Ride Comfort Evaluation of a Small Vehicle Seat Suspension Based on Subjective Judgement

by

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Abstract

A small active seat suspension has been designed and manufactured for a one-seat electric vehicle. Our aim was to develop a vibration-isolation system for the driver's seat suspension using active control. However, the evaluation of ride comfort during the electric vehicle running has depended on subjective judgement by drivers. Thus, it is necessary to evaluate the correlation of subjective judgement with objective judgement according to physical values, i.e., vibrations. In this study, ride comfort ratings evaluated subjectively by the "Paired Comparison Method" were compared with the measured acceleration of the seat surface. As a result, a good correlation between the subjective judgement and the physical values is verified.

Keywords: Seat Suspension, Ride Comfort, Subjective Judgement, Electric Vehicle, Optimal Control, Sliding Mode Control

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