

Abstract

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Control of Electro-mechanical Brake-by-Wire System Using Sliding Mode Control

Brake-By-Wire (BBW) system is a new and promising vehicular braking control scheme. It replaces the conventional hydraulic electro-hydraulic devices by electromechanical actuators and emerged communication networks. The brake-by-wire systems, such as EMB (Electro-Mechanical Brake), is applied to the intelligent vehicles since the brake-by-wire units are lighter in weights and have faster response compared to conventional hydraulic brake units. In this paper a mathematical model for BBW system is established. A controller based on sliding mode strategy is modeled and simulated. A test rig has been established to validate the model and test the results of simulation. The tests show that the actual results match the simulated with accepted error.