

Dynamic Wireless Recharging of an Electric Vehicle with the Incorporation of Various Energy Sources

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Abstract: *The combination of renewable energy sources like wind and solar with the grid for dynamic wireless charging of electric vehicles (EVs) presents a groundbreaking solution for eco-friendly transportation. This research introduces a framework that merges renewable energy with dynamic wireless charging systems, backed by a sophisticated battery management system (BMS). Utilizing solar and wind power to operate wireless charging networks guarantees a consistent supply of energy while diminishing dependence on fossil fuels. Dynamic wireless charging allows EVs to power up while in transit, alleviating range anxiety and minimizing the necessity for fixed charging stops. The integration of a BMS facilitates effective management of energy flow by optimizing the charging and discharging processes to prolong battery lifespan and sustain operational efficiency. This study presents a viable and eco-friendly approach to enhance the adoption of electric vehicles and the use of renewable energy, while also facilitating the growth of more sustainable transportation systems. Upcoming efforts will aim to enhance the scalability of the system and its integration with smart city projects to optimize its effectiveness.*

Keywords: Renewable energy, dynamic wireless charging, electric vehicles, battery management system, solar energy, wind energy, smart grid, sustainability

