UTC Project Information	
Project Title	Real-world Use of Automated Driving Systems and their Safety Consequences
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Funding Source(s) and Amounts Provided (by each agency or organization)	Safe-D: $40,163 Match: $40,163
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Brief Description of Research Project	Automated driving systems (ADSs) have the potential to fundamentally transform transportation by reducing crashes, congestion, and cost while improving traffic efficiency and access to mobility for the transportation-challenged population. However, people may not use ADS as intended due to their misunderstanding of such systems' capabilities and limitations. Recent news articles, reporting Tesla drivers napping behind the wheel, suggest the need for a better understanding of how people are using ADSs as well as what benefits and consequence that such systems have on transportation safety. Therefore, this work aims to investigate the (1) limitations of automated longitudinal and lateral control features (e.g., adaptive cruise control and lane keeping assistance) found in real-world operation, (2) unintended use of such systems and their safety consequences, as well as (3) driver perception of these novel technologies. For this purpose, this study will leverage data collected from 50 participants who drove personally owned vehicles equipped with ADSs for 12 months.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	Based on the findings from this study, the research team will develop a summary of the best practices/lessons learned related to driver interaction with L1 and L2 driving automation features. The research team will also disseminate findings to broader audiences by presenting at a major conference.
Impacts/Benefits of Implementation (actual, not anticipated)	The work will contribute to a greater understanding of the prevalence and safety consequences of ADS use on public roadways, as well as drivers' perception of the early production ADS. The findings from this project will further inform the

	development of human-machine interfaces, training programs, and owners' manuals to reduce unintended use of ADSs and negative consequences. The identified characteristics of the situations when the driving automation requested human drivers' intervention or failed without alerts will further inform the development of testing scenarios to ensure ADS safety.
Web Links • Reports • Project website	https://www.vtti.vt.edu/utc/safe-d/index.php/projects/real-world-use-of-automated-driving-systems-and-their-safety-consequences/