Novel V2X Communications

VTIP 18-094: “Technique for Managing and Future-proofing of Vehicular Communications”

THE CHALLENGE

Currently there is no consensus on the best way to accomplish V2X (vehicle to anything) communications. This has far reaching implications for the future of transportation systems and is a subject of much debate within automotive safety. Thus, there is a need to future-proof the framework of V2X communications to allow automobiles to adapt to changes in communications technology, and in growing demands for connectivity.

OUR SOLUTION

The basic idea for a future-proof framework for managing vehicular communications is to include a Radio Environment Map (REM) in each vehicle that directs the way that cars will communicate with each other and the infrastructure around them depending on the location of the vehicle. The REM is a geographically indexed database (including current x,y,z position, and possible velocity vector and/or desired future position) that would indicate the communications mode (communications standard, frequency bands, fallback communications plan, allowed type of traffic, and security/authentication parameters derived from location among other factors).

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A smart vehicle in which this technology could be utilized to communicate with other technology.

A driver could access the REM with existing interfaces seen in many vehicles today.