International J.of Multidispl.Research & Advcs. in Engg.(IJMRAE),
ISSN 0975-7074, Vol. 6, No. II (April 2014), pp. 97-110

THE SIMPLE CONTROL SYSTEM TO TOLERATE THE FAULT IN BLDC MOTOR DUE TO HALL EFFECT SENSOR FAILURE

SWATHI K.[1] AND N. MUNIYAPPA[2]
[1]Student, [2]Asst professor, Electrical and Electronics Department,
The Oxford College of Engineering, Bommanahalli, Bangalore, India.

Abstract

This paper gives a fault tolerant control system for Hall Effect sensor failure of Permanent magnet brushless DC (BLDC) motor. The control system in this paper is capable to detect and identify the Hall Effect sensor breakdown based on sensor signal. In this paper behaviour of BLDC motor is studied for Hall Effect sensor breakdown through simulation model. BLDC motor simulation model are validated first by experimental data under no fault condition. After analysing the simulation result of for no fault condition, the control technique used to detect the fault in position sensor. The simulation is carried out for sensor breakdown in phase A for two possible faults. The simple method used here to generate the hall signal of faulty hall sensor to maintain the performance of the motor in good condition. The simulation model shows the correct performance of fault tolerant control system designed.

Keywords: DSPIC30F2010, Cutoff switch

© http: //www.ascent-journals.com