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2020 RESEARCH PROJECT STATEMENT

Research Topic:

Impact of Advanced Driver Assistance Systems (ADAS) on Road Safety and Implications for Education, Licensing, Registration, and Enforcement [Research Project Award max \$120,000]

Problem Statement and Objectives

Many new passenger vehicles come equipped with advanced driver assistance systems (ADAS) which aim to improve safety by assisting with the driving tasks (examples: lane-keeping assistance, dynamic cruise control). The growing availability of these technologies will have implications for driver education and licensing, vehicle registration, and law enforcement. Drivers may misinterpret or misunderstand these systems' functionalities and attribute more capabilities to the systems than what they are actually able to do, which could lead to their misuse and could have an adverse impact on travel safety. ADAS currently exist in a small proportion of late-model vehicles and constitute a small part of the fleet, so any negative impact or unintended consequences may not be immediately evident. However continued deployment of these systems may increase potential negative impacts with increased exposure. There exists a critical gap in our understanding of the potential impacts of the deployment and proliferation of ADAS systems.

This project has the following research objectives:

- Conduct a review of the current state of commercially-available ADAS technologies, including driver monitoring systems as applicable, to document manufacturers' offerings, and potentially develop an understanding of the distribution of such vehicles in the State via RMV vehicle registration data.
- Examine drivers' knowledge of ADAS systems, types of driver errors associated with the use of ADAS, and potential for ADAS misuse and circumvention of driver monitoring systems. Study the impact of drivers' knowledge of ADAS on its use/misuse.
- Develop and evaluate mitigation approaches to improve drivers' understanding of ADAS technology,



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Anticipated Outcomes and Deliverables

- Summary of current commercially-available ADAS technologies and level of deployment.
- Results from evaluating drivers' knowledge of ADAS, and potential driver errors and misuse associated with ADAS. These evaluations will be conducted through methods such as surveys, driving simulation experiments, and randomized trials.
- Proposed recommendations to MassDOT for mitigating identified concerns with ADAS, in terms of driver education and licensing, vehicle registration, and enforcement.