ABSTRACT

This thesis presents the need of Speed Control in Induction Motors. Out of the various methods of controlling Induction motors, V/f Control has proven to be the most versatile. The overall scheme of implementing V/f control has been presented. One of the basic requirements of this scheme is the PWM Inverter. In this, PWM Inverters have been modeled and their outputs fed to the Induction Motor drives. The uncontrolled transient and steady state response of the Induction Motor has been obtained and analyzed. A MATLAB code was developed to successfully implement Open Loop V/f Control on a PWM-Inverter fed 3-phase Induction Motor, and the Torque was found to be constant for various rotor speeds. This was followed by a MATLAB model for Closed-Loop V/f Control on a PWM-Inverter fed 3-phase Induction Motor. It was observed that using a Closed-Loop scheme with a Proportional Controller gave a very superior way of controlling the speed of an Induction motor while maintaining a constant maximum torque.

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