CHAPTER 7
CONCLUSION AND FUTURE ENHANCEMENT

7.1 CONCLUSION

Model driven software development has undergone numerous researches with various models and tools demonstrated for industrial and academic purposes. The proposed approach have taken two models into account which demonstrate how the models can be designed for a stable safety testing model which ensures that safety requirements are met. Verification starts at the initial phase of development in devising a composable and compatible model and reducing safety faults hence reducing the cost of development. Verification assists Validation in fault reduction thus reducing the tolerance towards safety negligence.

The tools proposed used for testing safety critical application performs a complete automation. Although complete automation is done, the proposed approach has not analyzed the testing when changes are made to the existing system which needs focus on further research. When changes are being done there need to be more state changes and transitions in Automata and Petrinet. This limitation has not been dealt with based on the assumption that the system to be developed has all requirements fixed at the initial phase of the software life cycle. This change reflects in transition coverage and all these changes with representation cannot be done automatically which leads to manual intervention. Other limitation is that we have done with mutation testing in which faults are mutated and analyzed which in turn does not
perform exhaustive testing. This limitation provokes continued attempts to prove improved transition coverage and reduction of defects.

**SUMMARY**

- Petrinet and timed Automata are two model which are analyzed for transition coverage and code coverage
- The models are simulated with automated tools to minimize time and save cost
- The models are passed with test cases for analyzing transition coverage and code coverage
- Petrinet covers more transition and code than timed automata with experimental analysis
- Changes in code and transition are not dealt with as it leads to more analysis and focus on further research

**7.2 FUTURE ENHANCEMENT**

One of the problems that arise in safety system is the changes and updation in the system and the adaptation to new external environment, the dependence between components changes and hence its compatibility. Hence the verification and validation of safety properties poses a challenge driving more research. Changes made to the system gives different perspective to Petri Net and Timed Automata which offers an another extensive research.