

TWO - LAYER CONTROL STRATEGY FOR DYNAMICS CONTROL SYSTEM OF GROUND VEHICLE

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Abstract

Dynamics Control System (DSC) is a new active safety chassis system for the vehicle. It enhances the safety of automobile. Especially when the driver turns the steering wheel rapidly to avoid an obstacle, or drives the car go through a turn road in a high speed, for example, driving a car in high way. A 2-layer control strategy of DSC was designed and evaluated. The 1st layer control module monitored the attitude of the vehicle and the 2nd layer module monitored the situation of the 4 separate wheels, the thresholds triggered the control action by the calculated parameters. Hardware-in-the-loop simulation showed that the DSC designed helped the vehicle to succeed the maneuver of Constant radius cornering and Slalom maneuver successfully.

Keywords: Dynamics Control System, active safety, 2-layer control, hardware-in-the-loop.