sim^{TD}* – Shaping the future of road safety and mobility via C2X communication

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Abstract

Real time traffic information (RTTI) has been one of the main topics of ITS since decades. Traffic announcement (TA) over radio and the variable traffic signs on motorways and in the cities were and are still important channels for traffic information provision.

With RDS TMC, traffic information became for the first time processable to the in-vehicle infotainment systems. This technology opened up the doors for an adaptation of navigation routing to the traffic situation. Further developments of the traffic information standards, e.g. TPEG, and the digitalization of the radio broadcasting, e.g. DAB, provide additional information and more bandwidth for more sophisticated traffic information services.

On the other side, the rapid development of mobile communication paved the way for individualized traffic information and other telematic services such as E-call, B-call and SVT (stolen vehicle tracking). Particular progress in mobile communication is the introduction of UMTS and LTE technologies, which opened up the door into vehicles for the Internet and, therefore, for various web-based applications.

Another aspect in this field is that the car-to-car and car-to-infrastructure (in general C2X) communication -via dedicated short range radio- are winning more and more importance in the effort of reducing traffic fatality and optimizing traffic flow.

After all, the increasingly networking of in-vehicle systems over long and short range communications offers huge potential for new kinds of ITS applications which may combine the advantages of different technologies.

This paper presents a concept for advanced route calculation and dynamic navigation by using multiple RTTI data sources originating from C2C, C2I and Internet based services.

An RTTI application bundle was implemented conform to this concept within the research project sim^{TD}* in cooperation with Audi AG and supported by other project partners. The advanced route planning and navigation is being tested and validated together with additional C2X applications in the field test of sim^{TD}, which is one of the largest C2X FOTs world-wide.