

# Vehicle communications system in your pocket

**The device that will manage the telematics communications of next-generation vehicles may already be in our pockets. Multiple application ‘nomadic’ devices like the mobile phone are ideal for telematics solutions. Automotive manufacturers are now facing up to that reality. It hasn’t been easy.**

“Satellite navigation was a telematics killer application that the automotive industry couldn’t exploit,” says Dave Marples, chief scientist for systems developers Technolution.

Telematics basically marry computers and (wireless) telecommunications technologies, but auto manufacturers often narrow this down to navigation systems when applied to ‘vehicle telematics’.

A big problem for automotive manufacturers is the speed of development in electronics. Systems installed in vehicles are outdated while the vehicle is still relatively young. In-vehicle systems need to be ‘updatable’ to take advantage of developments in telematics services and the infrastructure behind them.

Marples, who is also chief architect of the Global System for Telematics (GST) project, says ‘nomadic devices’ – not built into the vehicle – are one solution to this obsolescence problem. The device could be a handheld computer, or even a super satellite navigation (SatNav) system that establishes a connection with the vehicle’s computer systems.

“We came up with the term ‘nomadic device’ because we didn’t want to constrain what that device did and what it looked like,” says Marples. “In some ways, we were looking for the telematics equivalent of the DIN slot [where you insert] the car radio.”

“SatNav is a computation platform in your vehicle that is more powerful than the PC you had on your desktop five years ago,” notes Marples. The speedy development of a mass market for SatNav illustrates the potential for telematics – and the lessons for the automotive industry.

## **Carrying the solution**

Marples believes that the most likely candidate for a suitable ‘nomadic device’ is the mobile phone. The reason has nothing to do with any technological advantage, more a question of practicality.

Most people already carry mobile phones and they will not want to carry two small computers – one dedicated to the car. Five years ago, companies were trying to get consumers to carry PDAs in their pockets. Instead, mobile phones have increasingly included PDA-style applications.

“The mobile phone has its own power supply, it can do things independently of the vehicle, and because it tends to be on the person, it is in the safe cell in the middle of the vehicle,” explains Marples. It would also mean that older vehicles could use eCall, the emergency call service that is activated manually by vehicle occupants or automatically via in-vehicle sensors following a crash.

The downside of the mobile phone as a nomadic device is the need for a complicated communication link between the vehicle and the phone, a link which is open to disruption. “One of the biggest discussion areas in GST was what the communication link between the nomadic device and the machine would look like,” explains Marples who is also professor of telecommunications at Sterling University, Scotland.

The EU-funded GST project ended in Spring 2007. It has helped to shape a framework – a common design

language – that will enable the development of telematics applications running in vehicles from a range of manufacturers, and enable vehicles from different manufacturers to communicate or share data. But it will probably be ten years before we know GST’s long-term impact, Marples suggests.

The GST research teams looked at the development of the overall architecture for end-to-end telematics; the certification requirements of the telematics industry; payment and billing systems; and telematics’ system security.

It also coordinated three projects that looked at specific telematics applications: ‘Rescue’ (preparing the standardisation necessary to develop a fully integrated incident response chain across Europe); ‘Enhanced Floating Car Data’ (using vehicle systems as floating traffic sensors to monitor vehicle performance and congestion levels on the roads); and ‘Safety Channel’ (a cost-effective broadcast mechanisms to communicate safety information to drivers).

### **Money matters, and so do standards**

Some of the supporting infrastructure proposed by GST is being taken up by telematics designers, such as payment centres, service centres that manage the services vehicles use on the road, and control centres that store and provide data to in-vehicle systems as requested.

GST made one issue clear. The in-vehicle telematics systems of the future will not be devoted to single proprietary applications. While they understand the long-term need for standardisation, automakers’ desire to capture a share of the lucrative mobile communications revenues led them to develop proprietary telematics solutions. But the penny has dropped.

Automakers now recognise they will have to design systems that run multiple applications, notes Marples. “I don’t think people had really accepted this until we started GST. People paid lip service to the idea, but it is not the same thing as saying that they would do something about it.”

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