



The *TranLIVE Spotlight* is a bi-weekly update from the University Transportation Center research collaboration led by the University of Idaho

September 15, 2014

TRANLIVE RESEARCHERS WORK TOWARD IMPROVING REAL-TIME VEHICLE TO VEHICLE SAFETY APPLICATIONS

MOSCOW, Idaho – Researchers from the TranLIVE university collaboration have shown that redundant channels for communication in Intelligent Transportation Service (ITS) safety applications using Basic Safety Messages (BSMs) can increase ITS reliability. This research is significant given the hazard reducing benefits of ITS systems in Vehicle-to-vehicle (V2V) communication.

In a report published by Axel Krings, Ahmed Serageldin, Ahmed Abdel-Rahim, and Michael Dixon (posthumously), the University of Idaho researchers investigate the security of innovations in V2V communications and develop a solution to thwart potential communication attacks. According to the report the vulnerability of wireless communication in V2V communications used by Dedicated Short Range Communications (DSRC) safety applications makes it necessary to evaluate the effects of potential malicious attacks such as intentional jamming, which could lead to accidents and fatalities. State-of-the-art DSRC applications exchange critical wireless vehicle-based data such as position, speed, and location to aid in calculating risk and issuing warnings to the driver. In response to the dangers imposed by potential intentional interference, Krings, Serageldin, Abdel-Rahim and Dixon developed a solution that communicates the same DSRC message over multiple channels, making ITS systems more resistant to malicious disruption. After testing various safety scenarios, it was shown that the double and triple redundancy mechanisms in the ITS systems remained unaffected as long as one channel remained unjammed.

Another advantage of the double and triple redundancy mechanisms is that it is built off of existing standards, meaning no significant changes are necessary to protect the communication architecture.

The complete report is available at: <http://bit.ly/tranlive091514>

ABOUT TRANLIVE UNIVERSITY TRANSPORTATION CENTER

TranLIVE is the Transportation for Livability by Integrating Vehicles and the Environment a research collaboration lead by the University of Idaho in partnership with Old Dominion University, Syracuse University, Texas Southern University, and Virginia Polytechnic Institute and State University. TranLIVE works to find solutions to transportation challenges that minimize environmental impacts while educating students to enter the transportation workforce and creating and transferring tools and knowledge to practicing transportation professionals. TranLIVE is sponsored by the United States Department of Transportation (USDOT) University Transportation Centers Program. For more information visit: www.tranliveutc.org