

OPERATION AND PERFORMANCE ANALYSIS OF DSP BASED SENSOR CONTROLLED PMBLDC DRIVE

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Abstract

The present work deals with the operation of DSP based Permanent Magnet Brushless DC (PMBLDC) motor drive system. The Hall sensors provided in the motor provide signals corresponding to the position of the rotor. The signals to be given to maintain the rotation of the rotor in the proper direction is developed in the form of a switching sequence. The system has been tested and implemented in the laboratory from no-load to full-load. Analysis of motor voltage, current, speed, power factor and total harmonic distortion have been made and presented for open loop and closed loop operations.

Keywords: Permanent magnet motor, Brushless dc motor, Harmonic distortion, Digital signal processor, Pulse width modulation, Hall effect devices, Insulated gate bipolar transistors