UNIVERSITY OF MINNESOTA
Driven to Discover℠

Automated freeway queue warning system

A system for estimating crash-probabilities for automated freeway warning systems.

IP Status: US Patent Issued; **Application #:** 10,783,787

Applications

- Automation in transportation - freeway warning system for crash reduction

Technology Overview

Researchers at the University of Minnesota have developed a system and method to determine crash-probabilities on a freeway by utilizing traffic information such as individual vehicle speeds and time headways. This freeway queue warning system is capable of detecting dangerous traffic conditions in crash-prone zones on freeways, and automatically deliver warning messages to drivers to increase their alertness, and ultimately reduce the crash frequency on urban freeways. With initial calibration, this system could be implemented in any location, regardless of normal traffic conditions of the location. As a conditional warning system, this technology can react to shockwaves in a selective manner and only warn drivers when the shockwave is dangerous and crash-prone. Such a system also terminates the alerting state when traffic recovers to a condition that is safer.

Phase of Development

TRL: 4
Proof of concept system was developed and validated on I-94 near Downtown Minneapolis.

Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

Please contact our office to share your business' needs and learn more.

Researchers

- **John Hourdos, PhD,** Research Associate Professor; Director, Minnesota Traffic Observatory, Department of Civil, Environmental, and Geo- Engineering

References

1. Hourdos, J., Liu, Z., Dirks, P., Liu, H. X., Huang, S., Sun, W., & Xiao, L , Development of a queue warning system utilizing ATM infrastructure system development and field-testing (No. MN/RC 2017-20).

Technology ID
20170349

Category
Engineering & Physical Sciences/Instrumentation, Sensors & Controls
Engineering & Physical Sciences/Transportation
Software & IT/Transportation

Learn more