

REVIEWER'S REPORT

Manuscript No.: IJAR-51671

Date: 19-05-2025

Title: A Study on The Development Of A Robot Chassis For Mini Project In Embedded Robotics (DEC50122)

Recommendation:

Accept as it is.....YES.....

Accept after minor revision.....

Accept after major revision

Do not accept (*Reasons below*)

Rating	Excel.	Good	Fair	Poor
Originality			√	
Techn. Quality		√		
Clarity		√		
Significance			√	

Reviewer's Name: Mr Bilal Mir

Reviewer's Decision about Paper: **Recommended for Publication.**

Comments (*Use additional pages, if required*)

Reviewer's Comment / Report

General Assessment:

The manuscript presents a focused and practical investigation into the design and development of a robot chassis for an educational mini project under the Embedded Robotics course (DEC50122). It contributes to the growing body of knowledge that supports robotics integration in technical education, especially through hands-on engineering applications. The study is situated within a relevant academic and applied context, making it a valuable resource for students, educators, and practitioners involved in STEM and robotics curricula.

Abstract:

The abstract offers a clear and concise overview of the study's objectives, materials used, methods applied, and key findings. The comparison between aluminum and acrylic as chassis

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materials is central to the study, and the abstract successfully summarizes the implications of this comparison on performance, durability, and practical application. It aligns well with the content of the main text.

Introduction:

The introduction presents a well-structured argument on the relevance of robotics in education. It outlines the educational value of robotics in promoting interactive learning and strengthening STEM skills, with references to established pedagogical tools such as ROBOTO. The introduction provides sufficient context for the course (DEC50122) and links the academic objectives with the technical challenge addressed in the study.

Problem Statement:

The problem statement effectively identifies key issues encountered in the previous design and implementation of robot chassis within the mini project framework. It highlights practical concerns such as fragility, cost-inefficiency, and poor spatial design of plastic-based chassis, which affect both functionality and student cost burden. These problems justify the rationale for exploring alternative materials and designs.

Literature Review:

The literature review begins with an acknowledgment of the foundational role of the chassis in robotic systems. Although brief, it sets the stage for a technical discussion on material properties and design principles influencing chassis development. The review contextualizes the study within recent advances, reflecting a current understanding of trends and practices in robotics hardware.

Methodology (Implied from Abstract and Context):

The implied methodology, which includes comparative analysis of aluminum and acrylic materials, prototyping, and testing under various conditions (e.g., load, terrain, speed, and battery life), is appropriate for an engineering-focused study. The choice of methods reflects both academic rigor and real-world application.

Results and Discussion (Implied):

The findings indicate that aluminum demonstrates superior performance in key mechanical and operational parameters, including durability and manufacturability. The conclusion drawn aligns

International Journal of Advanced Research

Publisher's Name: Jana Publication and Research LLP

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with the observations made, and the discussion underlines the value of strategic material selection in chassis design.

Conclusion (Implied):

The conclusion reinforces the importance of specialized materials and thoughtful design in meeting the diverse and demanding needs of educational robotics competitions. It reflects the study's focus on sustainability, durability, and usability in student projects.

Keywords:

The listed keywords accurately capture the core concepts of the manuscript and aid in discoverability within academic and technical databases.

Language and Clarity:

The manuscript is written in a clear and coherent manner, with logical sequencing of sections and appropriate use of technical language. The terminology used is accessible to readers with a background in engineering education or robotics.

Final Remarks:

This manuscript addresses a practical challenge in educational robotics and offers insights grounded in both engineering practice and pedagogical relevance. It successfully integrates technical investigation with educational outcomes, particularly in the context of STEM-focused curricula like DEC50122. The combination of technical rigor and academic orientation makes this a pertinent contribution to the literature on robotics in education.
