the importance of communications and navigation technologies – and that the growth of service industries fundamentally affects the global economy – the Council has fostered a climate for business investment in research and has created several programmes to fund start-ups, assist SMEs, and support research centres. Its principal objective is to promote development in the region through initiatives that encourage economic growth and job creation.
The Bic Gipuzkoa Berrilan Centre for Business Innovation (CBI), founded by the Council and the Basque Department of Industry, is engaged in a complete set of activities aimed at supporting any innovative business initiative and the incubation of new enterprises.

The regional partners

Incubator BicBerrilan
www.bicberrilan.com

SPRI Basque Ministry of Industy
www.spri.es

Cluster TIL ITS Euskadi
www.clustertil.com

Cluster Hegan
www.hegan.com

GAIA
www.gaia.es

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ESNC 2009
REGIONAL WINNER :: Israel

The Winners:
Dr Lahav Gan,
Dr Or Peleg

The Idea:
The Idea: SSAC - Solid-State Atomic Clock on Silicon CMOS Chip

DESCRIPTION

Today, there is tremendous pressure to shrink the size, reduce the price and lower the power consumption of applications in the consumer electronics market. As a result, the trend in this market is to move to system-on-chip (SoC) solutions. SoC integrates the whole electronic circuit on a single silicon chip; a GPS-enabled digital camera, for example, requires small, low cost, and low-power GPS on a chip. Currently, the only component which can not be integrated into the chip is a high-accuracy clock (oscillator).
Dimension4 (D4) develops solid-state atomic clock technology based on a solid-state crystal, rather than gas as in conventional atomic clocks. D4's proprietary technology enables the simple integration of an oscillator in SoC applications. D4's solid-state atomic clock features relatively high-frequency stability and accuracy, low cost, millimeter dimensions, micro-power, and SoC compatibility. D4 intends to deliver the first solid-state atomic clock on a silicon chip to the market.

INNOVATION

Dimension4's solid-state atomic clock generates highly accurate clock frequencies by utilizing energy transitions in solid-state crystal in a similar manner to gas-based atomic clocks. Using solid-state material and employing conventional CMOS processes makes it possible to fully fabricate millimeter-size, low power, and low-priced atomic clock on silicon chips.

TARGET MARKET

The D4 solution addresses the markets for SoC solutions and high-end crystal oscillators, including fields such as GPS, FemtoCells (cellular home base stations), mobile TV, IPTV, 3G cellular applications, military communications, and general telecommunications. These markets have shown tremendous growth in the last couple of years and it are expected to reach more than USD 1.5 billion in 2010.

CUSTOMER BENEFIT

The D4 solution will offer SoC developers the opportunity to incorporate highly accurate clocks into their integrated circuit designs.

- Si CMOS manufacturing process
- Low cost (← USD 5)
- High-frequency accuracy (← 0.1ppm)
- Miniature size (← 0.1cm³)
- Low power consumption (← 50mW)
- Solid-state durability

D4

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2nd Place:

"PERLOC – A personal locator beacon worn on the wrist" **Daniel Katz, Mobit Telecom Ltd. // Israel**

3rd Place:

"Locya – a network of location-based human agents accessible via a central server" **Ran Rubinstein, Locya // Israel**

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The region
Israel

Israel is one of the eight countries within the world space community demonstrating significant technological assets in space programmemes and achievements in GNSS applications, equipment, and the user segment. It has participated in the Galileo programmeme since 2004.

An agreement between the European Union and the State of Israel provides for co-operative satellite navigation and timing activities in various sectors, such as science and technology, industrial manufacturing, and service and market development, as well as standardisation, frequencies, and certification.

The European GNSS Supervisory Authority (GSA) has a bilateral agreement with MATIMOP for industrial cooperation in research and development. The first GIUS-1 call was launched in 2007. Under GIUS-1, seven research projects started in January 2008. A second GIUS-2 call was launched in 2009. Both individual companies and consortia can participate in GIUS calls, which are managed by MATIMOP in cooperation and coordination with the GSA. The contractual and financial requirements set by the Israeli Ministry of Industry, Trade and Labour (OCS) apply to the proposals.

Consortia are strongly encouraged to involve EU partners. However, EU participants cannot be funded directly by these calls and are encouraged to look for other sources of funding (e.g. Eureka, Eurostars, or bilateral R&D programmemes with Israel,). MATIMOP will advise EU participants on relevant funding schemes (contact: Galileo@matimop.org.il).

The regional organiser
MATIMOP

MATIMOP, the Israeli industry centre for R&D, is a non-profit organisation acting on behalf of the Office of the Chief Scientist of the Ministry of Industry, Trade and Labor, which promotes technological and R&D cooperation and technology transfer activities between Israeli and foreign industries.

A member of the Galileo Joint Undertaking (GJU), MATIMOP manages Israeli participation in the GJU and other Galileo projects. Currently, eight projects are running in Israel and a call is open to Israeli and European entities that wish to participate.

MATIMOP serves as Israel's national coordinator in international cooperative frameworks. As such, MATIMOP is Israel's EUREKA project coordinator, represents Israel within Galileo and SERAR activities, and is the country's national contact point in the Enterprise Europe Network.

MATIMOP recently joined the European Space Incubators Network (ESINET) to enhance Israel's aerospace industry involvement in these activities.

In addition to its international activities, MATIMOP administers national programmes including the MAGNET Programme for Generic Research and the National Technology Incubators Programme.

www.matimop.org.il

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ESNC 2009
REGIONAL WINNER :: Lombardy / Italy

The Winner:
Livio Marradi

The Idea:
Open-Platform GNSS Receiver Architecture for High-End Applications

DESCRIPTION

The future availability of different GNSS satellite constellations is leading to the need for navigation receivers capable of jointly managing GPS, SBAS and GALILEO signals and flexible enough to accommodate both future signal evolutions and easy integration with other technologies, such as communication and inertial sensors. This open-platform GNSS navigation receiver architecture, based on SDR and next-generation hardware and software, allows such flexibility and reconfigurability. The end-user client software can run on devices based on defined APIs. The GNSS application supports integration of users' geospatial content databases and user-defined algorithms that enhance device performance or usability for a specific application. The user can access and process three levels of data, including basic I/Q digitised samples, raw measurements, and full navigation and integrity output. The open platform is a miniaturised, reconfigurable, single-board dual-frequency receiver that offers pre-installed core-navigation software libraries covering typical user accuracy and integrity requirements for a wide range of safety-of-life and professional navigation, positioning and timing applications.

INNOVATION

Solutions available on the market are typically closed, black-box products that process predefined signals and frequency bands. The proposed architecture is reconfigurable to virtually any GNSS signal and frequency band and able to host user-defined algorithms and software to carry out a specific application, reducing the need for additional external hardware or software resources.

The platform is targeted toward high-end professional and safety-of-life applications. It facilitates access to the different levels of data generated by the receiver.

TARGET MARKET

The solution's target market involves safety-of-life applications in rail, air, and sea transport, as well as professional regulated applications ranging from geodetics to railway monitoring and surveying, train supervision & diagnostic applications, infrastructures monitoring, emergency service applications.

CUSTOMER BENEFIT

Users can easily access GNSS data at different levels, as well as customise and configure the device for specific applications. The solution provides a robust, reliable and accurate GNSS sensor device also usable in regulated services or systems requiring certification. The GNSS sensor is capable of processing all GPS/SBAS/Galileo signals.

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2nd Place:

"SITT 2: Implementing EGNOS and EDAS technology to monitor the transport of special and green waste" **Ivan Allevi, Roberto Conforto, Carlo Caffi, Christian Allevi, Giorgio Soldavini & Eliseo Bianchi, tscm srl // Italy**

3rd Place:

"Fast food delivery all over the world" **Claudio Palestini & Giovanni Emanuele Corazza, University of Bologna // Italy**

Photo: Ulrike Zöllkau

The region

Lombardy

The Lombardy region is one of the 21 regions of Italy, with a population of 9,650,000 (2006) inhabitants and an area of 23,861 sq km . (7.9% of Italy). The capital city is Milan. Lombardy has its own constitution, on which Lombardy`s "Consiglio regionale" and Executive Government are based. The Lombardy region has 12 provinces and 1,546 municipalities. Lombardy's GDP is EUR 305.5 m (2006), corresponding to 22.2% of Italy's total GDP. Lombardy is Italy's leading region in terms of innovation and is well situated with respect to the international market:

- Investment in R&D amounts to 1.27% of the regional GDP
- It is home to 12 universities and the highest number of lecturers and researchers in Italy, amounting to approximately 7,500 people
- Of Lombardy's investments in R&D, 74% come from private enterprises
- Of the patents filed by Italians with the European Patent Office over the last 10 years, 40% have been from Lombards.

www.regione.lombardia.it

RegioneLombardia

The regional organiser

Navigate Consortium

Navigate Consortium, managing new aerospace initiatives and applications, (including"Navigation Innovation"), is Italy's coordinator of the European Satellite Navigation Competition 2008, with the support of Regione Lombardia. Founded in Milan (via Brera 16) in 1989, Navigate Consortium's first mission was to combine its partners' forces in order to compete in international tenders, mainly concerning online database architecture (Engineering Group, Machiavelli Group) and process automation (ABB Asea Brown Boveri).

The aerospace sector was then targeted as Navigate's main area of business, due to new, important initiatives occurring at the international, European, national and local levels. The Consortium started an aerospace task force and opened its membership to the most important Italian aerospace companies .
In 2001, Regione Lombardia gave the Consortium a new formal assignment: to promote regional aerospace initiatives for Northern Italy.

Partner companies of Navigate Consortium: Carlo Gavazzi Space, Elea, Intecs, Engiweb Security, Euroways Orni, Altran Italia, Telespazio, Thales Alenia Space Italia.

www.navigateconsortium.it

NAVIGATE CONSORTIUM

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ESNC 2009

REGIONAL WINNER :: Prague / Czech Republic

The Winners:
Vaclav Kolcava, Dr Jaroslav Jansa, Jan Korec, Richard McPartland

The Idea:
INPRESOL - Integrated System for Prenatal Monitoring of Pregnant Women

DESCRIPTION

The integrated online prenatal care system INPRESOL is an electronic solution designed to monitor pregnant women and subsequently conduct automated analysis of collected data. In combination with other available pregnancy data, INPRESOL helps medical specialists identify imminent premature deliveries in time. The proposed system is based on the use of continuous external tocography covered by monitoring, recording and subsequent evaluation of pressure fluctuations within the uterus with respect to changes of position. Data on uterine activity and imminent premature delivery have been statistically proven to be up to 92% correlative. The new feature of this system is its use of sophisticated remote monitoring. This facilitates the transmission of tocographic data from body sensors via the new communication infrastructure SENSIUM – developed by the UK company TOUMAZ Technology.

INNOVATION

Currently available prenatal care solutions typically only involve offline procedures and thus require physician house calls or hospital visits. Some existing remote monitoring systems use ultrasonic sensors, which are far from optimal for long-term use from a medical perspective. INPRESOL uses fine conventional pressure sensors that have no harmful effect on the fetus. As the first remote prenatal monitoring system, INPRESOL makes it possible to monitor vital signs not only "anytime", but also "anywhere". Its three main features are: automatic analysis of collected data, automatic diagnostics, and high-tech, web-oriented GNSS technology.

TARGET MARKET

According to the World Health Organizaton (WHO), there is a huge market for systems that can improve the situation of the considerable number of high-risk pregnant women. Even a partial solution to this problem would improve many lives. From a financial point of view, every week of normal pregnancy saves hospitals and health insurance companies EUR 2,000. There are several hundreds of thousands of at-risk pregnant women in the EU.

CUSTOMER BENEFIT

INPRESOL is an advanced system of home prenatal monitoring. Home care may help reduce healthcare costs. As an example of the possible financial benefit for healthcare insurance companies, US statistics show that out of approx. USD 10 billion spent every year on postnatal care, 57% was disproportionately consumed by a mere 10% of infants who were born premature. Home care may help reduce costs and continue to provide a safe and satisfactory means of monitoring pregnancies.

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The region

The Czech Republic

Prague is both the capital city of the Czech Republic and its political, economic, and cultural centre. Economic activity in the city of Prague creates, on a sustained basis, almost one-fourth of the country's GDP. The city of Prague is an intellectual centre of the Czech space industry. It is home to many firms, institutions and research institutes dealing with astronautics and space technologies.

Space exploration and research have a long tradition in the Czech Republic. The Intercosmos 1, launched on 14 October 1969, was the first satellite carrying instruments developed in the former Czechoslovakia. Several dozens of Czech instruments and systems have been employed over the last 20 years of space project activities, covering terrestrial environment explorations as well as planetary missions. The Czech Republic is now the 18th member of the European Space Agency. The main objective of its national space activities is to participate in as many European space programmes as possible. The Czech Republic is a place of excellence for aeronautics, space technology, satellite navigation, Earth observation, geoinformation systems, and aerospace research. A further specific goal of the country's space activities is to maintain and further develop knowledge and skills already gained in various space-related fields, both in research and industry. This makes the Czech Republic a reliable partner for mutually beneficial international scientific and industrial cooperation. In parallel, these capabilities contribute to the establishment of space-based systems for the benefit of the user community of the Czech Republic. The key sectors of the country's space activities are astronomical studies; magnetospheric, ionospheric and atmospheric research; remote sensing and the Earth observation; microgravity research experiments; and competitive industry production, including small satellite construction.

www.czech.cz

The regional organiser

Czech Space Office

The Czech Ministry of Transport is a central administrative body responsible for the creation of national transport policy, as well as its implementation within the scope of its competence. The Ministry of Transport has a governmental mandate concerning the participation of the Czech Republic in the European satellite navigation programme GALILEO and plays the role of national coordinator in the field of satellite navigation development. The Ministry of Transport supports and finances research and demonstration projects focused on the field of satellite navigation. In the period of 2001-2006, its most important research project (with a total budget of EUR 2.6 m) involved pilot tests dealing with GNSS receivers, including their utilisation in practice.

www.czechspace.cz

The regional partner

Ministry of Transport of the Czech Republic

www.mdcr.cz

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ESNC 2009
REGIONAL WINNER :: Switzerland

The Winner:
Prof. Dr Guido M. Schuster

The Idea:
EveDars – Energy-Efficient Vehicle Driving and Routing Solution

DESCRIPTION

EveDars is an on-board navigation device that enables energy-efficient vehicle driving and routing. EveDars offers energy-efficient driving style suggestions, instant feedback on power usage, and minimum-energy routing capabilities. Adhering to the driving-style suggestions of EveDars and following the most energy-efficient route the solution suggests can result in energy savings of up to 25%. EveDars is a new kind of on-board navigational device that uses a physical model of the vehicle to estimate currently used power in real time. Furthermore, EveDars builds a driver model which is able to predict a velocity and acceleration profile of a given driver, vehicle, and road. Displaying the estimated current power to the driver enables him or her to drive in a more efficient way. In addition, EveDars suggests a different driving behaviour based on the estimated current power and the road and vehicle conditions at hand. Besides displaying the current power and suggesting different driving behaviour, EveDars also uses a driver model, a vehicle model and a topological map to estimate the energy required to accomplish a particular driving task. Based on this information, EveDars is capable of finding the lowest energy route between two points, thereby offering unprecedented routing functionality.

INNOVATION

The main innovation of EveDars is its minimum energy routing capability, which is based on a learned driver model, an estimated vehicle model and a topological map. Using EveDars, a given vehicle and driver can complete a particular driving task using as little fossil fuel as possible. Experiments suggest that up to 25% of fossil fuel can be saved by selecting the most efficient route and driving according to the instructions suggested by EveDars.

TARGET MARKET

EveDars can be used in any road vehicle, and will thus be of interest to both consumers and/or fleet operators. Fleet operators can use EveDars to compare and analyse the particular driving styles of their different drivers and subsequently train less efficient drivers to improve the overall efficiency of the fleet.

CUSTOMER BENEFIT

The main customer benefit of EveDars is a significant reduction in fossil fuel consumption based on selection of the most energy-efficient route. Furthermore, the real-time vehicle power display provides the operator with immediate driving-style feedback. In addition to this feedback, EveDars also provides suggestions on how to improve one's driving style.

ICOM Institute for Communication Systems
EIN INSTITUT DER HSR HOCHSCHULE FÜR TECHNIK RAPPERSWIL

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2nd Place:

"Read signs everywhere"
Kilin Alexey, West Siberian Railways // Russia

3rd Place:

"Assistis – a complete geo-platform solution for location-based healthcare and other medical services" **Dr Quentin Ladetto, Fabio Lo Curto, Véronique Constantin, Gérôme Bovet & Emmanuel Küng, Novasys SA // Switzerland**

The region

The Zürich Region

Zürich is one of the world's strongest economic locations, offering moderate taxation, attractive conditions for companies, an excellent telecommunications infrastructure, and leading educational institutions. A recent renewed increase in immigration has confirmed that the region's level of attraction for both people and firms remains high.
In the Zürich region, innovation is viewed as the key to success – measured in terms of growth, prosperity, employment, and quality of life – at every level of the economy and society.

Relative to its domestic production, Switzerland invests more than average in research and development and ranks among the top in comparison with other advanced OECD countries. The vast majority (73.7%) of Switzerland's R&D expenditures are borne by its private economy. This share is well above the European average.

The Zürich region has access to a deep pool of labour in industries with excellent innovation potential. Even in the market for highly innovative products, the region more than holds its own and achieves a high degree of value creation intensity. Of the products Switzerland exports to international markets, 73% are innovation-intensive.

Thanks to their services' focus on value creation and technology, the traditional industrial locations in the Zürich economic region maintain an excellent position on the global stage.
www.greaterzuricharea.ch

The regional organiser

clusteraviatik.ch

The non-profit organisation clusteraviatik.ch is part of the "entwicklungschweiz" association which has the aim to develop and to maintain sector-specific networks. Part of clusteraviatik.ch are academic and research organisations as well as companies in the field of aerospace technologies and applications like satellite navigation. clusteraviatik.ch supports actively the access to attractive markets of the future and strengthens the competitiveness of the Swiss research and industry.

At the moment the initiative is supported by the Cantons Zurich, Nidwalden and Luzern, the Swiss Space Association and, on a case by case basis, by sponsors. clusteraviatik.ch is not primarily for the "big players" but supports especially SMEs and applied research. Special focus is set to the support of pupils to support them in their decision to become engineer or natural scientist.
www.clusteraviatik.ch

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ESNC 2009

REGIONAL WINNER :: South Holland / The Netherlands

The Winners:
Erwin Marges, Stefan Zhelyazkov, Georgos Valaouras

The Idea:
SnowMate - Alpine Assistant

DESCRIPTION

Among the many challenges of winter sports, avalanches still remain the most severe threat in the mountains. They take the lives of around 200 people every year. Despite the numerous technological advances in tracking and location, the majority of winter sport enthusiasts remain exposed to such dangers. Factors such as price, complexity and functionality have prevented the existing safety devices from attaining high levels of market penetration. Our company designed SnowMate Alpine Assistant to address this market niche. It combines GPS and Galileo with a radio transmitter to send its current position to neighbouring devices. Designed as a multi-node device, it enables your friends to be the first line of aid in case of an avalanche or other accidents.

GNSS devices can have numerous applications apart from vital life-saving implementations. SnowMate makes full use of the technology while providing you with all the fun benefits of GNSS. It can log your journey by recording your route, speed, height profiles, and more.

INNOVATION

SnowMate combines well-known positioning technologies such as GPS and Galileo and breaks new ground in their application and implementation. By adding a radio transmitter, position information can be transferred to neighbouring SnowMate devices, which can then accurately visualise the location of any device within range.

TARGET MARKET

SnowMate focuses on both young and more mature skiers who prefer not to spend over EUR 300 on a professional avalanche rescue device they might never use. SnowMate is a user-friendly tool that offers added recreational value at a reasonable price, making it the ideal device for this market.

CUSTOMER BENEFIT

SnowMate customers will enjoy the benefits of easy and accurate localisation capabilities (in case of avalanche and other accidents) together with a variety of features that provide a wide range of statistical data on your outdoor adventure. The highly competitive price makes SnowMate affordable even for customers with very limited budgets.

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2nd Place:

"AlarmBuoy"
Ir Huub Janssen & Marisya Janssen, Janssen Precision Engineering // The Netherlands

The region

South Holland

Zuid-Holland (South Holland) is a bustling, multifaceted province. It is home to 3.5 m people, who inhabit an area of around 2,900 sq km. This makes it the most densely populated of the 12 Dutch provinces, with 1,220 inhabitants per sq km.

The ambition of the province of South Holland is to become an international leader in innovative business. The potential is fully present: the province of South Holland has enough entrepreneurs, research institutions, educational institutions and government institutions with an existing head start in the knowledge arena. South Holland has various centres of knowledge and expertise, including three universities in Leiden, Delft and Rotterdam, the TNO research laboratories, ESTEC and the Innovation Centres. South Holland is the country's most important province in terms of economy, agriculture and the provision of services. It is a hive of activity, criss-crossed by a busy network of roads, railways and waterways. Rotterdam with its mainport is South Holland's largest city.

www.zuid-holland.nl

The regional organiser

Kennisalliantie

The purpose of the Kennisalliantie is to add impetus to innovative industry in the province of South Holland. While the entrepreneurs, the research institutions, educational institutions and the government institutions are already operating innovatively in their own respective fields, real progress in the knowledge economy demands real cooperation. The aim of the Kennisalliantie is to bring the group of actors together. Literally and figuratively. The initiatives of the Kennisalliantie generate inspiring interaction between the four partners. And it also creates new initiatives within each of the group of actors.

The Kennisalliantie is an independent platform for cooperation between educators, explorers, enterprise, and executives of the authorities. Its independence renders it extremely suitable for acting as an intermediary.

www.kennisalliantie.nl

The regional partners

Logica

www.logica.nl

European Space Agency (ESA)

www.esa.int/ttp

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ESNC 2009
REGIONAL WINNER :: Taiwan

The Winners:
Yi-Cheng Chung, Chi-Chun Chen

The Idea:
ShadowGuide: Group-Guiding Solution Combines Leisure and Peace of Mind

DESCRIPTION

Have you ever forgotten where you parked your car just a few hours before? Have you ever joined a tour group and arrived at an unfamiliar place where you were never able to fully enjoy the sights for fear of missing the next meet-up or losing your tour guide? Have you ever been worried whether you or others in your group would receive first aid in time if an accident were to occur on the trip and your cries for help were left unanswered? Suppose there was a device as compact and mobile as a watch that could guide you to your destination, tell you your location, and send a distress signal if needed; surely this would provide a solution to the travesty of wasted time – ShadowGuide!

ShadowGuide is a client-host system for carefree group guidance based on a GNSS-enabled wristwatch that communicates wirelessly with other clients and the host via Family Radio Service (FRS). ShadowGuide can show comparative distances and directional relationships between the user's current destination and other recorded destinations. Within an approximate range of three kilometres, ShadowGuide can pair up with a handheld navigation device (Team-Commander) with world map data capacity and create a network group environment.

INNOVATION

Revolutionises positioning devices by facilitating compact, real-time, location-based, and locally networked interactive content. Telecommunication independence enables group members to communicate with each other freely by radio frequency. Static and dynamic point tracking familiarises client users with self-edited waypoints and host locations, as well as other members.

TARGET MARKET

This system was essentially designed to provide groups travelling abroad with a safe and easy-to-manage service. Most other GNSS products have yet to extend their application to that of an interactive host/client model suitable for the tourism industry, educational institutions, outdoor activity agencies, and individual use.

CUSTOMER BENEFIT

- Destination awareness: A precise direction and distance indicator helps find the way back to favourite points and the host.
- Schedule awareness: Arrive at any specified location on time.
- Host and client connectivity: Add networking to any group activity.
- Life saving and safety: Travel with confidence, knowing that ShadowGuide is ready to emit S.O.S signals anywhere in case of emergency.

ITRI
Industrial Technology Research Institute

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2nd Place: Turtle Tracker "**Kun Wu, Wen-Yang Peng, Nan-Ping Lu, Wei-Ting Lan // Taiwan**

Finalists: "PADER – A proactive & immediate system for emergency vehicles" **Alan Lin // QUANTA COMPUTER INC.** • "HEPHALEO – Hephaestus with Galileo" **Jung-Huang Liao & Tsui-Ju Peng // ITRY** • "Covers every reason why you might need an accident alarm" **Theresa Cheng** • "The GPS BOOK is a new location-specific and semi-real-time communication method based on mobile phones." **Chun-Pin Tseng** • "A brand-new channel that uses a geographic coordinate system to provide electronic advertisements" **Feng-Hui Kuan // ITRI, Hsiao Fen Kuo // SOHO** • "TravMate – Stay connected with locals and new friends while travelling" **Hui-Kuo Yang, Yu-Hsiang Chuang, Che-Wei Liang, Chi-Chun Kao, Bo-Wen Wang & Shih-Wen Chiang // ITRI**

The region
Taiwan

Taiwan, also known as Formosa (meaning "beautiful"), is located near the southeastern coast of China. Not particularly big in size,Taiwan's pivotal geographic location and excellent infrastructure nevertheless offer an optimal strategic transit point for multinational companies seeking to enter the Asian market.

Thanks to its innovative management and an extraordinary strong backbone of SMEs, Taiwan became a knowledge-based economy in the 90's. Today Taiwan is home to uncountable high-tech necessities of a modern man - notebook pc, digital camera, mobile phone, MP3 etc. Taiwan is a key player in semiconductor, electronics and terminal devices. It is also one of the largest manufacturers of GNSS products. Taiwan is gearing up efforts to further strengthen that position, among others, by joining ESNC and forming a research alliance of the complete navigation industry chain to promote services and applications.

www.taiwan.net.tw

The regional organiser
ITRI

ITRI is Taiwan's leading research institute for technology advancement. ITRI is a non-profit R&D organization financed in equal measure by Taiwan's Ministry of Economic Affairs and the industry. Since its inception in 1973, ITRI has functioned as an incubator for many of Taiwan's industries, including microelectronics and ICT. ITRI has hosted over 300 start-ups since it began its incubation program and opened labs in 1996. In recent years, ITRI has evolved from a technology developer into a value creator. With over 30 companies delivering GNSS products worldwide, Taiwan is one of the most important contributors to the industry. ITRI's rich incubation experiences, coupled with Taiwan's unique strength in commercialising R&D results, has made Taiwan a highly attractive place for those seeking turn their entrepreneurial dreams into business realities.

www.itri.org.tw

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ESNC 2009

REGIONAL WINNER :: United Kingdom & Ireland

The Winners:
Rachel Jacobs, Toby Barnes, Matt Watkins, Charles Hunter

The Idea:
Heartlands - Locative Bio-Sensing Gaming

DESCRIPTION

Heartlands is a mobile locative game that uses your body as a joystick. Your changing heartbeat and exact position on the planet interact with the landscape, soundtrack and other players playing in the same location as you. The innovative technologies involved in this project cross the market sectors of health, gaming and education. Heartlands involves a heart rate monitor and uses GPS tracking as a player walks for 30 minutes outdoors; the current game prototype works on GPS-enabled phones with Bluetooth and GPRS capabilities. Mudlark's game platform supports a wide range of locative and mobile sensory games for mobile devices that encourage people to become more active. The Heartlands game and platform merges location tracking with biosensor technology to form a new genre of mobile gaming. Making games real – playing life.

INNOVATION

THE NEED TO GET OUT MORE - Heartlands eliminates any need to press buttons; to play on a GPS-enabled mobile phone, all you need to do is connect the heart rate monitor, start the game and walk outdoors.

THE HEALTH AND EXERCISE ITCH – The game encourages players to explore their environment and take part in discontinuous exercise, all while teaching them more about their own health and fitness as they play.

TARGET MARKET

The target market is the 16-30 audience, who will be excited by Heartlands' pervasive technology and keen to engage in social gaming on the move. Heartlands is people-focused; people can choose to play competitively against each other or participate as they go about their everyday lives. The game is accessible to a wide range of mobile phone users because it is visually and aurally compelling, but does not rely on complex graphics or narrative.

CUSTOMER BENEFIT

Heartlands has the potential to attract a wide market across genders, world regions and ages. Heartlands encourages players to explore their environment whilst playing with other people and learning about their bodies based on their heart rate. The game can be played on a smart GPS-enabled mobile phone with the addition of a Bluetooth heart rate monitor.

mudlark

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2nd Place:

"The Search Pattern Calculator: electronic device to compute and manage search patterns at sea."
Glen Goodey, Seaquip // United Kingdom

3rd Place:

"EcoCourier – using Intelligent Software Agents to facilitate freight back-hauling."
Dr Adrian Gordon, Mimosa Wireless Ltd. // United Kingdom

The region

United Kingdom & Ireland

The UK aerospace industry is the second largest in the world with a turnover of EUR 29 billion, investment in research and development of over EUR 3.5 billion, and around 200,000 employees. The space element in the UK accounts for circa EUR 7 billion in turnover and is the world's leading capital market for financing satellite applications; it also includes the world's most profitable global provider of mobile satellite communications and Europe's most successful satellite-based TV broadcaster. Nevertheless, the UK space industry also has a significant element of smaller enterprising downstream companies that benefit from the Galileo competition and contribute to the creation of new applications. These applications have an impact on environmental and social problems as well as the capability of major aerospace companies to enhance their business. The environment and transport sectors alone are estimated to benefit indirectly by EUR 22 billion per annum. UK space is a broad market area that is truly influencing society today and making a better future by fostering the development of innovative ideas throughout the European economy.

The regional organiser

HBIC - European Space Incubation Centre (UK)

In 2009, HBIC has been an independent company providing business support, project management, and knowledge transfer to knowledge-based businesses around ICT, space, and aerospace across the UK and internationally. It has been a member of the European Space Incubation industry (ESINET) through the European Bic Network (EBillion) and the European Space Agency (ESA). HBIC has links to a diverse range of partners in areas of technology transfer, knowledge transfer, and access to finance. HBIC has also provided business development assistance to start-ups and other early-stage companies in fields ranging from funding to IP and corporate development. In 2010, the primary role of this UK organisational company will shift to the GNSS Research Application Centre of Excellence (GRACE), which is based at the University of Nottingham and boasts its own incubation centre and testing facilities dedicated to satellite navigation. It is hoped that the legacy of HBIC may give rise to a second UK region based in the south of England.
www.hertsbic.co.uk

The regional partners

EADS Astrium www.astrium.eads.net
East of England Development Agency www.eeda.org.uk
GRACE www.grace.ac.uk
Scott & York Intellectual Property www.scott-york.com
Technology Strategy Board www.innovateuk.org
Thales www.thalesgroup.com
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The Winners:
Juan Barba Polo, Philippe Serruys

The Idea:
Development of Smart Wireless Microsensor GNSS Network for Disaster Monitoring

DESCRIPTION

The successful tandem of microsensor networks and GNSS-EGNOS technologies is likely to enjoy one of the greatest technological and commercial successes in the next decade. Collecting huge amounts of data from an intelligent microsensor network is useless without the means to analyse this information in a spatial way. For most emergency and risk management applications, the microsensor network will rely on the availability of GNSS-EGNOS positioning. These networks consist of electronic devices capable of registering information from the environment in which they have been disseminated, processing it, georeferencing it using GNSS, and transmitting the data wirelessly to its destination. One of the most interesting fields of application is the temporal and spatial observation of certain physical phenomena, such as temperature, humidity, pH, toxins, and brightness. Typical examples of such phenomena include the monitoring of forest fires, contaminating emissions and red/black tides.

INNOVATION

Unlike previous systems, the microsensor network is no longer limited to just receiving information and sending it to the borders of the network for processing. This network is intelligent in its ability to apply different types of processing to measurements. The obtained model will be known by all nodes in the network such taht each node can deliver information about the entire network – conveniently georeferenced by GNSS-EGNOS systems – at any time.

TARGET MARKET

The product is oriented towards governmental organisations that manage crisis situations such as forest fires, gas leaks, toxic waste, and red/black tides. It also targets private companies (chemicals, oil and gas, nuclear, and so on) that are exposed to this kind of event and thus subject to the SEVESO II directive. In addition, military applications focused mainly on surveillance may be considered.

CUSTOMER BENEFIT

This network's innovative characteristics are of special interest for tasks in disaster management in which the lives of people working in affected areas could be in danger. The "smart" network complements other data sources – our Remote Sensing Monitoring System, for example – and could also be deployed inaccessible areas from our UAV system, making it possible to obtain data crucial to better and faster decision-taking on evacuations, escape routes, and other vital issues.

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2nd Place:

"LeadLine: A personal guidance system assisting persons with reduced visibility to follow paths" **Antonio Olmedo Soler, Rafael María Olmedo Soler, Olmedo Knowledge Systems S.L. // Spain**

3rd Place:

"ANGELS: Rapid and effective attention and information services in emergency situations " **Angel Martinez-CaveroJuan Pablo Lazaro-Ramos, ITACA // Spain**

The region

Valencia

The Valencian Community is an Autonomous Community located in central and southeastern Spain. It is divided into three provinces, from south to north: Alicante, Valencia and Castellón. It has 518 km of Mediterranean coastline and its 23,259 sq km of land are home to 5.02 m inhabitants (2008). The high concentration of companies manufacturing materials and components in the Valencian industry has evolved with the incorporation of new technologies and expertise, which in turn has led to the emergence of a productive and highly specialised intensive research sector increasingly oriented toward the aeronautical-aerospace business. This is evidenced by the regional government's investment policies in research and development, currently estimated to total EUR 1.3 billion in 2009.

The R&D landscape of the Valencian Community is formed by three main players:

- The Universidad Politécnica de Valencia (UPV), which includes several R&D groups and institutes with extensive experience in aerospace and satellite navigation
- The Valencian Community Network of Research & Development Institutes (REDIT). Combining a wide variety of technological services and integrated and efficient innovations with the experience of its Technological Institutes, REDIT has created a valuable nexus for its companies. REDIT offers its members a complete network of highly qualified individuals and advanced technological infrastructures driven towards promoting a solid and competitive industrial web.
- The Valencian Community Aerospace Cluster, which was formed in 2007. The objective this cluster is to promote business in Valencia by bringing together the activities involved in the production of goods and services for the aeronautical and aerospace business. At the same time, the cluster maintains its role in helping Valencian companies increase their level of competitiveness and innovation within this sector.

The regional organiser

IMPIVA – GENERALITAT VALENCIANA

Through IMPIVA, the Regional Ministry of Industry, Commerce and Innovation reinforces its commitment to innovation and the development of new technologies and resources in order to improve enterprise competitiveness. The Valencian Institute of Small and Medium-Sized Industry (IMPIVA) is a public entity of the regional government of Valencia (Generalitat Valenciana) that is responsible for the implementation of its industrial promotion policy in the sphere of small and medium-sized enterprises. It was created in 1984 as an initiative of the Regional Ministry of Industry, Commerce and Innovation. The aim of IMPIVA is to drive the process of innovation in the industries and enterprises of the Valencian region as a fundamental strategy for enhancing competitiveness. In order to fulfil this objective, IMPIVA offers a series of services and annual action plans to support industrial SMEs while promoting a network of technical support infrastructures for innovation. This network consists of Technological Institutes and European Business Innovation Centers (BICSs), locally known as CEEIs.

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Fourth ESA Business Incubation Centre established in Oberpfaffenhofen, Germany

The Free State of Bavaria, the German Aerospace Center (DLR), the European Space Agency (ESA), and local bank Kreissparkasse München Starnberg have opened an ESA Business Incubation Centre (BIC) in Oberpfaffenhofen, a major hub of aerospace research, operations, and industrial activities near the city of Munich, Germany. Oberpfaffenhofen is the fourth ESA BIC site in Europe.

The goal of this new business incubation centre – which is managed by Anwendungszentrum GmbH Oberpfaffenhofen (AZO) – is to support 40 company foundations on-location in the next four years.

At the core of the ESA BIC Oberpfaffenhofen service portfolio is its StartUp Program, which will provide up to two years of financial, technical, and networking support throughout the entire process of company foundation – from formulating an initial concept to opening for business. During the incubation phase, AZO will place its comprehensive infrastructure at company founders' disposal, including state-of-the-art offices, communication equipment, and corresponding services.

Any entrepreneur who can submit a promising company concept aiming to develop and market products or services based on aerospace technologies and infrastructures is eligible for participation.

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