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## *Design and analysis of range extended electric vehicle(Reev)*

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## **Abstract:**

One promising solution to the problems of limited range and low energy efficiency in electric vehicles (EVs) is the design and analysis of Range Extended Electric Vehicles (REEVs). The idea, design, and performance assessment of a REEV system with the goal of increasing driving range while preserving energy efficiency and environmental sustainability are the key topics of this study. Comprehensive analysis and simulation studies are used to explore key factors such the integration of a range-extending power source, vehicle architecture, energy management system, and overall vehicle performance. In order to achieve the best possible balance between electric propulsion and range extension capabilities, the design process entails optimizing a number of components, including the battery pack, range extender engine, powertrain, and regenerative braking system. Additionally, a variety of driving scenarios and conditions are used to assess performance parameters such vehicle range, energy consumption, emissions, and overall efficiency. The study's findings offer insightful information on the design and performance possibilities of REEVs, underscoring their promise as a workable way to increase the use and acceptance of electric vehicles in the transportation industry.

## **Keywords:**

Range Extended Electric Vehicle (REEV), Electric Vehicle (EV), Range Extension, Energy Efficiency, Sustainability, Vehicle Architecture, Energy Management System, Battery Pack Optimization, Powertrain Design.