Patent Search

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Abstract:

The invention introduces a smart management system for DC fast charging systems tailored to electric vehicles (EVs), enabled by IoT (Internet of Things) monitoring. sensors are strategically deployed throughout the charging infrastructure, collecting real-time data on critical parameters like voltage, current, and temperature. This transmitted to a cloud-based platform where advanced algorithms analyze it, detecting anomalies and predicting potential issues. The system optimizes energy effici dynamically adjusting charging parameters based on demand and grid conditions, thereby reducing energy wastage and operational costs while enhancing grid stabi Moreover, proactive maintenance scheduling driven by predictive analytics ensures high reliability and availability of charging stations. EV drivers benefit from a user- interface accessible via mobile apps or web portals, enabling seamless charging session initiation, monitoring, and payment processing. The system is designed for sc interoperability, seamlessly integrating with existing EV charging networks and infrastructure. Overall, the invention represents a significant advancement in the EV ch landscape, offering efficient, reliable, and user-centric solutions to accelerate the adoption of EVs and foster sustainability in transportation.

Complete Specification

Description:FIELD OF THE INVENTION

The field of the invention relates to the smart management of DC fast charging systems for electric vehicles (EVs) through IoT (Internet of Things) monitoring. DC fas charging systems provide rapid charging capabilities for EVs, enabling quicker charging times compared to traditional charging methods. However, efficient manage these systems is crucial to optimize charging processes, minimize energy consumption, and ensure reliable operation. IoT monitoring involves the use of interconne sensors, devices, and software platforms to gather real-time data on various aspects of the charging process, such as energy usage, charging rates, and system stat leveraging IoT technology, the invention aims to enhance the management and control of DC fast charging systems, improving overall efficiency, reliability, and user experience in the electric vehicle charging infrastructure.

BACKGROUND OF THE INVENTION

The background of the invention lies in the growing adoption of electric vehicles (EVs) and the need for efficient and reliable charging infrastructure to support this transition. As the world shifts towards sustainable transportation solutions, EVs have gained significant traction due to their environmental benefits and technologic advancements. However, one of the key challenges hindering the widespread adoption of EVs is the availability and efficiency of charging infrastructure, particularly charging. DC fast charging systems have emerged as a solution to address the long charging times associated with conventional AC charging methods. These syster direct current (DC) to rapidly charge EV batteries, significantly reducing charging times and enhancing convenience for EV owners. As a result, DC fast charging static become integral components of the EV charging infrastructure, especially in urban areas and along major transportation routes. However, managing and optimizing

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