

Telematics technology steering toward smarter EU roads

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Credit: AI-generated image ([disclaimer](#))

If we are to have truly smart cities our transport systems will have to be more cost-effective, safer and sustainable. Perhaps most of all they will need to be more integrated, as the EU-funded project MFDS demonstrates.

The stated aim of the EU's 'smart, green and integrated transport' initiative is to build a European transport [system](#) that is 'resilient, resource-efficient, climate- and environmentally friendly, safe and seamless for the benefit of all citizens, the economy and society.'

In contribution, the EU-funded MFDS project has developed a versatile and affordable 'Intelligent Transport System' offering several functions including wrong-way driver detection, traffic congestion detection, vehicle counting by vehicle classification and parking accounting. The core innovation of MFDS is the system's ability to perform its functions simultaneously, while remaining low-cost to buy and install, as well as running on minimum power. The project's feasibility study has demonstrated that the system will be of interest to multiple EU markets.

Over and above state-of-the-art alternatives

A standard 'Multi-Functional Detection System' (MFDS) consists of six delineator posts which distribute a secure radio field across the target path, detecting and classifying objects with 100 % precision. The system can be placed at car park entrances and exits or on highways, reporting vehicle details to a web portal in real time. Beyond categorisation, the innovative sensors mean that the system can detect the direction, size and speed of vehicles. This proved the most difficult aspect of MFDS, as project coordinator Mr Dennis Dorn recalls, "The challenge has been developing the novel sensors to be able to detect and classify the traffic accurately enough to pass the required standards and certifications."

The data accrued by MFDS can be viewed centrally through the [web portal](#) or redistributed securely via interfaces and the cloud, to motorists or the relevant authorities. Crucially the system can be integrated into existing guide posts or bollards, making installation it more cost-effective and seamless.

During the recently closed Phase 1 of the project, the team developed a Feasibility Study. The subsequent market study, incorporating customer feedback, has paved the way the creation of a new company (S-Tec GmbH) and for Phase 2. Phase 2 will identify strategic collaborators, scope legislative requirements and plan the technical and commercial groundwork to include finalising the system for multiple scenarios and markets.

Elements of the system have already been assessed on the German Ministry of Transport test tracks. The first MFDS application selected for rollout in late 2018, is the car park accounting (without classification) functionality. Amongst additional features, Phase 2 should see the roll-out of car park accounting classification, alongside wrong-way driving detection. As Mr Dorn explains, "Speaking with the relevant authorities has given us the idea of a multifunctional use of the system, such as including parking and traffic counting." Ultimately the target is for over 6 500 units to be deployed across the EU by 2024.

Benefiting all road users

The system can work across many markets. As Mr Dorn summarises, "The system will benefit all road users, with road safety increased especially on highways, parking spaces better utilised and congestion significantly reduced, by connecting traffic management with municipal parking spaces. Everyone can also use the data to better plan the management of resources, from authorities with the deployment of staff, to lorry drivers planning the timing of their rest breaks." There are also commercial markets, for example with the offer of parking space accounting for stadiums or exhibition spaces.

To make these full benefits tangible there are a number of challenges the team are working to overcome. The system must first be further developed and tested, especially for the public market, which means

stress testing the innovative sensor technology – the core of the system – to ensure reliability regardless of weather conditions. This will then lead to the production and assembly of the system.

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