Energy storage for electric vehicles st john s

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To address this challenge, this paper proposes a novel control strategy that integrates a HESS comprising batteries, supercapacitors, and PV panels with machine learning algorithms. By leveraging ML"s ability to learn and adapt to complex and changing systems, the proposed control strategy aims to optimize power flow in real-time, ensuring optimal performance and efficiency.

The demonstration of the feasibility and effectiveness of the proposed control strategy in a real-world LEV application, showcasing its ability to optimize power flow, enhance vehicle performance, and extend battery life.

The validation of the proposed control strategy"s ability to increase the sustainability of LEVs by reducing their reliance on grid electricity and enhancing their overall efficiency.

The findings of this research have significant implications for the design and operation of LEVs, as they offer a more sustainable and efficient alternative to traditional battery-powered vehicles. Additionally, the proposed control strategy has the potential to be applied to other types of electric vehicles, as well as other energy storage and renewable energy systems, further expanding its impact on the field of sustainable transportation.

The differential equations governing the switching of PV converter are given in (1) and (2), where iPV and VPV are the instantaneous current and voltage of PV source, dPV is the duty cycle of converter, VBus is the DC bus voltage, LPV is the filter inductor in interface, A is the material constant of PV array.

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