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.

Comments on the Manuscript:

The abstract is concise but could benefit from clearer delineation of key elements such as the problem addressed, methodology used, and main findings.

The introduction lacks a smooth transition into the problem statement and the novelty of employing an LQR controller for a 4-DOF half-car active suspension system.

The literature review is brief and should be expanded to provide a comprehensive overview of existing research on active suspension systems, emphasizing the significance of the proposed work. Additionally, consider citing relevant papers (https://doi.org/10.1177/146441931770687 and 10.1088/1361-665X/aa68f7) in the introduction to support the context of semi-active suspension systems and their diverse applications.

The problem statement is clear, but it would be helpful to explicitly state the motivation for choosing a 4-DOF half-car active suspension system and the benefits it offers over passive suspension systems.

The methodology is adequately described, but consider providing more details on the mathematical model for the 4-DOF half-car active suspension system. This will enhance the reproducibility of the study.

The results are briefly mentioned; however, additional details on the performance metrics used for evaluation, comparison with existing systems, and a discussion on the implications of the results would strengthen this section.

The conclusion is concise but lacks a summary of key findings. It would be beneficial to restate the significance of the study and suggest potential avenues for future research.

Recommendation:

The manuscript requires a major revision to address the above comments and enhance the clarity, depth, and completeness of the content.