Cambridge Wireless Location Based Systems/Services SIG

"Locations and Beyond: Knowing where you'll be tomorrow (means so much more)"

Sponsored by: CSR

23rd October 2013

*The Location SIG is championed by **Nicolas Graube** of **CSR**, **David Bartlett** of **Omnisense**, **Nigel Wall** of **Climate Associates** and **Andrew Matthews** of **Nokia Research Centre, Eurolab***

Venue – The Conference Centre, The British Library, 96 Euston Road, London, NW1 2DB

AGENDA

12:00	**Registration** over Networking Lunch
13:00	**Introduction and Welcome** by Cambridge Wireless Location Based Systems/Services SIG Champion, **David Bartlett** of **Omnisense**
13:10	**Welcome from our Sponsor, Hamid Ahmadi, VP/Chief Innovation Officer, CSR**

Session chaired by SIG Champion, **Nicolas Graube** of **CSR plc.**

13:30	**State of the Art: Inertial and Opportunistic Positioning**
	Dr Rob Harle, Computer Laboratory, University of Cambridge
	Rob's talk will review the latest advances on infrastructure-free indoor positioning using inertial and opportunistic positioning. It will discuss the use of commodity smartphones as the core positioning device and the associated algorithms such as SLAM that are gaining popularity.
13:50	Q&A
14:00	**State of the Art: Vehicle Tracking**
	Simon Reed, Head of Technical Services Group, **Transport for London**
	TfL accurately tracks 8500 public service vehicles on one of the world's largest metropolitan bus networks. The technology feeds a host of back office services, from service control to paying bus operators £1.6bn annually for the services operated. In 2012, TfL launched an Application Programme Interface (API) that feeds this operational data – the predicted arrival data and service information – to third parties for the development of smartphone 'apps' , research and development projects. Simon will outline the technology used and share the experience and business benefits TfL experienced with the API operation.
14:20	Q&A
14:30	**Fast Pitch Session:** Companies will each have 3 minutes to pitch to the Auditorium
	• **TravelAI** – Andreas 'Zac' Zachariah
	• **Omnisense** – Andy Thurman
	• **Passive Eye** – Jerome Rush
14:40	**Refreshments Break**

Session chaired by SIG Champion, **David Bartlett** of **Omnisense**

15:10	**When Location is Everything, you would be lost without it**
	Olaf Baars, Chief Fire Officer, **Royal Berkshire Fire and Rescue Service**
	In a world of variables and uncertainty, there can be little more reassuring than a geospacial reference. It is hardly surprising then, that the world of the emergency services revolves around location. The presentation will provide some insight into quite how mission critical location is for the emergency services. Unashamedly focusing on the fire and rescue service, the presentation will cover all three emergency services. It will identify how location data currently contributes to emergency service operations and draw out some of the existing challenges where location can be critical to effective operations and life itself.
15:30	Q&A

15:40	**The Possibilities of Prediction**
	Mirco Musolesi, Senior Lecturer, **School of Computer Science - University of Birmingham**
	Mobile phones are increasingly equipped with sensors, such as accelerometers, GPS receivers, proximity sensors and cameras, which can be used to sense and interpret people behaviour in real-time. Novel user-centered sensing applications can be built by exploiting the availability of these technologies. Moreover, data extracted from the sensors can also be used to model and predict people behaviour and movement patterns, providing a very rich set of multi-dimensional data, which can be extremely useful, for instance, for marketing applications, real-time support for policy-makers and health interventions. In this talk I will discuss the scenarios that are opened by the emergence of this new paradigm of mobile anticipatory computing, presenting the challenges and the opportunities in this new field.
16:00	Q&A
16:10	**Debate on the motion:** *'Prediction will enhance services so they are relevant to the "here" and "now"'* - chaired by SIG Champion, **Andrew Matthews** of **Nokia Research Centre**
	All speakers will have two minutes to state their position
16:20	**Open Debate** including all speakers and delegates
16:50	**Concluding Remarks** by SIG Champion, **Nigel Wall** of **Climate Associates**
17:00	Event Close

With the permission of the speakers, presentations will be loaded to the Cambridge Wireless website on the day after the event

Profile of Organiser

Cambridge Wireless

Cambridge Wireless is a leading industry forum and vibrant community with a rapidly expanding network of companies actively involved in the development and application of wireless technologies. In addition to high level networking dinners, educational events and business development activities, Cambridge Wireless runs an annual Future of Wireless International Conference along with the Discovering Start-Ups initiative to support emerging, innovative wireless companies. Over 15 Special Interest Groups focused on specific technologies and market sectors, also provide opportunities for members to meet, form partnerships to exploit new commercial opportunities, and share knowledge and information about the latest industry trends and hot topics. Cambridge Wireless has partnerships with other leading industry clusters and organisations around the world to extend its international reach and to keep members up to date with the latest global developments and business opportunities. For further information, please visit www.**cambridgewireless**.co.uk

Profile of Sponsor

CSR plc

CSR is a global provider of innovative silicon and software solutions for the location-aware, media-rich, cloud-connected world. Our platforms are optimised for the automotive navigation and infotainment, digital cameras and imaging, connected home infotainment and wireless audio markets. We provide solutions to complex problems in the audio-visual, connectivity and location technology domains across a broad range of markets, with a technology portfolio that includes GPS/GNSS systems, Bluetooth®, Wi-Fi®, FM, NFC, aptX® and CVC™ audio codecs, JPEG, MPEG, H.264 imaging, PDL printing, microcontrollers, DSPs and broadband receivers. CSR's technology solutions and market platforms enable its customers to deliver a superior user experience and are adopted by leaders in the auto, computer, home and mobile markets. Keep up to date with CSR on our blog, YouTube or follow us on Twitter at twitter.com/CSR_plc For further information, please visit www.**csr**.com.

Profile of SIG Champions

David Bartlett, Omnisense

David Bartlett has specialist knowledge in the fields of location technology, wireless communications and digital imaging. Omnisense supplies real-time location and tracking systems (RTLS), technology and services based on its patented sparse-wideband (SWB) technology. The technology is extremely reliable and the entire system can be deployed without need for wired infrastructure (wireless). As such the system can be deployed rapidly and is fully transportable to different sites. For further information, please visit www.**omnisense**.co.uk

Nicolas Graube, CSR

Nicolas Graube is leading the advanced location algorithms group at CSR. Directly reporting to the Chief Innovation Officer, this group is tasked to cover all aspects of in-doors location technologies, present and future, within the organization. Expertise in the domain of location has been gained over a period of more than twenty years, starting at Cambridge EuroPARC in the early 90's, using Olivetti's Active Badges, then more recently providing Location Solutions in the Cellular domains (GSM,UMTS), and presently addressing in-doors challenges using both WiFi and Ble. Particular interest of the group is in the domain of usage of location with constrained infra-structure, in public and enterprise spaces, using stock hardware. For further information, please visit www.**csr**.com

Dr Andrew Matthews, Nokia Research Centre, Eurolab

Andrew Matthews is senior business development manager responsible for creating commercial strategies for emerging technologies developed within Nokia Research Center in the UK, Switzerland and Russia. Andrew studied engineering and later went on to complete a PhD in ion implantation, receiving a Royal Society Fellowship to continue his research in RIKEN, Japan.

Following completion of his studies, Andrew has spent the last twenty years in international sales, product innovation and business management, focussing primarily on sensor and telecommunication technologies. During this period Andrew has held a variety of director level roles, providing strategic vision to companies ranging in size from start-ups to multi-nationals. For further information, please visit **research.nokia**.com

Nigel Wall, Climate Associates

Nigel Wall is an independent system engineering consultant and Director of Climate Associates Ltd: CAL helps organisations optimise ICT system design based on understanding the whole life carbon footprint cost of deploying innovative ICT technology compared to using current systems. Climate Associates are leading work with ITU-T SG5 and ETSI in standardising the analysis and in determining best practice. Nigel is also involved with Intelligent Transport Systems – "connected cars" he is the Chair of the ITS UK Communications SIG and the Land Navigation & Location Group at the Royal Institute of Navigation. For further information, please visit www.**climate-associates**.com

Profile of Speakers

Simon Reed, Transport for London

Simon is the Head of Technical Services Group, London Buses within Transport For London (TfL) and having joined TfL in 2006 was responsible for the rollout of iBus the world's largest Bus Fleet implementation of an Automatic Vehicle Location (AVL), Real Time Passenger Information (RTPI) and an integrated PMR radio system for 8500 mobiles. In 2011 London Buses launched the award winning 'Countdown' Live bus arrivals information service providing real time bus information for 19,000 stops via the web, SMS and via 2500 roadside signs. This has been followed in 2012 with a Syndicated Data feed which is supplying live bus information to a number of leading Smartphone 'apps'. Between 2001 and 2006, Simon worked for Anite PLC, a UK based FTSE-250 PLC starting as Services Director before running the Company's Document Management software and managed services business. Prior to this Simon had a fifteen year career with leading UK Software & Services company Fujitsu/ICL culminating as the General manager for their Local Government Software business. For more information, please visit www.**tfl.gov.**uk

Dr Rob Harle, Computer Laboratory, University of Cambridge

Dr Robert Harle is a Lecturer at the University of Cambridge's world famous Computer Laboratory. He has worked in indoor positioning for over 12 years and pioneered the use of floorplans and inertial data to provide long-term sub-metre tracking for pedestrians. For further information, please visit www.**cl.cam**.ac.uk

Mirco Musolesi, School of Computer Science at the University of Birmingham

Dr. Mirco Musolesi is a Senior Lecturer at the School of Computer Science at the University of Birmingham. He received a PhD in Computer Science from University College London. Before joining Birmingham, he held research and teaching positions at St Andrews, Cambridge and Dartmouth College. His research interests lie in the broad areas of ubiquitous computing, large-scale data mining, networked systems and network science. For further information, please visit www.**cs.bham**.ac.uk

Olaf Baars MSc MCGI MIFireE, Royal Berkshire Fire and Rescue Service

Olaf joined the fire and rescue service in Northamptonshire in 1979, moving to London Fire Brigade in 1980, Norfolk Fire Service in 1993 and Royal Berkshire Fire & Rescue Service in 1995. He was appointed Assistant Chief Fire Officer in 1999 and Deputy Chief Fire Officer in 2001. Olaf is currently in the interim post of Chief Fire Officer prior to his retirement. Following retirement later this year, Olaf will be working full time within the consultancy practice, Inperium Consulting, which he started last year. A member of the Chief Fire Officers' Association and past Chair of the Information and Communication Technology Committee, representing CFOA on a range of national committees and spent several years representing the interests of the fire and rescue service at board level within Government. A senior operational officer who has, through his career, been involved in a wide range of large fires and major incidents, including the 2007 Gloucestershire Floods and the nine day forest fire in Swinley Forest in Berkshire in 2011. Past President of British Association of Public Safety Communications Officers (BAPCO) 2009 -2010.For more information, please visit www.**rbfrs**.co.uk

Profile of Pitching Companies

TravelAI – pitched by Andreas 'Zac' Zachariah

TravelAI's smartphone software automatically, 24/7 and in the background detects mode of travel using algorithms to analyse the movement of a user. The team beat out rival projects from MIT, Stanford, Nokia and Google to commercially launch through CarbonDiem, a service that helps companies like the BBC, BT and Forum for the Future measure their employees' travel carbon footprints. TravelAI is also working with a national newspaper on a Spring 2014 cycling and commuter audit and is 1 of 10 companies chosen to work on the governments SBRI Future Cities programme. For further information, please visit http://www.**travelai**.co.uk/

Omnisense – pitched by Andy Thurman

Omnisense supplies accurate positioning products in which people and assets know where they are relative to each other. Our collaborative intelligent sensor network is completely wire free, making it quick and easy to install. The system is low cost, extremely flexible, and provides true position and behavioural information indoors and outdoors. Customers need better location data to increase operational efficiency, ensure safety of staff, manage security, and to quickly locate assets or people. Omnisense uses industry standard protocols to deliver contextually relevant information to third-party applications, including: position, direction, zone, change in behaviour (e.g. fall detected) or telemetry data. For further information, please visit www.**omnisense**.co.uk

Passive Eye – pitched by Jerome Rush

Passive Eye Ltd is a start-up and was formed in November, 2012 to develop a self-powered, GPS locating and tracking device that doesn't use batteries. It is a true entrepreneurial effort that has the good fortune to be working with two brilliant PhD graduates from University College London. The result has been the development of an innovative kinetic energy 'engine' and an advanced broadband energy harvesting module to generate and harvest the required power. The project has the active support of UCL through their Knowledge Exchange Associate programme and we are now in a position to give live prototype demonstrations to interested parties.

The IET

The IET is one of the world's leading professional societies for the engineering and technology community, with more than 150,000 members in 127 countries and offices in Europe, North America and Asia-Pacific. The IET provides a global knowledge network to facilitate the exchange of ideas and promote the positive role of science, engineering and technology in the world. For more information, please visit www.**theiet**.org

Silicon South West

The Silicon South West provides professional networking, regular news and start-up resources for the region's microelectronics ventures. The South West is home to the UK's largest concentration of silicon designers, second only to the USA and companies located here enjoy the advantage of a supportive ecosystem and a highly skilled and experienced workforce. This skills pool owes its origins to Inmos in Bristol and GEC-Plessey Semiconductor in Swindon. These two organisations effectively trained a generation of silicon designers and while the enterprises themselves have since changed beyond recognition, the individual designers have remained at the forefront of developments, particularly in the key areas of RF, video, multicore processor and reconfigurable components as well as wireless, telecoms and networking system design. For more information, please visit www.**siliconsouthwest**.co.uk