Abstract

A novel Current Controlled Space Vector Pulse Width Modulation (CCSVPWM) technique for Brushless Direct Current (BLDC) motor drives, with a view to reduce torque ripple is proposed.
The current ripple, created due to the stator winding inductance, leads to generation of ripple in the torque and prevents the usage of BLDC motor in a precise servo drive system. The paper includes MATLAB/SIMULINK results of conventional, unipolar, bipolar current control algorithms (CCAs), varying input voltage method (VIVM) and a new CCSVPWM approach. The comparison of simulation results reveal that the CCSVPWM technique is effective in reducing the ripple. This control method improves the system performance with low torque ripple thus making it suitable for immense applications employing electromechanical actuators.

Reference

- Yong Liu, Z. Q. Zhu, “Commutation-Torque-Ripple Minimizationin


Index Terms

Computer Science  
Power Electronics

Key words

Brushless DC motor  
current controlled SVPWM technique
A Novel Current Controlled Space Vector Modulation based Control Scheme for Reducing Torque Ripple in Brushless DC Drives

torque ripple reduction