Latest research on solar electric vehicle technology

Are EV technologies still relevant?

There are still several important directions for future research and developmentin EV technologies,battery systems,charging methods,and charge scheduling optimization even if acceptance of electric vehicles (EVs) keeps accelerating and technological developments unfold.

How many articles are there on solar electric vehicles?

This study reviewed more than 270articles on solar electric vehicles. Eight main topics were identified: solar races,vehicle design,powertrain systems,photovoltaic systems,system integration,control strategies,performance estimations and data,and market and environmental assessments.

Are full solar electric cars viable?

It is concluded that full solar electric vehicles are not yet viablefor mainstream market applications. Niche applications and electric cars with photovoltaic roofs as well as delivery vehicles with photovoltaic modules are more likely options for now.

Can solar photo-voltaic (PV) modules improve the range of an EV?

This paper aims to present the improvement in rangethat can be brought about by using solar photo-voltaic (PV) modules on an EV. The model has been developed and simulated in MATLAB/Simulink environment. The results demonstrate that PV module can charge the battery to a reasonable state of charge.

Is photovoltaic (PV) integration in vehicles a new achievement?

As in the case of EVs,photovoltaic (PV) integration in vehicles is not a new achievement. Historically,the use of solar energy to power EVs as an alternative to fuel vehicles dates back to the 1970's within the context of the global energy crisis and rising environmental concerns [,,,].

Are EVs the future of Transport & Energy?

This highlights the disruptive potentialof EVs in both the transport and energy sector . EVs with vehicle-integrated photovoltaics (VIPV) are now emerging in the market and can offer higher electric range and a higher share of renewables in transport. As in the case of EVs,photovoltaic (PV) integration in vehicles is not a new achievement.

The research work reported in the paper shows the profoundness of design and assessment of solar powered e-rickshaw at the location with latitude of 22.75° at Indore, India. ... and temperature by 2 827 662, 1 341 397, and 13 413 557. In the modelling of solar-powered electric vehicle system, 0.75-KW motor is required to run a vehicle, which ...

PDF | On Mar 19, 2021, Mahendra Patil and others published Hybrid Technology-Solar Energy Based Electric

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M.S.Whittingham proposed and began to study lithium-ion batteries, and the successful development of lithium-ion battery electric vehicles greatly promoted the new energy electric vehicles development. Lithium ion batteries come in different shapes and configurations, such as cylindrical, prismatic, and pouch, etc. [23].

In June 2021, the Lightyear One solar car set a new autonomy record, achieving a distance of 725 km on a single charge, an improvement close to 20% over purely electric vehicles [11]. Lightyear ...

PDF | On Jun 30, 2023, Prof Mrs Spoorthi B S and others published SOLAR WIRELESS ELECTRIC VEHICLE CHARGING SYSTEM | Find, read and cite all the research you need on ResearchGate

[25] Liu Q., "Electric car with solar and wind energy may change the environment and economy: A tool for utilizing the renewable ene rgy resource", 2013, Earth"s Future.

IJIRT 152663 INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN TECHNOLOGY 4 A Review on Solar Powered Electric Vehicle Vijay Pratap ¹, Bhoop Singh² 1,2Department of Mechanical Engineering Abstract - Solar energy is a renewable energy source that will be around for thousands of years. In 2015, COP21 started the Paris Climate Conference 2015 in ...

By intertwining solar PV technology with the expanding EV landscape, this collaborative effort aims to secure a greener future for forthcoming generations. In particular, ...

Beyond electric vehicles, this spray-on solar technology holds enormous promise for transforming large surface areas like roofs and walls into energy-harvesting systems. Mercedes-Benz"s research represents a significant step toward more sustainable, innovative energy solutions that could reshape our approach to renewable power generation.

This paper aims to present the improvement in range that can be brought about by using solar photo-voltaic (PV) modules on an EV. The model has been developed and simulated in ...

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