Research Proposal

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Research Domain: Bio composites and Finite Element Analysis.

Work Title: Characterization, Design and Numerical Analysis of Bio Composites for Automotive Component.

In the world of modern sciences, advancement in all engineering sectors has emerged a lot. Likewise, automobiles also have its vast improvement in its domain. Many researchers and scholars working for the development of automobile component to increase its performance and fuel efficiency. One of the major portions in this improvisation is reduce the weight of the component in order to reduce the fuel consumption and increase the performance in the aspects of speed and aerodynamic nature. The technique used to reduce the weight of the component is to replace the existing component with the lighter one. Hence composite materials are one of the best ways to reduce weight of the component and increase its performance too. Due to the financial and economic barriers it is not feasible to apply the metal matrix composites for the replacement. Using polymer as the matrix which is a binder with the fiber made a reinforcement to produce the existing component with the same or increase in their potential characteristics. The aim of this study is to fabricate bio-based composite materials and characterize them for their mechanical and vibration properties. Further numerical analysis would be carried out based on the experimental results. A comparative study would be carried out with the experimental and numerical analysis.