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(57) Abstract :
To overcome the limitations of the conventional controllers, this research work deals with various techniques for controlling the speed of the PMBLDCM with improved performance. The main objective of this research work is to study the speed control of PMBLDCM and analyse its speed performance using Proportional Integral (PI) controller, Anti-windup PI (AWPI) controller with tracking, Fuzzy gain scheduling (FGS), Adaptive Neuro-Fuzzy Inference System (ANFIS), Brain Emotional Learning Based Intelligent Controller (BELBIC) and Improved BELBIC (IBELBIC) to produce the better output performance parameters. PMBLDCM drive system based on the above mentioned controllers is modelled using Matlab/Simulink and various speed parameters are analysed. For the dynamic analysis, the motor runs under various load conditions and at various set speeds. During run time at 0.5 sec, load is increased. Finally, IBELBIC based PMBLDCM drive system is implemented in real-time hardware setup and its performance is studied.

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