

Robust State feedback Controller for an Active Suspension System

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Abstract : The purpose of this paper is to present a modeling and control of the active suspension system using robust state feedback controller implemented for a half car model. This system represents a mechatronic system which contains all the essential components to be considered a complete mechatronic system. This system must adapt different conditions which are difficult to compromise, such as disturbances, slippage, and motion on rough road (that contains rocks, stones, and other miscellanies). Some current automobile suspension systems use passive components only by utilizing spring and damping coefficient with fixed rates. Vehicle suspensions systems are used to provide good road handling and improve passenger comfort. Passive suspensions only offer compromise between these two conflicting criteria. Active suspension poses the ability to reduce the traditional design as a compromise between handling and comfort by directly controlling the suspensions force actuators. In this study, the robust state feedback controller implemented to the active suspensions system for half car model.

Keywords : half-car model, active suspension system, state feedback, road profile

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