Direct torque control system for a three phase induction motor with fuzzy logic based speed Controller

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Abstract:
This paper presents a method for improving the speed profile of a three phase induction motor in direct torque control (DTC) drive system using a proposed fuzzy logic based speed controller. A complete simulation of the conventional DTC and closed-loop for speed control of three phase induction motor was tested using well known Matlab/Simulink software package. The speed control of the induction motor is done by using the conventional proportional integral (PI) controller and the proposed fuzzy logic based controller. The proposed fuzzy logic controller has a nature of (PI) to determine the torque reference for the motor. The dynamic response has been clearly tested for both conventional and the proposed fuzzy logic based speed controllers. The simulation results showed a better dynamic performance of the induction motor when using the proposed fuzzy logic based speed controller compared with the conventional type with a fixed (PI) controller.

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