

Peer Review

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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The article provides a comprehensive study on enhancing vehicle suspension performance by implementing a Linear Quadratic Regulator (LQR) controller. It effectively outlines the mathematical modeling of a half-car suspension system, incorporating state-space representation and control design. The use of MATLAB/Simulink simulations demonstrates the controller's effectiveness in improving ride comfort and stability by reducing oscillations and road disturbance effects. The comparative analysis between Passive Suspension Systems (PSS) and Active Suspension Systems (ASS) clearly highlights the advantages of the LQR-controlled system. The authors present their findings with well-structured diagrams, tables, and simulation results, making the technical content clear and informative. However, the article would benefit from improved language clarity and grammatical refinement to enhance readability. Some sentences are verbose and could be made more concise without losing technical accuracy. Additionally, ensuring consistent terminology, such as the uniform use of abbreviations, and providing more descriptive figure captions would improve overall coherence. The conclusion effectively summarizes the study but could be strengthened by briefly mentioning potential future research directions, such as real-world implementation or testing under diverse road conditions. Overall, the article is a well-structured and technically sound piece of research that contributes valuable insights into vehicle suspension system optimization using LQR control.

Declarations

Potential competing interests: No potential competing interests to declare.