DSP based speed control of Permanent Magnet Brushless DC Motor

Perspectives

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Abstract

This paper presents digital speed control of permanent magnet brushless dc motor using TMS320F2812 DSP controller. The DSP controller used here has the special features for digital motor control. Control algorithms used for the speed control has been implemented by assembly language programming in TMS320F2812 DSP controller. According to the input command, feedback and the control algorithm, the PWM pulses for each phase is generated by the DSP and is given to the MOSFET driver. The output of the driver is 6 independent PWM pulses that have to be given to the corresponding gates of the six MOSFETs power switches
used in the three-phase bridge inverter whose output is given to the stator of the Brushless DC Motor. The complete system model is simulated in MATLAB/ Simulink environment. Hardware implementation for the speed control has been achieved by programming in the DSP controller TMS320F2812.

Reference

- “TMS320C281x Event manager Reference Guide”, Texas Instruments, Literature Number: SPRU065e

Index Terms
Key words

Brushless DC Motor

DSP controller

Pulse Width Modulation (PWM)

TMS320F2812