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Innovation Infosheet

Real-Time Advanced Congestion Identification Warning System Using Cloud-Based Traffic Data

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Categories:
- Civil Engineering
- Computer Technology

Keywords:
- Big Data
- Civil Engineering
- Cloud Computing
- Computer Technology
- Data Visualization
- GPS
- Public Safety
- Transportation

Currently, there is a high frequency of automobile crashes due to distracted and inattentive drivers colliding into the back of slowed or stopped traffic. However, in recent years, crowd-sourced probe vehicle data has become commercially available, allowing engineers and planners to assess traffic conditions on road networks in real-time. The data is provided as an average speed during a one minute interval over a predefined geometric segment of roadway. Therefore, there is a need to utilize this newly available data to identify stopped or slowing traffic and alert upstream drivers via audible sirens or display boards.

Researchers at Purdue University developed a technology for a real-time advanced congestion identification warning system for automobiles, using cloud-based traffic data. This technology reduces the risk for a back-of-queue crash by identifying locations of slowed or stopped traffic and then alerting drivers who are approaching the affected area. The traffic alert can be triggered in different ways, with or without human approval. In addition, the installation of this device can be temporary to address nonrecurring congestion near work zones or maintenance areas.

Advantages:
-Reduces the risk for a back-of-queue automobile crash
-Installation of this device can be used for temporary situations
-The system is inexpensive and built off existing technology

Potential applications:
-Traffic management

-Automobile industry
-Automobile accessories

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