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Vehicle to Vehicle Technology Communicates Driving Hazards (20140049, Dr. Imran Hayee)

IP Status: Issued US Patent; **Application #:** 14/593,172

V2V Integrates with DSRC for Automated Vehicles

A new system has been developed that replaces roadside V2I DSRC units with a Vehicle-to-Vehicle (V2V) network to relay dangerous changes in the speed of traffic along with additional statistics. A vehicle approaching an area where traffic speed is volatile will issue a dedicated short-range communications (DSRC) Basic Safety Message to other DSRC-equipped vehicles. Of these trailing vehicles, one is chosen as the ad-hoc "host", and data such as the congestion zone beginning and span as well as travel time are relayed to other trailing vehicles. This technology requires only 30% of cars involved to be DSRC-equipped, but onboard DSRC is expected to become standard following the USDOT February 2014 recommendations. Applications for this technology include integration into manufactured DSRC onboard systems in anticipation of standard DSRC inclusion in U.S. road vehicles. DSRC is a critical technological advancement towards automated vehicles on U.S. roads.

Dedicated Short-Range Communications

Traffic congestion, car crashes, police patrols, and construction all cause unpredictable traffic speed environments and driving hazards. Rear-end collisions are a common, deadly result of distracted and misinformed driving in these environments. V2V DSRC systems have been developed to assist drivers in normal driving conditions. However, Vehicle-to-infrastructure (V2I) roadside units have been relied upon to alert passing cars of driving hazzards. These roadside units provide infrequent, unreliable updates and are not standard.

BENEFITS AND FEATURES OF HOST CONTROL V2V DSRC SYSTEM**:**

- Eliminates unreliable, infrequent V2I roadside alerts
- Only requires 30% of cars on road to be DSRC-equipped (20% in heavy traffic)
- Aimed at reducing injury-causing rear-end collisions due to abrupt changes in traffic speed

Phase of Development Initial field evaluation and lab testing conducted.

Researchers

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