LQR and Fuzzy Controllers in Active Suspension Systems

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ABSTRACT

The purpose of this article is to design a controller of a half-car active suspension system for comfort driving. At the same time, we wish to keep a good performance in response to the disturbance of variant road environment. Active controller design is for a vehicle suspension system to adapt to road and also to satisfy drivers comfort. To achieve this purpose, we adopt fuzzy logic control and linear quadratic regulator (LQR) technologies. These two controllers were tested through different road conditions and compared with the existing passive suspension system. The results of experiments show that both active controllers are superior to those of the passive suspension system. Moreover, the performance of the proposed fuzzy controller is significantly supreme to that of the LQR.

Keywords : Fuzzy   LQR   Half-car

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