

< 응용 논문 >

미국 캘리포니아 자동차관리국 제출보고서 기반
자율주행해제 원인 분석 연구

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**Analysis of Cause of Disengagement Based on U.S. California
DMV Autonomous Driving Disengagement Report**

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Abstract : With the dawn of the era of automated vehicles and the recent development of key technology in the automated driving system, there is a rising demand for solving the safety issue of control take-over along with legal system improvement and social acceptability. In order to secure the control take-over safety in Level 3 automated vehicles, which are expected to be commercialized, this paper seeks to analyze the automation mode disengagement situations and its causes in order to provide the foundation necessary to develop the take-over evaluation scenario and evaluation standard. The Autonomous Driving Disengagement Reports submitted to the U.S. CA Department of Motor Vehicles(DMV) were analyzed as follows: The analysis was implemented in the phases of securing temporary operational rule and disengagement report data; data conversion and integrated data building for easy data analysis of the secured disengagement report data; classification of disengagement situations and causes according to the three road traffic factors; and implementation of descriptive statistical analysis on the classified disengagement situations. From September 2014 to November 2016, 7 selected companies were found to have a total of 3,271 times of automated driving mode disengagement. Vehicle factor, which consisted of the automated driving system and automated vehicle, accounted for 54 %; environmental factor, which consisted of traffic participants, road, weather, traffic flow, and obstacle, accounted for 25 %; and human factor, which consisted of subjective inconvenience, accounted for 22 %. Based on the findings, the situation where Level 3 automated vehicles had the driving right then transferred the control regardless of the driver's status was classified into: 1) automated vehicle hardware failure; 2) automated driving system software failure; and 3) operational design domain deviation cases for structuralization.

Key words : Disengagement of autonomous mode(자율주행모드해제), Take-over(제어권 전환), Autonomous vehicle(자율주행차량), Disengagement report(해제보고서), Human factor(인적 요소)

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