A Study on Automotive Attack Database and Data Flow Diagram for Concretization of HEAVENS: A Car Security Model

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Abstract : In recent years, with the advent of smart cars and the expansion of the market, the announcement of 'Adventures in Automotive Networks and Control Units' at the DEFCON21 conference in 2013 revealed that cars are not safe from hacking. As a result, the HEAVENS model considering not only the functional safety of the vehicle but also the security has been suggested. However, the HEAVENS model only presents a simple process, and there are no detailed procedures and activities for each process, making it difficult to apply it to the actual vehicle security vulnerability check. In this paper, we propose an automated attack database that systematically summarizes attack vectors, attack types, and vulnerable vehicle models to prepare for various car hacking attacks, and data flow diagrams that can detect various vulnerabilities and suggest a way to materialize the HEAVENS model.

Keywords : automotive security, HEAVENS, car hacking, security model, information security
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