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Patent Search

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Abstract:

The proposed invention, Semi-Autonomous Energy Optimization in Electric Vehicles through Machine Learning and Deep Learning, enhances energy efficiency and perform by leveraging advanced computational techniques. It integrates machine learning (ML) and deep learning (DL) algorithms to dynamically adapt to real-time data, predicting adjusting energy usage based on driving patterns, terrain, and battery health. The system includes convolutional neural networks (CNNs) for spatial data processing and reneural networks (RNNs) for temporal sequence analysis. Vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V) communication, along with reinforcement learning (RL), facilitate continuous improvement in energy management. A user-friendly interface provides real-time insights and personalized recommendations. Predictive maintenancapabilities ensure battery longevity and safety. This innovation aims to optimize energy usage, extend driving range, and support the broader goals of smart cities and sustainable transportation networks.

Complete Specification

Description:The present invention relates to the field of electric vehicles (EVs) with a focus on energy optimization through advanced computational techniques. Specifica it pertains to the development and integration of a semi-autonomous system utilizing machine learning (ML) and deep learning (DL) algorithms to enhance energy efficie and management in EVs. This system aims to optimize energy consumption by predicting and adjusting power usage based on real-time data and driving conditions. By leveraging ML and DL, the invention seeks to improve battery performance, extend driving range, and enhance overall vehicle efficiency. Additionally, the invention cover aspects of adaptive learning for continuous improvement of the energy management system, ensuring that the EV adapts to various driving patterns and environmental factors. This innovative approach promises significant advancements in the sustainable operation of electric vehicles, contributing to reduced energy wastage and lower environmental impact.

Background of the proposed invention:

Electric vehicles (EVs) have emerged as a pivotal solution in addressing global concerns related to environmental sustainability, fossil fuel dependency, and the adverse effects of greenhouse gas emissions. As the automotive industry transitions towards cleaner energy sources, the demand for efficient, reliable, and high-performing EVs become more pronounced. The success of EVs hinges on their ability to deliver substantial driving range, efficient energy consumption, and user-friendly operation, whic directly impacts their adoption rates among consumers. However, one of the critical challenges faced by EVs is optimizing energy usage to maximize battery life and driv range while maintaining performance.

The proposed invention, Semi-Autonomous Energy Optimization in Electric Vehicles through Machine Learning and Deep Learning, addresses this challenge by leveragin advanced computational techniques to enhance the energy efficiency of EVs_Traditional methods of energy management in EVs primarily rely on static algorithms and

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