

04/08/2021

Dear Prof. Joseph O. Ojo

Editor-in-Chief of

IEEE Journal of Emerging and Selected Topics in Power Electronics

We would like to submit the enclosed manuscript entitled “Combined Wireless Power Transfer and Motor Driver System with a Single Converter” which we wish to be considered for publication in IEEE Journal of Emerging and Selected Topics in Power Electronics. The paper is an original piece of work and it has not been published in whole or in-part previously, and not under consideration for publication elsewhere.

Conventionally, the motor driver and IPT system use two separate converters in order to transfer the power of auxiliary loads for rotating systems. With the introduction of wide-bandgap devices, the switching frequencies of the motor driver increased such that practical IPT systems with acceptable sizes can be performed by the same driver. Hence, a single converter can be used to drive both motor and IPT systems, which reduces the system's complexity, and cost of the overall system. In this article, a conceptual study was performed where a 500W DC-motor and 50W IPT system was driven using a GaN-based full-bridge converter. Special attention was given to independent control of motor and IPT output powers. The motor power is controlled by the duty cycle, while the IPT power is controlled by the duty cycle and the switching frequency. The proposed system can also be implemented to other industrial motors, which are driven by high-frequency converters with wide-band gap devices.

The paper is composed according to IEEE journal submission format. No conflict of interest exists in the submission of this manuscript, and manuscript is approved by all authors for publication.

I appreciate your consideration of our manuscript, and I look forward to receiving comments from the reviewers.

Kind regards,

Ozan Keysan