Patent Search

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Abstract:

UTILIZING BLOCK CHAIN AND INTERNET OF THINGS (IOT) TECHNOLOGY FOR MANAGING BATTERIES IN SMART ELECTRIC VEHICLES ABSTRACT: Over the recent years, vehicles have significantly transformed the automotive sector, thereby facilitating the progression towards a sustainable future. An electric vehicle refers to a mode o transportation, such as a car, bike, bicycle, truck, or bus, that operates by utilizing electricity as its primary source of power, as opposed to conventional fuels like petr The primary factors driving the growing interest in electric vehicles include advancements in battery technology, resulting in improved battery life, as well as their env friendly nature, characterized by low levels of pollution. Electric vehicles (EVs) are equipped with a battery as opposed to a traditional petrol tank, and utilize an electr lieu of an internal combustion engine (ICE). According to a recent study, the electric vehicle (EV) industry has been predicted to possess a market worth exceeding $4(sales figures for plug-in electric light vehicles (PEVs) in the year 2022 indicate a total of approximately 10.2 million units sold. One significant challenge now facing elec is to the limited availability of charging infrastructure. A sufficient quantity of charging stations is exclusively accessible within urban areas, while rural and small town such infrastructure. Due to this factor, individuals residing in such regions opt to forgo the purchase of an electric vehicle (EV) and instead choose a vehicle powered b combustion engine. In recent years, there has been a significant surge in interest in Electric Vehicles (EVs) owing to notable advancements in battery longevity and the environmentally friendly nature. In a similar vein, the proliferation of the Internet of Things (IoT) has facilitated the interconnection of an increasing number of device significant challenge currently encountered by electric vehicles (EVs) is to the restricted capacity of their batteries, resulting in limited driving range, as well as the scar charging infrastructure and battery changing facilities. One such approach entails the construction of essential infrastructure alongside the implementation of an effe management system (BMS) capable of accurately estimating the remaining power. In certain cases, electric vehicles (EVs) may have the alternative of battery switchin be facilitated through authorized stations or through direct exchange with other EV owners. Hence, the establishment of an EV information network becomes impera to facilitate the provision of efficient battery charging or swapping services to drivers. This study presents two blockchain implementations for an Electric Vehicle Batt Management System (EV BMS), whereby blockchain technology is utilized as the underlying network and data layer of the application. The initial implementation emp Ethereum as the underlying blockchain architecture for the purpose of constructing smart contracts, however the subsequent design utilizes a directed acyclic graph layered onto the IOTA tangle. The two methodologies are executed and contrasted, illustrating that both platforms have the capability to offer a feasible resolution fo effective, partially decentralized, data-oriented Battery Management System (BMS).

Complete Specification

Description:Descriptions:
Recent improvements in battery technology have resulted in electric cars (EVs) achieving a range that surpasses 200 km. It is anticipated that this range will continu expand in the foreseeable future. Nevertheless, electric vehicle (EV) drivers continue to face various issues related to the durability of batteries, the time required fo charging, and, notably, the availability of charging stations. As a result, a number of experimental initiatives have been undertaken to implement inductive charging in designated road sections, including parking lots, intersections with traffic lights, and segments of airport roads, with the aim of facilitating the charging of electric EV drivers will continue to depend on stationary charging stations until the mainstream adoption of this technology occurs. One plausible resolution to tackle this m could involve the implementation of a decentralized network for the purpose of battery charging or swapping. This network would enable users or charging station engage in the trade of energy or batteries. Moreover, it is worth noting that a decentralized network has the potential to cater to the needs of self-driving vehicles, a growing phenomenon in the realm of automotive advancements. In order to ensure the safety of passengers, it is imperative that these vehicles possess the capaci effectively process substantial quantities of information. Ideally, it is desirable for intelligent vehicles to establish direct communication with one another, enabling t exchange of data pertaining to traffic situations, occurrences, weather conditions, and other relevant information. The establishment of machine-to-machine (M2M) communication is needed in order to attain genuine autonomy. Given the presence of a diverse range of sensors, it is possible to conceptualize these cars as Intern Things (IoT) devices. In order to establish a decentralized Internet of Things (IoT) network consisting of charging and exchanging stations, with the aim of allowing re users to provide these services, it is necessary to obtain specific fundamental data. The factors to consider in relation to electric vehicles encompass the specific bat type employed, the feasibility of battery swapping, the battery's state (including charge cycles, health, remaining capacity, etc.), as well as the whereabouts and acce

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