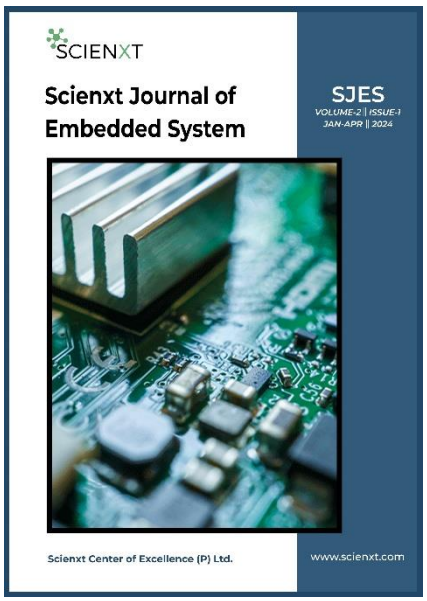

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A review paper on solar panel based vehicle

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Abstract:

The primary aim of this project is to develop and construct a solar-powered electric vehicle in accordance with the engineering specifications outlined for the Shell EcoMarathon Urban Division competition. While the competition guidelines do not mandate the inclusion of a solar module, this project incorporates solar energy for charging the vehicle battery. Given the competition's focus on efficiency, energy efficiency is a paramount consideration. Time and budget constraints were significant challenges for the project. To address these, subsystems such as the frame, drivetrain, power, suspension, and steering were meticulously designed and integrated into a comprehensive master assembly model. SolidWorks, a computer-aided design (CAD) software, was utilized for design and modeling, along with finite element analysis (FEA). Supporting tools such as Excel, Vsusp, and solar analysis software were employed for subsystem planning, data collection, and organization. Subsystems that underwent quantitative modeling and analysis were procured and fabricated, while those that did not reach the design and analysis phase were not constructed, pending further analysis. Moving forward, optimization and exploration of new subsystem configurations should be prioritized. This project represents the initial iteration of a future Shell Eco-marathon competition vehicle.

Keywords:

CAD, Competition vehicle, Design, Engineering, Electric Vehicle, FEA, Solar, Solar Energy, Shell Eco-marathon, Vehicle Subsystem,