Safety-critical positioning for autonomous driving: with ESCAPE the first fully integrated device is on its way.

ESCAPE project will participate in the Autonomy Paris conference. On the 16th Oct. all the project partners will be on Stage 2 from 12.25 to 13.10 to present the project in a round table. All the info about ESCAPE will be available in the ESCAPE booth (C76) in the exhibition hall.

Autonomous driving is the hot topic of todays' mobility and transportation world. Safety is the most fundamental requirement and, at the same time, the greatest concern about autonomous driving applications. At all levels of the technology and of the human interaction. In this context, the localization technology is a key element, as it enables the navigation of autonomous vehicles when operating without human supervision. To achieve this goal, the localization technology has to be designed from the beginning for safety.

The ESCAPE project (European Safety Critical Applications Positioning Engine), funded by the European GNSS Agency's Fundamental Elements Programme, has indeed pursued a **safety-oriented design paradigm** for its innovative **automotive-grade localization engine for autonomous vehicles**, the ESCAPE GNSS Engine, or EGE.

The ESCAPE GNSS Engine board in its final packaging (courtesy of FICOSA)

The design of the EGE, its development, integration and manufacturing has followed stringent safety-oriented criteria, which encompass automotive-grade Safety Integrity Level (ASIL) procedures and GNSS-oriented Required Navigation Performance (RNP).

The solution leverages on the Global Navigation Satellite Systems, including the Galileo constellation, thanks to the new **STM** TESEO APP chipset, which supports ASIL-B platforms. This is complemented with intelligent automotive cameras and low-cost inertial sensors, vehicle odometry, lane-level navigation maps, governed by **GMV**'s integration algorithms. The GMV's real-time Precise Point Positioning service, as well as the use of highly precise maps, are the keys for **enhanced accuracy**, enabled via a high-speed connectivity of the vehicle. The unique feature of such a multi-layer design is the estimation in real-time of the **integrity level** associated with the location estimates, which is also the fundamental element for **safety-oriented navigation**.

The ESCAPE GNSS Engine is assembled and manufactured by **FICOSA** and has been validated through an extensive test campaign on-board of a **Renault**'s electric car.

The accuracy results obtained from the **positioning algorithms which merge GNSS with Vehicle Sensors and Cameras** in a dynamic scenario have offered a promising Cross-track Error of 0.24m in open sky and of 0.34m in urban conditions.

The EGE-equipped car at the Innovation Center of the University of Technology of Compiègne.

A **final demo** will be organized on November 27th, 2019, at the Université de Technologie de Compiègne (UTC), in France, in which a test car will show its enhanced/autonomous driving capabilities enabled by the EGE board. Autonomous maneuvers will be demonstrated along a controlled circuit in the UTC campus, while enhanced ADAS functionalities will be demonstrated along public urban streets in Compiègne (via a 4G connection). All the info regarding the Demo event will be published on the ESCAPE website in November 2019.

Join ESCAPE in the Autonomy Paris exhibition hall!

The ESCAPE partners will be in the booth C76 to provide all the information about the EGE board.

ESCAPE will be presented on Wednesday 16th Oct. from 12.25 to 13.10 in the Industry Talk dedicated to Autonomous Vehicles, on Stage 2.

For more information: www.gnss-escape.eu

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