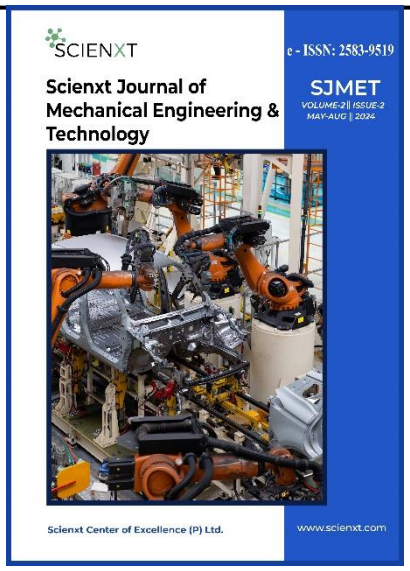

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A Study on fuzzy logic controller-based three phase induction motor speed control"

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Abstract:

For fast response to the speed controlling the dynamic performance of the induction motor must be very high. By applying fuzzy logic in the controlling of the induction motor the dynamic performance can be improved... The advantage of using fuzzy logic control is that it does not require comlex mathematical modelling of the motor. By just knowing the befavior of the motor the control signals is manupulated to obtain the desired response characteristics of the motor. This paper proposes a fuzzy logic technique which is very much simple and can be implemented easily in the actual scenario. Fuzzy logic controller based speed control of a three phase Induction motor uses fuzzy logic to generate the reference current signal for the inverter and curent is being controlled by the inverter... The system is modelled in a MATLAB simulink and the result is being compared with the conventional PI controller. The scheme implements controlling by keeping voltage to frequency ratio to be constant. The controller is designed so as to reduce the error between rotor speed and reference speed as fast as possible. The performance of the induction motor is simulated by changing the reference speed and the dynamic performance of the motor is observed Study shows that there is considerable improvement in dynamic performance of the induction motor. Along with that result shows that the system is not much affected to the disturbance occuring in the system. The induction motor quickly adapts to the system disturbances which proves its robustness.

Keywords:

Three phase induction motor, fuzzy logic controller