



Joint Free Seminar

Smartphone-Based Teen Driver Support System: Results from a 300 teen driver field operational test

**Professor Max Donath
University of Minnesota**

4:00–5:00pm Monday, 31 October 2016

**OMB 151, Level 1, Old Main Building K15
The University of New South Wales
Kensington Campus**

Although teen drivers make up a small percentage of the U.S. driving population, they are at an especially high risk of being involved in a crash. To help teen drivers stay safe on the road, we developed the Teen Driver Support System (TDSS). The smartphone-based system is a comprehensive application that provides real-time, in-vehicle feedback to teens about their risky behaviors—and reports the behaviors to parents via text message if teens don't heed the system's warnings. The TDSS device, mounted on the vehicle's dashboard, provides visual and auditory warnings to the teen driver about speeding, stop sign violations, upcoming curves, and excessive maneuvers—hard turning, hard braking, and hard accelerations. It also prevents teens from using their phones to text or call (except 911) while driving.

The research team completed a 12-month field operational test of the system involving 300 newly licensed teens in Minnesota. The test included a control group that received no feedback, a “partial” TDSS group that received only in-vehicle feedback, and a TDSS group that received both in-vehicle feedback and near “real-time” parental notification. Research results indicate an overall safety benefit of TDSS, demonstrating that in-vehicle monitoring and driver alerts, coupled with parental notifications, is a meaningful intervention to reduce the frequency of risky driving behaviors that are correlated with novice teen driver crashes.

An overview of various projects underway at the Roadway Safety Institute (RSI) will also be covered. The RSI is the USDOT Region 5 University Transportation Center, developing solutions to safety issues in the six north central states bordering the Great Lakes. Institute projects include among others: helping visually impaired pedestrians safely navigate intersections and work zones using smartphone and Bluetooth technologies; working with tribal governments to identify and resolve safety concerns on tribal lands; and improving safety for bicyclists with bicycle-mounted sensors that can predict imminent collisions with vehicles.

Max Donath is the director of the Roadway Safety Institute and Professor of Mechanical Engineering at the University of Minnesota. Prof. Donath's efforts have been directed towards keeping the driver in the loop, using sensing technologies, control systems and improved human-machine interfaces to reduce driver error, and thus prevent crashes before they happen. The focus of his research can be grouped into three areas: (a) collision avoidance and active safety, (b) novel human-machine interfaces for providing improved situation awareness to the driver and pedestrian, and (c) reducing age-related risky driving behavior. Donath received a B. Eng. from McGill University and went on to earn S.M. and Ph.D. degrees from the Massachusetts Institute of Technology. He joined the University of Minnesota in 1978.

See overleaf for Campus Map and metered parking options (top level H25 Botany Street Parking Station via Gate 11 and Barker Street Parking Station via Gate 14), off-street parking also available; subject to availability. RSVP not required.



