ESCAPE

European **S**afety-**C**ritical **A**pplications **P**ositioning **E**ngine

Key facts

Full name
European **S**afety-**C**ritical **A**pplications **P**ositioning **E**ngine

Project call number
GSA/GRANT/02/2015

Project call
Development of E-GNSS engine for safety-critical multi-applications in road transportation

Funding
5 452 739,80 EUR

EU contribution
3 271 643,88 EUR

Topic
Road

Market segment
Road

Project start/end
01/10/2016 – 31/12/2019

Galileo differentiators
Multi-frequency GNSS
Galileo high-accuracy through PPP

Context and motivation

With the declaration of Galileo Initial Services in 2016, companies, service providers and developers can now take full advantage of the more precise positioning and better performance that Galileo provides. All one needs is a Galileo-enabled chipset and/or receiver.

In the road transportation sector, the ESCAPE project targeted just that: using Galileo to provide users with better positioning and performance. The project developed **an innovative positioning engine that exploits the newly available capabilities of Galileo.**

The **solution proved critical in the advancement of the connected vehicle and autonomous driving,** both of which require accurate and reliable positioning information for safety-critical applications.

Traditionally positioning information is provided via multiple sources of sensor data, that require the use of expensive radar/Lidar-based sensors and cameras not specifically designed for road transport use. ESCAPE and its solution offer both a cost-effective and safe solution for autonomous vehicles.

Targeted GNSS innovation

PPP, GNSS Fusion/Data

Targeted Product

EGNSS Engine

Scope

The project developed **the first multi-constellation Galileo chipset receiver offering multi-frequency capability adapted to road applications** – and in particular autonomous vehicles. The chipset is integrated in an onboard positioning unit with unique localisation features that are tailored to the needs expressed by the applications of autonomous driving.

Challenge & technical solution

The ESCAPE positioning engine is built on two core innovations:

- The **engine integrates different localisation data sources**, including multi-constellation/ multi-frequency GNSS, intelligent cameras, inertial units, vehicle odometer and advanced navigation maps
- The **integrity level provided measures the trust associated with the real-time location estimates**.

This degree of trust is crucial for its use in safety-critical applications involving high levels of automation.

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