

## Chapter VI

## CONCLUSION AND RECOMMENDATION

6.1 Conclusion

The purpose of this thesis is to design and construct an ON-OFF temperature controller using an NTC thermistor as a temperature sensor and to analyse the temperature control system. The requirement is to control an electric oven within the temperature range of  $110^{\circ}$  to  $130^{\circ}\text{C}$  with a temperature fluctuation of not more than  $\pm 3\%$  .

The constructed controller is capable of controlling the oven within the temperature range of  $104.2^{\circ}$  to  $140.0^{\circ}\text{C}$  (See Appendix D). The percentage of temperature fluctuation increases with controlled temperature as listed below :

$\pm 1$ per cent	/	$104.2^{\circ}$ - $118.0^{\circ}\text{C}$
$\pm 2$ per cent	/	$118.0^{\circ}$ - $124.6^{\circ}\text{C}$
$\pm 3$ per cent	/	$124.6^{\circ}$ - $129.5^{\circ}\text{C}$
$\pm 5$ per cent	/	$129.5^{\circ}$ - $136.5^{\circ}\text{C}$
$\pm 7$ per cent	/	$136.5^{\circ}$ - $140.0^{\circ}\text{C}$

Therefore, in order to meet the above requirement, i.e., the temperature fluctuation is to be within  $\pm 3\%$ , the controlled temperature would be in the range of  $104.2^{\circ}$  to  $129.5^{\circ}\text{C}$  .

## 6.2 Recommendation

It is recommended that :

- (1) If one wishes to design a temperature controller with a higher temperature range than that given in this design, he should select a suitable thermistor which has temperature/resistance characteristic in that range.
- (2) If one wishes to design a temperature controller with a temperature fluctuation less than that given in this design, he may select a suitable thermistor which has higher resistance in the same temperature range or he may use multi-heater system.