CHAPTER FIVE

CONCULISION AND RECOMMENDATION

5.1 CONCLUSION

In this research, the mathematical model of three phase induction motor, indirect vector control mathematical model and fuzzy controller MATLAB SIMULINK model are represented.

Also comparisons analysis between pi and fuzzy pi controller simulation results are done.

The Induction motor performance is analyzed with Indirect Vector Control method using PI and Fuzzy pi Controllers in MATLAB SIMULINK. The simulated result shows the better dynamic performance with Fuzzy Controller as compared to PI controllers. The overshoot and large pulsations in the torque are observed with PI controller which results in oscillations in speed and long settling time. Fuzzy logic controller based drive has no overshoot in torque and it shows reduction in torque ripple. It gives robust performance in the presence of induction motor parameter variation and sudden load changes, but PI controller based drive causes coupling between torque and flux when parameter variations are occurred. The fuzzy logic controller can respond similar to the expertise operator, hence it is known intelligent controller. It is simple to implement and once designed it can be easily placed and modified in different applications.

5.2. RECOMMENDATION:

- To further develop an intelligent controller for better performance like (Neuro fuzzy).
- Using space vector PWM (SVPWM) instead of PWM because of their easier digital realization and better dc bus utilization.
- Use Direct Torque Control (DTC) instead of vector control because it is independent of machine rotor parameters and requires no speed or position sensors. The DTC scheme is characterized by the absence of PI regulators, coordinate transformations, current regulators and PWM signals generators. DTC allows a good torque control in steady state and transient operating conditions to be obtained.