



Identifying ITS Opportunities for the HA Technologies Newsletter: October 2009

ITS RADAR INTERNATIONAL PROJECT

This project is providing intelligence for the Highways Agency on ITS developments in Europe and around the world. It is carried out by TRL and AECOM on behalf of the HA. The project summarises key information for decision makers and practitioners on activities related to Intelligent Transport Systems (ITS). The project covers specific areas of key interest to the HA.

Regular newsletters are being produced, covering information which is in the public domain. For more information about the project and the services provided, the web site can be reached at:

<http://www.highways.gov.uk/itsradar>.

To contact us and let us know what you would like this project to deliver please email us at: ITSRadarInternational@trl.co.uk

■ ABOUT TECHNOLOGY

Intelligence on developments in new and emerging technologies relevant to ITS are reported on. Technologies deployed in various other arenas are reviewed and their applicability in the world of transport is analysed.

Intelligence is gathered which demonstrates links between promising pilots, ideas and concepts and deployed ITS tools. This service enables earlier consideration of new technologies and in addition identifies cases where consideration has been given to new ideas, but may be held in abeyance due to the associated 'risks'.

■ MEETINGS

None to report

■ PROJECTS

The great wall of China

Source: Thinking Highways, Volume 4, Issue 3, September/October 2009, pg. 34-38

Five million people regularly drive through Beijing. In view of this and the volume of traffic generated by the 2008 Olympic Games, the Beijing Traffic

Control Centre was equipped with a visual information platform to integrate and improve traffic management capabilities. The new video display is the largest of its kind in China and contains the Jupiter Fusion 980 display wall processor, capable of providing each of 15 peripheral slots with up to 4 Gb per second bandwidth. This processor enables the operator to route sources of broadcast content, video feeds and slide-shows simultaneously on the projection cubes and through the processor. Over 3,600 data streams, used by Traffic Control Centre's 13 departments, were integrated and shown on a single display wall consisting of 98 projection cubes, significantly increasing efficiency. During the Olympic Games, the new video display performed very well and improved responsiveness and effectiveness of traffic management.

Key words: Monitoring, traffic centre

■ NEWS

Street to screen: how sat-nav maps are made

Source: www.techradar.com

TechRadar took a ride in one of Navteq's mapping cars, to discover how satellite navigation maps are made. Navteq is a provider of information for navigation devices. Such data ranges from variable speed limits to lane information or enhanced junction views.

The NAVTEC mapping car is equipped with:

- Inertial Measurement Unit (IMU)
- differential GPS (capable of working along with the movement of the vehicle)
- six multi-view video cameras (280 degree view)
- microphone (for audio commentary)

Data together with images are constantly sent to a special server, although it is displayed in real-time on the screen.

The map is prepared back in the office from data gathered by means of removable 500GB hard drives. Navteq releases four editions of mapping per year.

Key words: Geographic information, In-vehicle systems, Traffic information

Highway patrol – mobile weather patrol monitoring

Source: Traffic Technology International, August/September 2009, pg. 84-85

Road Weather Information System (RWIS) sites provide temperature data at certain locations only. To fill in those gaps, Quixote Transportation Technologies (QTT) offers 'Surface Patrol HD', the first mobile sensor product that combines dew point and measurement of pavement temperature, air temperature and relative humidity.

Dew point monitoring enables proactive management of, for example, winter maintenance activities, as it's capable of identifying frost and ice.

Measurement of humidity can also be used for other purposes such as applying roadway paint markings or vegetation control.

Key words: Monitoring

Web assets?

Source: [Traffic Technology International, August/September 2009, pg. 68-71](#)

Improved functionality of Web 2.0 applications enhances data openness and crowd sourcing, providing a basis for development of ITS applications. Web 2.0 applications include Content Management Systems (blogs and wikis), User-to-User applications (Twitter) and mash-ups (Google Transit). Wikis allow for secured real-time content editing and are used by a number of ITS organisations. Twitter provides real-time pedestrian and traffic information in the form of a text message to subscribers. Mapping applications such as Google Maps and MapQuest are used together with traveller information sites or web-based asset management systems.

However, inclusion of Web 2.0 tools in businesses is a prerequisite for the development of web-based technologies. This industry buy-in process could be facilitated by creation of a benefit measurement tool.

Key words: Communications, Traffic information

Precise control

Source: [World Highways, July/August 2009, pg. 10-11](#)

GPS systems used for machine control enable operators to considerably reduce operating costs on construction sites. Various companies now offer new functions, based on GPS technology, such as using a bulldozer without a grader at high speed for final finishing.

One system combines 3D real-time, multi-view machine guidance, multiple target indicators, auto zoom and configurable GPs interface.

Another new GPS firmware application works well in areas with limited satellite reception, while a new GPS locator unit developed specially for use on construction sites. Such precision control techniques have recently been used on the A14.

Key words: Geographic information, In-vehicle systems

Come together – collision avoidance

Source: [Vision Zero International, June 2009, pg. 33-35](#)

A new collision detection and mitigation system has been introduced on the Volvo S80 and Ford Mondeo. This system uses advanced technology which combines radar and vision systems. The combination of Electronically Scanning Radar (ESR) and Complementary Metal Oxide Semi-Conductor High Dynamic Range (CMOS HDR) cameras makes it possible to classify objects ahead of the vehicle, as part of the system's process of assessing risks and defining collision mitigation strategies.

In the future, Electronic Stability Control and GPS data could be integrated to further enhance collision mitigation by:

- improving accuracy of vehicle's dynamic monitoring; and

- offering better capability of deciding what action the system should take.

Key words: Galileo, Incident, In-vehicle systems, Safety

Applied Traffic launch a new Weigh-in-Motion system

Source: Traffic Engineering and Control, September 2009, pg. 342-343

VIPERWIM, a new high speed Weigh-in-Motion system, was launched in April 2009. The system is a result of a Knowledge Transfer Partnership between Applied Traffic and Reading University.

The VIPERWIM is applicable for many different traffic monitoring operations and can perform them simultaneously. It has RS232 connectivity to facilitate streaming real-time Vehicle by Vehicle data to an ANPR (Automatic Number Plate Recognition) data pairing server which allows for integration with VMS signs to highlight over weight vehicles HGVs in overtaking lanes etc. The system outstations can be connected by 3G, GPRS, GSM and landline modems, enabling implementation in areas without fibre optic communications

Key words: Freight, Monitoring

Experiences of data capture in an inter-urban environment

Source: Traffic Engineering and Control, September 2009, pg. 353-354

The UK road network infrastructure is mapped to support Intelligent Speed Adaptation (ISA) technology. So far 90% of the UK's road network has been mapped.

Data is collected by means of touch screen devices where surveyors touch the screen of a GPS enabled hand held device when speed limits change. Routes are planned on the digital map and data is converted so that it can be read by satellite navigation devices. Afterwards, completed routes are manually recorded on a map. If the speed limit for a road changes it is simply a matter of updating the relevant field in the database.

Key words: Geographic information, In-vehicle systems, Monitoring, Safety

Technology to integrate smartphones into vehicle systems

Source: www.itsinternational.com

A mobile phone operator, a mapping company and an automotive specialist have together demonstrated brand new technology that integrates smartphones into in-vehicle infotainment systems. Once a smartphone is connected to the car, many applications and services become available such as fuel level information, engine status, GPS-enabled location-based services and information on nearest/ cheapest petrol station.

Smartphone can also be used also to support Advanced Driver Assistance Systems (ADAS), as information can be displayed on the large in-vehicle screen and instruction can be given by voice, touch or a gesture.

Key words: Communications, Geographic information, In-vehicle systems

PTV unveils a new algorithm in VISUM called LUCE

Source: Traffic Engineering and Control, September 2009, pg. 337-339

PTV has unveiled a new algorithm – Linear User Cost Equilibrium (LUCE) – for traffic management in VISUM. The company believes that it will become a main standard for traffic assignment in transportation planning, as it is 10 to 15 times faster than VISUM 10. LUCE is also characterised by better coverage, loading a richer set of paths per Origin-Destination set, running an assignment many more times in a given period that was previously possible in VISUM.

Importantly, it is envisaged that in the future LUCE will also be used in real time, offering great potential for ITS Aid to Decision Tools.

Key words: Monitoring, Traffic management

Coded exchanges

Source: www.itsinternational.com

Ethernet- and IP-based networks are an essential means of communication for most ITS applications. However, there are still problems with data transmission and different interpretations of standards.

This article explores the merits and disadvantages of fibre optic and wireless networks and limitations of IP in dealing with high bandwidth video applications. It looks at hybrid solutions that bring the best of all worlds and cites the HA's NRTS communications system as one such intelligently designed system.

Key words: Communications

■ RECENT PUBLICATIONS

None to report

■ GLOSSARY

ADAS	Advanced Drivers Assistance System
ANPR	Automatic Number Plate Recognition
CMOS HDR	Complementary Metal Oxide Semi-Conductor High Dynamic Range
Data fusion	The fusion and analysis of data derived from more than one type of sensor
ESR	Electronically Scanning Radar
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
IMU	Inertial Measurement Unit
ISA	Intelligent Speed Adaptation
ITS	Intelligent Transport Systems
LUCE	Linear User Cost Equilibrium

NAVTEC	A provider of digital maps, traffic and location data for navigation-related applications
PTV	A provider of software technology and consulting in the field of traffic and logistics
QTT	Quixote Transportation Technologies
RWIS	Road Weather Information System
SPECS	Average Speed Enforcement Cameras
VBV	Vehicle by Vehicle
VIPERWIM	A new high speed Weigh-in-Motion system
VISUM	A comprehensive, flexible software system for transportation planning, travel demand modelling and network data management
Web 2.0	Web-based applications such as blogs (Blogger), wikis (Wikipedia), mash-ups (Google Transit), social networks (Facebook), multimedia applications (You Tube) and enhanced communication platforms (instant messaging, Twitter, podcasting)
3G	Third Generation of mobile phone technology standards