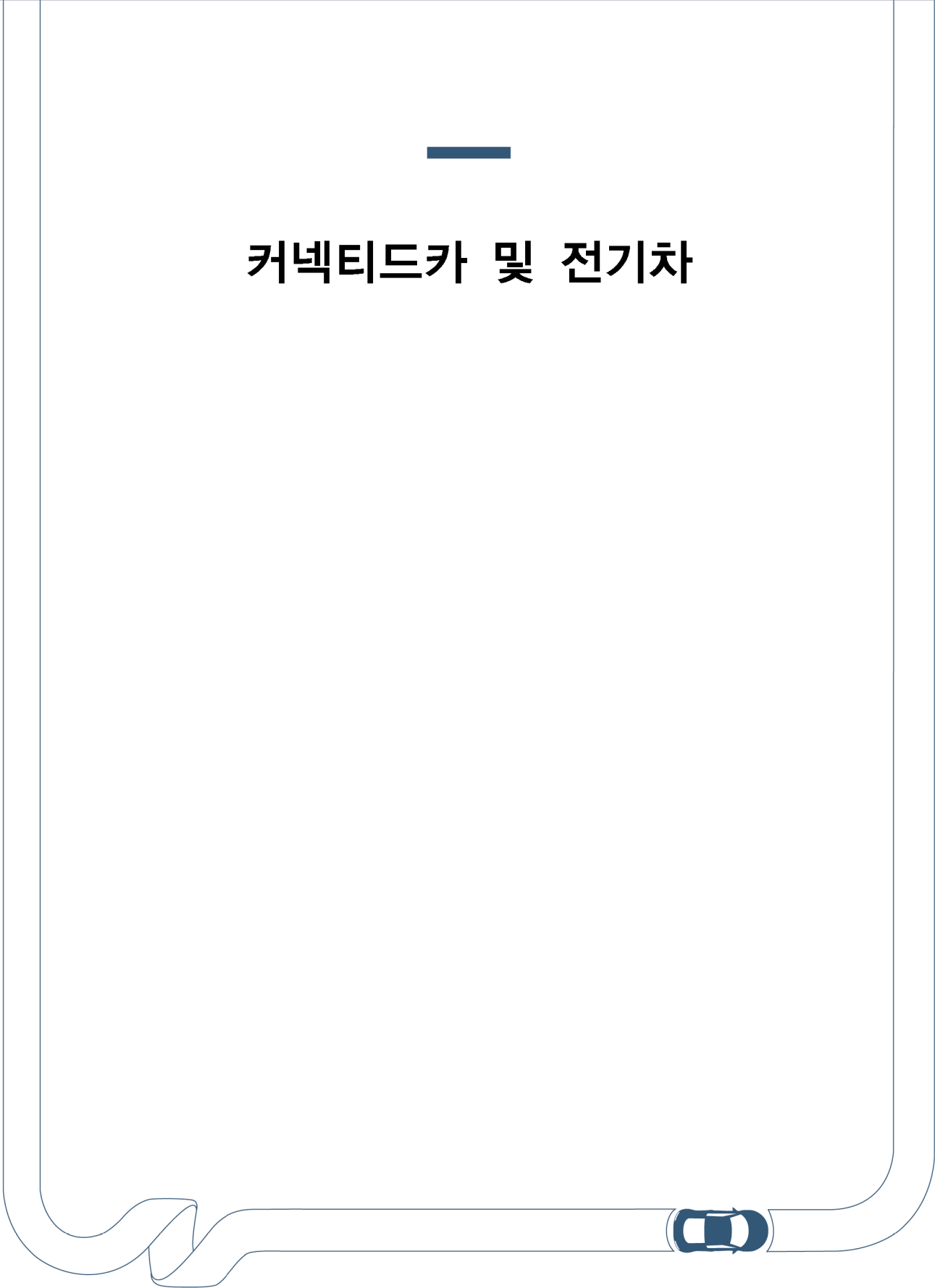# 커넥티드카 및 전기차

차량 구독 서비스의 보안 위협, 요구사항, 가이드라인 연구

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The Study on Security Threats, Requirements, and Guidelines for Vehicle Feature on Demand (FoD) Services

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Key Words : Feature on Demand(선택적 구독 서비스), Vehicle Cybersecurity(차량 사이버보안), Security Threats(보안 위협), Security Requirement(보안 요구사항), Security Guideline(보안 가이드라인)

ABSTRACT

The vehicle industry is rapidly evolving from hardware-based to software-based. Accordingly, the SDV (Software-Defined Vehicle) concept, which manages/uses vehicle features through software, emerged. The emergence of SDV led to the proposal of a new business model, vehicle FoD (Feature on Demand) service. The FoD service is a subscription-based service that allows drivers to selectively activate or deactivate specific features in the vehicle through OTA (Over the Air) or wired. Therefore, the drivers are able to use the required features for the required period. Meanwhile, as the FoD service is introduced to vehicles, the resulting cybersecurity threats are also increasing. For example, an attacker may steal a feature activated in other vehicles and use it without paying subscription fees. To defend against these security threats, in this paper, we study the security threats, the security requirements for the threats, and suggest guidelines that can achieve the requirements.

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타이어 이탈 사고 영상데이터를 반영한 군집자율주행 시나리오 개발에 관한 연구

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A Study on the Delvelopment of Platoon Autonomous Driving Scenarios Reflecting Video Data of Tire Departure Accidents

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Key Words : NCAP(신차안전도평가), Platooning(군집주행), PC-Crash(교통사고분석프로그램), V2X(차량사물통신), Edge case(엣지케이스)

ABSTRACT

This study is about scenario development to verify the technical safety of autonomous vehicles and platoon autonomous vehicles based on domestic traffic accidents. NCAP (New Car Assessment Program)'s accident prevention safety scenario is intended to confirm the safety level of the product for evaluation, and it is necessary to develop a scenario to verify the safety of autonomous vehicles. Recently, the development of autonomous vehicle scenarios has become important, such as by studying actual vehicle tests with edge case scenarios based on traffic accidents and providing artificial intelligence learning data for autonomous vehicles. This study is a scenario in which an actual tire departure accident is reproduced using the PC-Crash program and reflected in a platoon autonomous vehicle. This is a scenario in which a tire deviates and moves to the opposite lane, causing the vehicle in front to avoid the tire and collides with the vehicle behind, and the platoon autonomous vehicle is driving in the opposite lane. As a result of applying the scenario, it was possible to check whether or not avoidance was possible depending on the distance between vehicles and the preceding vehicle in platoon autonomous driving. It is also expected that this scenario can be used as a V2X communication and control transfer test scenario.

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ITU-T 커넥티드 카 사이버 보안 표준화 동향

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The Trends of Cyber Security Standardization for Connected Vehicles in ITU-T

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Key Words : Connected vehicle(커넥티드 카), Cyber security(사이버 보안), Standardization(표준화), OTA(커넥티드 카 무선 통신), IDS(침입 탐지 시스템), FoD(선택적 구독 서비스), ITU-T SG17

ABSTRACT

As cyber security threats targeting connected vehicles have recently increased, various standard technologies are being developed to mitigate, counteract and defend against the cyber threats. ITU-T Study Group 17 (SG17) Question 13 (Q13) is one of the international standardization organizations, and studies and develops practical cyber security standard technologies in the intelligent transport system area including the connected vehicle. Mainly, Q13 is exploring standard technologies such as secure OTA updates, in-vehicle intrusion detection systems, etc. In this paper, we introduce the standardization activities of Q13 regarding intelligent transportation system security including a brief explanation of each working item finalized or being developed in ITU-T SG17. Then, by describing the relationship between standard technologies and standard patents, we emphasize the requirement for standardization activities to handle intellectual property rights, royalties, licenses, and securing leadership in standard technologies.

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지하주차장 전기차 화재 위험성

최명영*

Fire Risk for Electric Vehicles in Underground Parking Lots

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Key Words : Underground parking lots(지하주차장), EV(전기차), Lithium-ion battery(리튬이온배터리), EV safety (전기차 안전성)

ABSTRACT

Recent Surge in Electric Vehicle Fires Raises Safety Concerns with the rapid rise in popularity and usage of electric vehicles (EVs), there has been a corresponding increase in EV-related accidents. In particular, EV fires in underground parking garages can cause significant damage and raise safety concerns. The increase in EV fires coincides with the government's policy to promote eco-friendly cars. The characteristics of buildings in Korea make it highly likely that EV fires will occur in underground spaces (about 17% of EV fires occur during charging and 54% occur in parking lots). Domestically, about 27% of car fires are suspected to have occurred during parking or stopping (parking lot and public space fires). Globally, 56% of EV fires occur during parking or stopping (some media reports claim that 80% of EV fires occur during charging). An analysis of firefighting activities by the National Fire Agency (1399 underground parking lot fires and 4734 other parking lot fires over the past 10 years) showed that the average fire suppression time for underground parking lot fires was 17.91 minutes.**This is about 47% longer than the average fire suppression time of 12.15 minutes for other parking lots. The average property damage cost in underground parking lots (24,856,000 won) is also more than twice that of other parking lots (10,910,000 won). Although the installation of EV charging facilities underground is recommended on the first basement floor, there is a high risk of using flammable insulation materials in underground parking lots adjacent to living quarters. The sprinkler system operation rate in underground parking lots is only 18% (mostly dry and pre-action systems are installed), which makes it difficult to suppress EV fires in underground parking lots, raising concerns about significant damage.

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