자동차 주행 안전기준
최신 동향 및 대응 방안 II

VRU 충돌 상황에 대한 AEBS 시험 평가 고찰

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A Study on AEBS Test in VRU Collision Situation

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Key Words : ADAS(첨단운전지원시스템), NCAP(자동차안전도평가), AEBS(비상자동제동장치), FCW(전방충돌경고장치)

ABSTRACT

Advanced Emergency Braking system(AEB) is a technology that detects a forward collision situation and automatically operates the brake system to decelerate or stop the vehicle in order to avoid or mitigate the collision while driving. Currently, it is mostly applied to vehicles as standard and encouraging car manufacturers to develop and apply it for safer automobiles through domestic regulations and New Vehicle Safety Assessment(KNCAP). However, domestic actual vehicle-based test and research on advanced emergency braking system are not active. Therefore, this study analyzes the actual vehicle-based test results and tendency for VRU(Vulnerable Road User) AEB system based on KNCAP test and assessment protocol.

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운전자지원첨단조향장치(ACSF) 안전기준 개정과 발전방향

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Revision of Automatically Commanded Steering Function(ACSF) Safety Regulation and Development Direction

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Key Words : ACSF(운전자지원첨단조향장치), ADAS(첨단 운전지원 시스템), UN Regulation 79(유럽 안전기준 79번)

ABSTRACT

ADAS technology has advanced rapidly in terms of driving convenience and safety. This has been developed to the ACSF function that directly supports steering, and has completed harmonization of international regulations based on UN Regulation 79. With ACSF, the drivers use more advanced lane keeping, automatic lane change, and emergency steering function to reduce the driver's load and improve driving safety. However, a vehicle was found that was manufactured differently form the intended function, and the driver's misunderstanding and misuse of the function can reduce safety and cause an accident. It is time to clearly understand and utilize ACSF functions. Two goals are to be achieved through the study of revision of ACSF safety regulation and development direction. The first is to prevent misuse by drivers through understanding ACSF, thereby creating a safe traffic environment. The second is sharing the current safety regulations and enforcement regulations revision progress and future revision directions, manufactures are encouraged to develop the right technology.

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K-City 내 실제 교통상황 재현 시스템 구축 방안에 대한 연구

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A Study on How to Build a Real Traffic Situation Reproduction System in K-City

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Key Words : Traffic situation reproduction(교통상황 재현), K-City(케이씨티), Autonomous vehicle(자율주행차), Pedestrian dummy(보행자 더미), Bicycle dummy(자전거 더미)

ABSTRACT

The autonomous driving experimental city(K-City) consists of five environments: an automobile-only road, an urban road, a suburban road, a community road, and an autonomous parking facility. Through these five environments, an evaluation system for autonomous vehicles is being established. However, there are many difficulties in realizing various traffic environments by operating limited autonomous driving test scenarios that depend only on geometric elements. These days, a small number of expensive autonomous vehicles are being used as fellow vehicles to reproduce vehicle-based traffic conditions. In addition, since the dummy dolls for pedestrians and bicycles use certain expensive foreign products, they are experiencing difficulties in that a large amount of budget is required to create a diverse traffic environment.

In this paper, we investigate the development trend of the real traffic situation reproduction system in test beds around the world, and introduce a study on how to build a various real traffic situation reproduction system in the autonomous driving experimental city(K-City).

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K-City 내 자율주행 기술 개발 지원을 위한 시뮬레이션 툴체인 구축 방안에 대한 연구

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A Study on How to Build a Simulation Tool Chain to Support Autonomous Driving Technology Development in K-City

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Key Words : Simulation tool chain(시뮬레이션 툴체인), K-City(케이씨티), Support(지원), Verification(검증), Evaluation (평가), Autonomous vehicle development process(자율주행차 개발 프로세스)

ABSTRACT

This paper introduces a study on how to build a simulation tool chain to support companies and research institutes using autonomous driving experimental city(K-City). They need to verify the technology in advance to test the development of autonomous driving technology based on a real vehicle, and to repeatedly evaluate and verify the autonomous driving technology based on previously driven or virtual data through simulation. We figure out the trend of AD vehicle development and introduce a simulation tool chain that considered major technology and development processes of autonomous vehicle development.

The simulation tool chain consists of four parts. 1) Driving simulator and integrated control equipment that can test/verify the judgment and control function of autonomous vehicle and driver's riding comfort, 2) Equipment that can perform simulation based on various autonomous vehicle scenarios (creation and management), 3) Equipment that can acquire road environment data of the actual test bed and perform simulation verification based on it, 4) Equipment that can develop and evaluate autonomous vehicle sensor-related functions in the simulation environment.

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