

Review of: "Simulation of Control System for a Half-Car Suspension System for Passenger Vehicle Application by Designing an LQR Controller"

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Potential competing interests: No potential competing interests to declare.

I'm afraid that this paper doesn't bring anything new to the field of active suspension controller design and makes claims that are not substantiated by the graphical output. The authors may wish to consider the following if they wish to improve the work and make it suitable for publication.

1. You claim to have studied both the ride and handling benefits of your LQR controller but unfortunately this is very difficult with a half car model and you'd need to consider the tyre load fluctuation which provides a very approximate measure of road inputs on the potential lateral tyre forces. It would be best to either use a multi-body simulation package for the analysis of handling or remove this claim from your paper.
2. In figures 6 - 9 you haven't actually stated the road input and have expected the reader to guess
3. It's not uncommon for active suspensions to enable improved road isolation by allowing increased wheel to body motion. Often, these wheel to body displacements are possible in simulation but not practically possible. Your work would benefit from graphical data on the wheel to body displacement.
4. Active suspensions can require very large power inputs. It would be good to see this output data.
5. Your controller assumes an instantaneous response from the actuator. This is unlikely and potentially very expensive. I'd be inclined to look at the effect of the actuator bandwidth.
6. You talk about 'environmental protection and fuel efficiency' in your somewhat rambling introduction. Your paper has nothing to do with these topics so it seems odd that they should be mentioned.