

SVPWM Based Speed Control of Induction Motor



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Declaration

This thesis is a presentation of our own research work. Where ever the contributions of others involved, every effort was made for indicating this clearly, due to reference to literature and the acknowledgement researches and discussions.

The work was made under the supervision of Sir **Mohammad Shoaibat** University of Management and Technology.

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Abstract

There is a new technique to control the speed of induction motor based on **SVPWM**. A new technique has good quality in work that applies AC induction motor and design of a low cost. A circuit is fully supporting of applying a single phase induction motor with changing the AC voltage. We can be modulated the main AC voltage. A project needs such active and passive component (which are lower in number) which compared with converter. Such objective technique is used in products of industries and users like washing machine, dishwashers, ventilators, compressors.

Chapter 1

Introduction

Induction Motor:

The most common motor is induction motor which is used in many industries for different application. The workhorse of industry is induction motor. This report shows controlling a three phase induction motor by using a single phase inverter and SVPWM.

In the most of the **applications**, AC machine is much better than DC machine due to its construction, controlling and cost. In industries, mills, residential, commercials and utility applications, induction motor is well work due to its low manufacturing cost, high efficiency, large speed range and robustness.

But it has also **disadvantages**, its controller system is little bit complex so its speed cannot be easily controlled, design also complex and its nonlinear behavior during saturation effect.

The major disadvantage is the electrical parameter oscillation which depends on the physical influence of the temperature. This machine is necessary a fixed value of speed motor. The speed of rotation of machine is measured with synchronous speed. A number of application in industries big changing in motor speed is needed. It can be obtained by changing the stator frequency thereby changing the synchronous speed, Motor control is a significant.

There are various **control techniques** available for the speed control of induction motor, like changing stator poles technique, torque vector control and several others.