

GNSS Road Pricing Closer to reality

GINA (GNSS for INnovative road Applications) kicks off while the European Institutions are still immersed in the debate on the "Eurovignette" Directive, which lays down common rules on pricing of transport infrastructure. GINA considers the use of position integrity to set up a nation-wide road pricing scheme. Over the next 24 months, the project will analyse and demonstrate that the adoption of EGNOS (and Galileo in the future) for Road User Charging and Value Added Services (VAS) is technically feasible and will offer new business opportunities to the road sector.

EGNOS-based Road User Charging and Value Added Services

Today, road transport faces major challenges such as the ever-increasing need for safety, as well as for reduced congestion and pollution. These problems are particularly critical in highly populated zones, notably big cities and their surrounding areas. Different schemes are being proposed to improve the situation, including road pricing systems to automatically charge drivers for their use of road infrastructures.

Most of the road charging systems are presently based on dedicated short-range communication (DSRC), but some international and European initiatives also demonstrated that pricing can rely on satellite-based technologies, which cover a greater road network without expensive roadside infrastructure.

Up to now, all these initiatives have necessarily used GPS as the satellite location system. How-

ever, it is recognised that there are limitations in using the GPS system, in particular that there is no guarantee of the location accuracy because there is no guarantee of signal integrity. With the advent of the European Global Navigation Satellite System (GNSS) (EGNOS now and then



Galileo in 2013), it will be possible to charge with a higher degree of confidence thanks to the guarantee of integrity it will provide.

Other promising satellite-based applications such as Pay-As-You-

Drive (PAYD) or Value Added Services (VAS) including local mobility information (traffic, weather), entertainment (music, video), driving assistance or accident data recording are also expected to benefit from the uptake of the European GNSS, especially if they can run on the same technological platform.

Nevertheless, there are still several obstacles to larger scale uptake of such extended services based on GNSS technologies. For example, the technical and economical feasibility of large scale road pricing based on GNSS only is not yet proven. Likewise, the practicalities of using the same on-board equipment for different applications have to be established.

Given the high potential of key applications, the GINA (GNSS for INnovative road Applications) project, co-funded by the European Commission and the European GNSS Supervisory Authority (GSA), was recently launched to address current obstacles with a

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view to bringing road pricing and road VAS a step closer to reality.

Adopting EGNOS and Galileo

Over the next 24 months, the 12 project partners, coordinated by the Spanish company GMV, will conduct analysis to demonstrate that the adoption of EGNOS, and later Galileo, for road pricing and VAS is both technically and commercially feasible and may have positive impact on the environment (congestion and pollution aspects linked to the drivers' behaviour are taken into account).

Following an in-depth analysis of real end users requirements, GINA will initiate the implementation of a nation-wide demonstration in the Netherlands. In the second stage of this project, 100 cars equipped with dedicated equipment will circulate on the Dutch road network for a period of 6 months. By the end of the project, new business opportunities should be clearly defined for the road sector.

Taking real end users requirements as a reference

A clear market approach is leading GINA project. GINA product/system has to be technically and commercially adapted to the market, i.e. they will have to clearly anticipate and satisfy every end users requirement. To this effect, GINA project proposes to consider real end users' needs and expectations.

On the one hand, public information available on the Dutch ABvM (Anders Betalen voor Mobiliteit) project system characteristics will serve as a reference to the road charging demonstration definition. Indeed, the Dutch government is implementing the first and unique nationwide road pricing scheme based on GNSS only, which should be fully operational for all roads and all vehicles by 2015. The functional requirements encourage the combined use of GPS and Galileo.

On the other hand, the VAS demonstration will be fully based on real commercial users needs thanks to the participation of the car leasing company ARVAL for

PAYD and the Portuguese AENOR for road tolling and traffic information.

With GINA project, the future looks very promising for the installation of GNSS road applications in both urban areas and at national level.

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