

ADAS Crash Safety Analysis via OBMS Data



U.S. Department of Transportation
Federal Motor Carrier Safety Administration

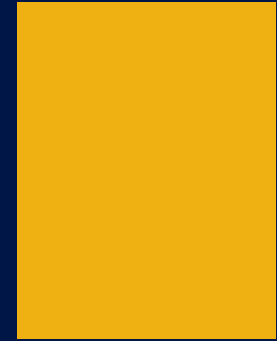
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Federal Motor Carrier Safety Administration

2023

ANALYSIS,
RESEARCH, &
TECHNOLOGY
FORUM

VIRTUAL EVENT



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- **Background**

- Advanced Driver Assistance Systems (ADAS) have the potential to mitigate or prevent crashes and their associated injuries and fatalities.
- Currently, there are only anecdotal and estimated data on the safety impact and effectiveness of ADAS systems in CMVs.

- **Purpose**

- This project is evaluating On-Board Monitoring System (OBMS) data from ADAS-equipped CMVs to determine the safety benefits of ADAS.
- *The results will quantify the efficacy of ADAS systems from real world driving data.*

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- **Objectives and Goals**

- To empirically measure ADAS safety benefits through the evaluation of 4 years of historical OBMS Crash and Safety Critical Event data

- ADAS systems to be studied are

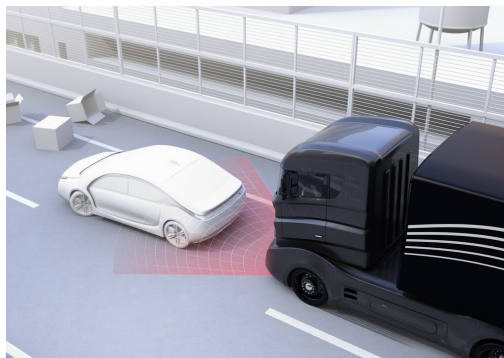
- Forward Collision Warning (FCW)
- Lane Departure Warning (LDW)
- Automatic Emergency Braking (AEB)
- Pedestrian Collision Warning (PCW)

- Datasets will come from information gathered on SmartDrive OBMS



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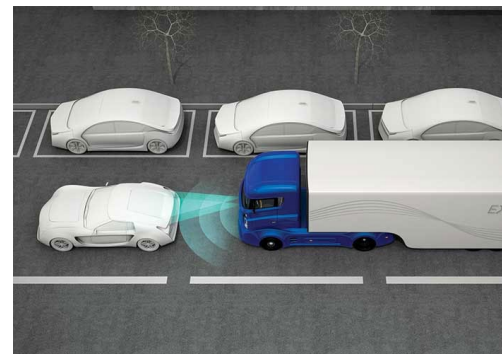
- **Data, Process, and Methods**
 - *Data from July 2018-June 2021*
 - *54,250 unique trucks*
 - *5.7 Billion Vehicle Miles Traveled (BVMT)*
 - *82.1% on primary road (4.7 billion miles)*
 - *17.9% on secondary roads (1.0 billion miles)*
 - *10,311 crashes and 60,111 near-crashes*
 - Empirically assess ADAS safety benefits through OBMS data
 - Explore the relationship between crashes and near-crashes



FCW



AEB



LDW



PCW

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- **Anticipated Outcomes**

- Quantify the safety effectiveness of each ADAS type by factoring in the total miles driven during the study period.
 - The crash risk difference among trucks with and without ADAS system, including FCW, AEB, LDW, and PCW
- Crash / Safety Critical Event comparison

Timeline and Milestones

Tasks	Projected End Date
First data delivery	November 25, 2020
Begin Analysis of Safety Critical Events and Crashes	September 25, 2021
Final Analysis of Safety Critical Events and Crashes	April 30, 2023
Draft Final Report (D)	May 25, 2023
Final Briefing and Report (D)	September 24, 2023

Contact Information

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