

232. FUZZY LOGIC BASED PF CORRECTED BLDC MOTOR DRIVE USING BRIDGELESS BUCK-BOOST CONVERTER WITH REGENERATIVE BRAKING

Ms.S.Aswathy(PG Scholar),V.Vennila(Asst Professor/EEE)

, DMI College Of Engineering

Email:aswathyeee92@gmail.com

A Bridgeless AC-DC rectifier (buck-boost converter) for power factor correction of BLDC motor drive is proposed. A PFC BL buck-boost converter is designed to operate in discontinuous inductor current mode (DICM) to provide an inherent PFC at ac mains. The DCM operation also includes the advantages of self power factor correction property. It achieve almost unity power factor. The absence of the input diode bridge and the presence of only two semiconductor switches in the current flowing path obviate the conduction losses. An approach of speed control of the BLDC motor by controlling the dc link voltage of the voltage source inverter (VSI) is used with a single voltage sensor. This facilitates the operation of VSI at fundamental frequency switching by using the electronic commutation of the BLDC motor which offers reduced switching losses. The motor is controlled in all the four quadrants without any loss of power; in fact energy is conserved during the regenerative period which can be utilized for charging battery and to supply the light loads. The performance of the proposed drive is simulated and the obtained results are experimentally verified on a developed prototype of the drive.

Journal of Science and Innovative Engineering & Technology