

Regenerative Braking Control and Energy Recovery Optimization for Brushless DC Motor Electric Vehicles

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Abstract: Based on a Brushless DC (BLDC) motor, this research provides a novel regenerative braking approach. The recommended approach for braking involves using a variable Stator voltage from a multi-cell battery system DC-DC buck converter. To evaluate the performance of the proposed braking system, a simulation was used. According to simulation results, the proposed regenerative braking technique is practical and efficient. Additionally, this research introduces the most fundamental technology for regenerative braking using a BLDC motor to improve the mileage of lightweight electric vehicles (EVs).

Keywords: Solar PV, Electric Vehicle, Regenerative Braking, Zeta Converter, P&O - MPPT, Battery & PMBLDC.

