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Title:	Static and Dynamic Charging System for a Four Wheeler Electric Vehicle by Inductive Coupling Wireless Power Transmission System
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Published Conference Name:	International Conference on Green Energy, Computing and Sustainable Technology 2021 (GECOST 2021)
Type of Publication:	International Conference
Volume:	_____ Issue _____
Publisher:	IEEE
Publication Date:	September 20, 2021
ISBN:	978-1-6654-1151-6
DOI:	10.1109/GECOST52368.2021.9538752
URL:	https://ieeexplore.ieee.org/document/9538752
Other Related Info.:	Pages 194-199

Citation: Md. Hasin Mahtab Moon, Dewan Mahnaaz Mahmud, Istiaque Ahamed, Shad Bin Kabir and Mohammad Abdul Mannan, “Static and Dynamic Charging System for a Four Wheeler Electric Vehicle by Inductive Coupling Wireless Power Transmission System,” Proceedings on International Conference on Green Energy,



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Computing and Sustainable Technology 2021 (GECOST 2021), PID 1570709547, Curtin University, Malaysia, July 7-9, 2021.

Abstract:

The interest in electric vehicles is increasing all over the world due to the growing concern for the limited fossil fuel resources and serious environmental problems due to the use of fossil fuels. Increased attention to electrical vehicles has also led to the search for more practical and reliable methods to use them. Nowadays, wireless electric vehicle charging systems can be considered a potential alternative for incorporating Electric Vehicle (EV) technology without considering any hurdle of a plug-in system. This paper describes the robust technique of the static and dynamic charging systems for a four-wheeler electric vehicle. Wireless charging system with an efficiency of 89.54% for charging system was obtained thus the vehicles will increase their journeys time without immense batteries or extremely expensive infrastructure. Also, the feasible and integrated design of the dynamic charging system for a four-wheeler electric vehicle was explained in the quest of a practical scenario. Inductive coupling of the transmitter and receiver coil was simulated using Ansys Maxwell and the wireless charging system was modeled using MATLAB-Simulink. By simulation and analysis, it is assessed that the proposed method is effective.

Keywords: Wireless charging, EV, Battery, SOC, Dynamic Charging