

Wireless Charging of Electric Vehicle While Driving

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Abstract: *Nowadays, the depletion of fossil fuels and the phenomena of global warming are key factors that push us to change our modes of transportation. Vehicle-based internal combustion engines are no longer desired, they contribute significantly to climate changes, and they are dependent to the petroleum product. The electric vehicle (EV) is an alternative choice, it can be considered as a suitable method for a sustainable transportation, it has the advantage of zero emissions and it is powered by electricity which can be considered as a renewable energy. However, the basic configuration of an EV contains a rechargeable battery pack which can be considered as its main drawback. The battery needs to be recharged frequently because of its low capacity; thus, the charging operation takes several hours, which reduce the driving range of the EV and limit its success in the market. Several methods are used to recharge EV batteries. In the conductive charging, the power is transferred efficiently to the vehicle by cables, but the user must intervene in this operation which is dangerous in certain specific conditions such as snow and rain that can cause electric shocks. Powering an electric vehicle using the wireless method is much easier and safer for the user, thus, the absence of physical contact (no mechanical friction) can prolong the product life and reduce its maintenance. The wireless power transfer (WPT) can be in a stationary or dynamic way. In stationary mode, the vehicle is wirelessly charged while parked in a location (parking or garage) equipped with a specialized power utility. The dynamic charging which means that the vehicle can be recharged while moving is invented as an attempt to reduce the size of the battery (i.e. reduce long charging times and vehicle weight) and extend the vehicle driving range.*

Keywords: Wireless Charging

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