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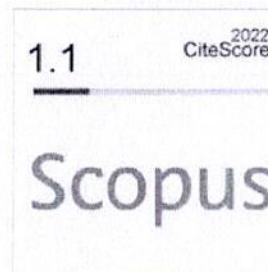


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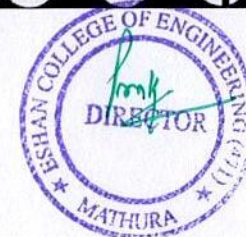
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# A Wireless Speed Control of Three Phase Induction Motor

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## Abstract:-

Induction motors are the widely used motors in largely power-driven home appliances, agricultural and industrial applications. Induction motors are largely used because of its advantages such as Simple and rugged design, low cost, low maintenance and direct connection to an AC power source. Many applications need variable speed operation and one of them is a simple fan load. The main aim of the this paper is to design an real time electronic control system that can be used to control the speed of motors kept at remote locations using an embedded technology. This paper describes about speed monitoring and controlling of induction motor with the help of wireless technology. In the proposed system speed of three phase induction motor can be controlled i.e., speed can be increased or decreased by either increasing or decreasing the pulse width with the help of microcontroller. In addition to this measured speed can be send wirelessly at a distant location for the display.

Keywords — : Induction motor, transducer, h-bridge, AND GATE, Bridge rectifier.

## I. INTRODUCTION

In the present time, in most of the application AC Machines are preferred over DC machines due to their simple and robust construction without any mechanical commutators. Induction motor is most commonly used ac motor for appliances such as industrial control and automation thus often called as workhorse of motion industry. Induction motor is used to drive mechanical systems in industries like paper mill, sugar industry and cement industries. Three phase induction motors are admirably suited to fulfil the demands of loads requiring substantially a constant speed. Several industrial applications however need adjustable speed for their efficient operation and improvement of quality product. Earlier DC motor was the choice for variable speed drive application inspite of various disadvantages. Due to progress of semiconductor Technology and advent of Microcontroller has transformed the research and development towards control of AC drives. Speed of three phase induction motor can be controlled in various ways:

- (i)By changing the number of poles.
- (ii)By controlling supply voltage.
- (iii)By v/f control or frequency control.

In the proposed system speed of three phase induction motor can be controlled i.e, speed can be increased or decreased by either increasing or decreasing the pulse width with the help of microcontroller. In this system we are modulating the width of pulse in order to control the speed of induction motor. This method is called pulse width modulation. PWM is a common technique to control the speed which avoids the problem of poor starting performance of a motor.

## II. FUNCTIONAL BLOCK DIAGRAM

The proposed system consist of two modules

- A. Measuring Module.
- B. Display Module.

### Measuring module

This module is used placed near induction motor for the purpose of measurement. The block diagram in the Fig.2 shows measuring module for the measurement of speed of induction motor wirelessly with microcontroller. Each block is explained separately.

### Display Module

The module is placed at some distance .This is used to display the measured speed of induction motor on the PC. The Fig.1 shows the components of Display module.

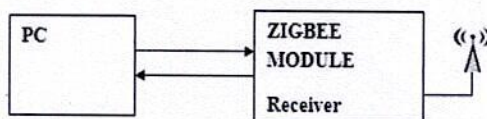


Fig. 1 Display Module

