

DESIGN AND ANALYSIS OF FUZZY LOGIC BASED SLIDING MODE CONTROLLER INDUCTION MOTOR

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ABSTRACT

In comparison to PID controller, the PI controller is simpler but exhibits slower response and also provides some steady state error in speed. Perhaps PI controller can be easily implemented with simple operational amplifier circuits. Nonlinear control systems are affected by inaccuracies in the plant model. SMC is considered as an important control technique for such sort of control problems. A transfer function, a feedback control law and some models representing the uncertainty are the typical components of a robust controller. The SMC is robust but slow and suffers from the problem of chattering apart from being more difficult to realize. Adaptive Sliding Mode Controller (ASMC), on the other hand, is fast, more robust, and free from problem of chattering. However, it requires a larger memory for real time implementation and is difficult to realize. Hence Fuzzy Sliding Mode Controller (FSMC) is proposed and it is found to perform well as compared to ASMC, in terms of robustness and learning capability

KEYWORDS: Induction Motor, FLC Based Sliding Mode Controller, PI Controller, Indirect Vector Control

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