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Design and analysis of electric vehicle for shell echo marathon

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Abstract:

Participants in the Shell Eco-marathon is challenged to develop and construct electric vehicles that are incredibly efficient. The design and analysis process for such a vehicle is described in this paper, with an emphasis on important elements including aerodynamics, powertrain, chassis, and suspension. It emphasises the critical role that experimental testing plays in verifying models and optimising different components, while also highlighting the use of computational methods such as ANSYS for structural analysis and CFD for analysing drag and motor performance. There is discussion of other factors like laws, driver comfort, safety, and cooperation. This strategy is to assist teams in building competitive and effective electric cars for the Shell Eco-marathon, ultimately advancing the creation of environmentally friendly transportation options. The present paper focuses on implementing a sustainable form of energy into automobiles. Thus, saving exhaustible fuel by using alternate forms of energy which is the beginning of a revolutionary method of using unconventional energy resources. It also implements a wider perspective on conservation of fuels such as petroleum.

Keywords:

Electric vehicle, Shell Eco-marathon, aerodynamic design, powertrain optimization, chassis and suspension, CFD analysis, rolling resistance testing, track testing, regulations, safety, teamwork, Ansys analysis, Steering Mechanism.