Study of Drive-by-Wire Electronic Throttle and Adaptive Cruise Control Technology Integration

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ABSTRACT

This study is proposed to develop a longitudinal vehicle Drive-By-Wire (DBW) Adaptive Cruise Control (ACC) dynamic simulation system by using object-oriented program. The main objective of this study is to integrate the design of the intelligent cruise control system involving the automatic control of throttle position for DBW system and the brake pedal position to maintain the safe relative distance. The Pulse Width Modulation (PWM) signals generated from the Hardware In-the Loop (HIL) were sent to the electronic-drive circuits of an electronic throttle DC motor. From the corresponding output throttle and brake pedal position the vehicle dynamic response were observed. Fuzzy logic controller parameters were adjusted in the simulation HIL environment to ensure the performance and the safety requirement of the ACC system.

Keywords : Drive-By-Wire, Pulse Width Modulation, Adaptive Cruise Control

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