

Approach to Functional Safety-Compliant Design of Electric Power Steering Systems for Commercial Vehicles

Authors : Hyun Chul Koag, Hyun-Sik Ahn

Abstract : In this paper, we propose a design approach for the safety mechanism of an actuator used in a commercial vehicle's EPS system. As the number of electric/electronic system in a vehicle increases, the importance of the functional safety has been receiving much attention. EPS(Electric Power Steering) systems for commercial vehicles require large power than passenger vehicles, and hence, dual motor can be applied to get more torque. We show how to formulate the development process for the design of hardware and software of an EPS system using dual motors. A lot of safety mechanisms for the processor, sensors, and memory have been suggested, however, those for actuators have not been fully researched. It is shown by metric analyses that the target ASIL(Automotive Safety Integrated Level) is satisfied in the point of view of hardware of EPS controller.

Keywords : safety mechanism, functional safety, commercial vehicles, electric power steering

Conference Title : ICAS 2017 : International Conference on Automotive Safety

Conference Location : Barcelona, Spain

Conference Dates : May 26-27, 2017