CHAPTER FIVE

CONCLUTION AND RECOMENDATION

5.1Conclution

By diagnosing the response obtained from both PD and fuzzy PD controllers using MATLAB Simulink librarywe observed that PD controller is less in quality and performance compared to Fuzzy PD controller. Fuzzy PD controller has less rising time, less settling time, and less steady state error. That prove the success of fuzzy PD controller as an alternative of PD controllers in critical heat applications.

5.2 Recommendation

Intuitive fuzzy PD does not clearly outperform in a large percent the conventional PD controller for that reason we can design fuzzy systems which adapt to varying circumstances automatically. This can be achieved with two ways:

- **Fuzzy self-tuning PD controller**

The performance of the fuzzy PD controller can be improved using self –tuning. The two parameters Kp, Kd of PD controller can be

constantly adjusted online in order to achieve better control performance. Fuzzy self-tuning PD controlled output can automatically adjust PD parameters according to temperature error and the rate of temperature error, so it has better dynamic response properties than fuzzy PD controller.

- **adaptive learning fuzzy methods**

This method is a combination of fuzzy logic techniques and genetic algorithms. Which is used for the adaptation operations. Genetic algorithms are optimization methods which are based on the mechanisms of natural evolution, such as selection and mutation.