With supporting infrastructure and applications in place, SafeTRIP technology could allow automatic payment of road-user charges (such as road tolls or congestion charges) across Europe or give passengers the ability to look for hotels or restaurants and book them while on the move.

Getting from A to B on European roads could become an easier, safer and more entertaining experience thanks to a new mobile technology platform for vehicles demonstrated by the SafeTRIP project.

Satellite navigation is now a commonplace technology in road vehicles. But the main advantages of satellites – their ability to provide a uniform, reliable and quickly updated service across large geographical areas – provide opportunities for many other services.

The SafeTRIP project demonstrated the possibilities for commercial services based around the S-band communication channel available via the Eutelsat 10A satellite. This channel is optimised for broadcast multimedia content delivery and two-way data communication via small mobile units that are ideal for vehicle applications.

“However, to realise these opportunities requires the demonstration of the concept and the development of a standardised platform, and that is essentially what SafeTRIP has achieved,” says Guy Frémont, coordinator of the project and Director of New Technologies for French autoroute operator Sanef. “We have defined the architecture of the system and also worked through the standardisation issues required to implement the technology.”
This business model – to develop an open standardised architecture for low-cost terminals – is the same as that used for other successful mobile devices, such as satellite navigation and GSM technologies. And the model allows third-party software developers to produce applications for download, initiating a new and valuable market for ‘apps’.

**Opportunities for ‘apps’**

The technology would also be of interest to insurance companies – for pay-as-you-drive cover or stolen-vehicle tracking – vehicle fleet managers and car manufacturers, allowing for software updates and remote-vehicle diagnostics to be implemented.

Safety applications are an important feature via an automatic emergency alert system that connects with roadside assistance services or a local garage in the event of an accident or breakdown. The technology is interoperable with the new European Commission eCall service but would offer enhanced features.

One unique feature is the ability to include video within an emergency call. “This would allow a roadside assistance company to be able to respond to an emergency call immediately and assess the urgency of the situation,” explains Frémont. The system could be used to provide breakdown assistance or advice remotely.

The same concept is useful for road traffic-management authorities. The ‘patrol with eyes’ concept enables data to be collected and transmitted from a variety of sensors on a patrol vehicle to a central control room to help traffic management or other tasks.

“The data might include the road condition, the state of its surface, or information on congestion,” says Frémont. “Or the patrol could help manage incidents, giving the control centre a real time view of the situation.”

Traffic management can also benefit from collected data flows, such as traffic volume, weather conditions or pollution indexes. Information on road conditions could be instantly broadcast to vehicles via a short message service or satellite navigation maps updated ‘on the fly’ to reflect road conditions or temporary road closures.

**Mobile broadcasting**

Other opportunities lie in the ‘broadcast’ capabilities of the satellite technology. “Passenger entertainment or ‘infotainment’ applications are of major interest. Future services could include live TV and digital radio or video on demand,” says Frémont.

The DVB-SH standard available via the S-band on Eutelsat is optimised for mobile conditions – even at high vehicle speed – and would allow passengers to access programmes via their portable smartphone or tablet computer, for example. Or the output of the SafeTRIP box could be integrated into the vehicle’s audio-visual entertainment system. Such a system was demonstrated in both private cars and a Eurolines coach during the project.

In fact, during the project all aspects were successfully demonstrated on a variety of vehicles and across Europe. Feedback was very positive and the next step is commercial exploitation.

The project involved testing the concept using a PC platform. The next stage is to reduce the size of the on-board unit and look at cost reduction. There will also be a need to involve vehicle manufacturers and other players in the value chain. Five industrial partners involved with the SafeTRIP project are working on industrialisation and commercialisation plans.
“This will need significant further investment to become a commercial product,” concludes Frémont. “But in a few years it is possible that SafeTRIP units will be on the market.”

Safe TRIP was one of the EU projects winning [2] the contest "Les Étoiles de l'Europe [3]" organised by the French Ministry of Innovation and Research on December 16, 2013. The prize, at its first edition, awarded the 12 best French researchers and coordinators that excelled in the leading of innovative European projects in all domains.

See also:
Info-Centre [4]
Project:
Satellite application for emergency handling, traffic alerts, road safety and incident prevention
Project Acronym:
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