



Identifying ITS Opportunities for the HA Technologies Newsletter: November 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: 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 TECHNOLOGIES

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

Connecting Australians

Source: www.itssummit.com.au

The Australian Intelligent Transport Systems Summit (ITS 09) will take place in the Melbourne Convention & Exhibition Centre on 18-20 November 2009. Under the theme "Connecting Australians", ITS 09 will concentrate on ITS technologies, new innovations, road safety, congestion and sustainability.

Tim Pallas, Victorian Minister for Roads and Ports announced that the summit is going to be a milestone event for transport planning and it will develop a framework that will deliver a national ITS strategy and vision for the next 10 years.

ITS Radar International will monitor the outcome

Keywords: Policy, Traffic management

■ HOT TOPICS

iPhone app to guide Tokyo commuters

Source: www.itsinternational.com

A developer of speech technology and an internet marketing company have developed a Japanese travel planning application which is available for iPhones. Travellers say "from A to B" into an iPhone, and are shown the ticket price, estimated time of travel and chronological information on trains and changes, needed to get from station A to station B. Additionally, a map of the area between stations, as well as the route to the departure station A, are shown.

Keywords: Communications, Geographic information

Solar Roadways to Prototype First ever Solar Road Panel

Source: www.inhabitat.com

The U.S. Department of Transportation (DOT) has provided a grant for \$100,000 to develop a prototype for the first ever Solar Road Panel with the intention of replacing asphalt on roads. This energy generating panel is made from solar cells and glass, and contains LED lights that may provide lane markings and incident warnings. It is also capable of being heated to prevent ice and snow from collecting. Panels are expensive - each 12' by 12' panel costs around \$6,900 - but used for a single four-lane, one-mile road could provide power for 500 homes.

Keywords: Environment, Policy, Traffic management

ESRI improves Virginia's VIPER system

Source: www.traffictoday.com

The Virginia Department of Emergency Management (VDEM) has launched the Virginia Interoperability Picture for Emergency Response (VIPER). VIPER uses geographic information system (GIS) software and is capable of integrating with various information systems and linking with roughly 150 data feeds.

In the case of an accident the information from the appropriate datasets is provided, enabling an immediate emergency response and real-time event monitoring. Virginia Emergency Operations Center (VEOC) personnel can now assess emergency operations in real-time and benefit from maps as well as information on evacuation sites and nearby hospitals. Online emergency information on traffic accidents, earthquakes, floods, terrorist attacks and extreme weather conditions is also available to the public.

Keywords: Emergency, Geographic information, Monitoring, Safety

■ PROJECTS

Trafficon's Automatic Incident Detection System Deployed in 22 Tunnels around Paris

Source: www.roadtraffic-technology.com

Automatic Incident Detection (AID) systems will be installed in 22 tunnels around Paris. This advanced technology prevents accidents by warning drivers about abnormal events and provides visual feedback to drivers.

The project was launched in September 2008 by the Direction Inter-Départementale des Routes d'Ile-de-France (DIRIF) in response to a legal requirement in France to install an AID system on each tunnel longer than 300m. This is the largest project of its kind in the world, which will involve installation of 1,400 cameras over the next three years. Over five years the project is estimated to cost €600 million.

Keywords: Incident, Project, Safety, Traffic information

■ RECENT PUBLICATIONS

Adaptive Cruise Control

Source: www.thinkinghighways.com

This article explains how Adaptive Cruise Control (ACC) works. ACC consists of advanced radar or laser sensors capable of detecting vehicles ahead. A vehicle equipped with such technology constantly monitors vehicles ahead and automatically adjusts the speed to maintain a safe following distance. In addition, a driver is informed about the situation on the road and any intervention required.

Adaptive Cruise Control is a major safety system of the future, which will minimise rear-end collisions and maximise fuel efficiency by providing smoother acceleration and deceleration cycles than when the driver is controlling the accelerator and brake pedals.

Keywords: Environment, Incident, In-vehicle systems, Safety

The rise of GPS on mobile

Source: Land Mobile, September 2009, pg. 24-26

According to the author, GPS-enabled mobile phones are more attractive to users than PNDs (Personal Navigation Devices). Mobile phone manufacturers offering mapping and location-based services have a greater potential for success. At the same time, providers of navigation services should invest in smartphone technology to remain competitive.

The major advantage of mobile phone technology is its connectivity to the Internet and provision of online services such as traffic information, weather information, tracking and live Internet search. Mobile phones can be used for job dispatch, personnel tracking, fuel efficient workforce management and can be easily transferred between vehicles and drivers.

Research shows that in future, 78% of in-vehicle and pedestrian satellite navigation will be sold in the form of smartphones.

Keywords: Communications, Geographic information, In-vehicle systems

Brake assist/ collision warning/ mitigation

Source: www.thinkinghighways.com

Police accident data show that rear-end collisions account for more than 20 per cent of road accidents. Deployment of collision warning systems with emergency braking in all vehicles could reduce the number of accidents and fatalities by 7 per cent.

Lately these systems have been improved even further, leading to a technology that applies brakes automatically without human interaction. Mercedes has recently launched PRE-SAFE® Brake that brakes automatically when an accident is unavoidable. Latest tests show that Mercedes emergency braking reduces the vehicle speed on average by 16 km/h. However, most automatic braking systems feature step-by-step intervention, enabling a driver to react.

In the future, these systems will exchange information with other vehicles and road infrastructure to further enhance driver safety. Furthermore, they will cooperate with other safety applications to tighten the seat belt, adjust seat position or raise a folded rear headrest, as well as close the windows and sunroof in the case of an accident.

Keywords: Cooperative vehicle systems, Incident, In-vehicle systems, Safety

Improving definition

Source: Land Mobile, September 2009, pg. 10-11

The author, from a company specialising in wireless backhaul links and services, explains how future networks will deliver a new real-time capability for CCTV. Benefits of this real-time intelligence include:

- automatic monitoring of all CCTV feeds highlighting risks in advance
- real-time video intelligence
- integration of video with facial recognition systems to identify criminals in real-time.

He highlights the importance of choosing the right telecoms partner who will design the optimal network for the future.

Keywords: Enforcement, Monitoring, Traffic centre

Lane departure warning/ prevention

Source: www.thinkinghighways.com

The Insurance Institute for Highway Safety in the United States estimated that there are approximately 10,000 deaths each year occurring when a vehicle leaves a lane or a road. Results of the European eIMPACT project show that a Lane Departure Warning system installed on all vehicles could reduce road fatalities by 15 per cent and road injuries by 9 per cent.

Lane Departure Warning systems use an advanced camera and an image processing system to detect lane markings and monitor the distance between the vehicle and other vehicles. In a dangerous situation, the Lane Departure Warning system alerts a driver using:

- audible warnings
- visual warning icons
- haptic system (physical signals like seat or steering wheel vibration).

Some of the systems currently available take control of the vehicle automatically and re-direct it to the original lane if a driver reacts too slowly. Others are capable of:

- traffic sign recognition
- automatic headlamp control
- pedestrian detection.

For more information about the results of the eIMPACT project, go to the project web site: www.eimpact.eu/

Keywords: Cooperative vehicle systems, Incident, In-vehicle systems, Safety

Self-organised transport system

Source: www.utrc2.org

This report investigates a simulation model for a self-organised transport system, inspired by the collective behaviour of insects. The model incorporates a process of communication for traffic signals and their adaptation to traffic conditions in real-time. Self-organised traffic systems lead to a reduction in average vehicle delay compared with traditional systems.

Keywords: Traffic management

The remote future – wireless communications

Source: [ITS International, October/ November 2009](#)

The author discusses the pros and cons of a range of wireless communication techniques and explains the impact of their development on vehicle detection. Currently available cellular communication technologies for data collection include:

- GPRS
- GSM
- 3G.

The importance of wireless communication technologies for vehicle detection is growing. This is a result of users' requirements in terms of:

- safety of staff working with roadside equipment
- capability of installation in remote locations
- innovative vehicle detection.

However, wireless technology needs to be improved in terms of security, battery power and interference in view of the era of radar, laser and infrared technologies.

Keywords: Communications

Forces of change

Source: [ITS International, October/ November 2009](#)

Leading producers discuss the effectiveness of the application of GPS/ GNSS-based technologies for tolling. One producer believes that an enforcement solution should be a part of each Electronic Toll Collection (ETC) system but design of this should be independent from the design of the overall approach to the charging scheme.

Another provider believes that the only effective enforcement technology is a network of video cameras, which prove the actual presence of a vehicle at a specific place and time. The efficiency of such a solution, however, requires a consideration of the legal basis, tolled area, user group and a preferred solution.

A choice of technology for the enforcement system is dependent on the:

- tolling system
- legal framework
- business environment
- availability of technical specialists.

Experts say that common technologies, namely Dedicated Short-Range Communication (DSRC), Automatic Number Plate Recognition (ANPR) and Global Positioning System (GPS)/ Global Navigation Satellite System (GNSS), will survive. Each providing different benefits that, when combined, can contribute to a better performance of the entire system.

Keywords: Enforcement, Freight, Galileo, Identification, Monitoring, Payment

■ GLOSSARY

ACC	Adaptive Cruise Control
AID	Automatic Incident Detection
ANPR	Automatic Number Plate Recognition
DIRIF	The Direction Inter-Départementale des Routes d'Ile-de-France
DOT	U.S. Department of Transportation
DSRC	Dedicated Short-Range Communication
eIMPACT	Part of the EU's Sixth Framework Programme for Information Society Technologies and Media, which assesses the socio-economic effects of Intelligent Vehicle Safety Systems (IVSS), their impact on traffic safety and efficiency
ETC	Electronic Toll Collection
GNSS	Global Navigation Satellite System
GPRS	General Packet Radio Service

GPS	Global Positioning System
GSM	Global System for Mobile communications
PND	Personal Navigation Device
VEOC	Virginia Emergency Operations Centre
VDEM	The Virginia Department of Emergency Management
VIPER	The Virginia Interoperability Picture for Emergency Response
3G	3 rd generation is a family of standards for mobile telecommunications