Abstract

This paper proposes some design approaches combining PI control technique and fuzzy logic. This system has been designed to have two controllers, one Fuzzy based controller for stator and another one PID based for rotor. Such a mixed implementation leads to a more effective control design objectives such as steady state and transient characteristics of the closed loop system. Fuzzy logic is integrated to overcome the problems with uncertainties in the motor parameters. Induction motors are characterized by complex, highly non-linear and time varying dynamics. The advent of vector control techniques has partially solved induction motor control problems. Also they are sensitive to drive parameter variations such as the rotor time constant and an incorrect flux measurement or estimation at low speeds. If the conventional controllers are used the performance may deteriorate. Fuzzy logic based controller deal such variations more effectively. A simulation study of Fuzzy/PID based Stator/Rotor vector control is
presented. The effectiveness of these controllers is demonstrated for different operating conditions of the drive system.

Reference

Index Terms

Power Engineering

Control Systems

Key words

Wound Rotor Induction Motor

Fuzzy Logic

Controller

Field Oriented Control