

A Collision Avoidance System based on Galileo Satellite Positioning

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ABSTRACT

Nowadays, collision avoidance systems (CAS) are an intensive research topic since the majority of all traffic accidents are collisions that are caused due to inattention or unadjusted driving behaviour of the driver. Up to date prototypic CAS are based on on-board environmental sensors, such as camera or radar systems, that scan the vehicle's surrounding in order to assess the situation's hazardousness. The functionality of the used sensors under varying environmental conditions and the limited sensor covering area require an enormous effort to ensure a reliable detection of obstacles, and thus limit the application of the systems.

In order to expand the operating field of such systems, a Galileo-based CAS will be developed within the project 'Galileo above' (Anwendungszentrum für bodengebundenen Verkehr / application centre for ground based traffic). This advanced driver assistance system (ADAS) detects surrounding vehicles that are on collision course and reacts autonomously, if the driver does not intervene to avoid the crash. For this purpose the system initiates an emergency stop and/or an emergency steering manoeuvre.

For the development of the CAS, the Galileo test centre automotiveGATE in Aldenhoven, Germany, will be used. On this test area pseudolites will be installed which provide Galileo-like navigation signals. Thus, the development respectively tuning of Galileo-based vehicle systems will be enabled, so as to have them available on the market when the Galileo satellite system becomes operative.

At the end of the project 'Galileo above', first prototypes should demonstrate the potential of Galileo-based CAS.