Chapter 6 – Conclusions

The project concluded with hardwired testing of one of the modules amongst several modules concerning the interlocks. In between testing it was found out that some of the interlocks in the core design were overlapping hence were inferred to be redundant. Although redundancy in complex safety systems is given utmost importance, the revelation of this redundancy opens up new windows in hardware optimization in this and similar systems.

During the entire course of the project, exhaustive testing was conducted including some least likely scenarios both on software and hardware level. This exhaustive simulation helped us better understand the system design at a very intricate level which further helped us debug and simplify the circuit and or the entire system.

For testing the entire setup, an in depth study of the entire setup was conducted and each scenario was built from scratch through which all the bugs in the code were traced back. It would be worthwhile to note that the entire setup of interlocks consisted of total twenty modules which needed to be repeatedly flashed into the FPGA and due to lack of time and suitable programming equipment the entire system could not be tested. However, it should also be noted that all the modules were passed through rigorous software tests and all interlocks were seen to be satisfied. It can also be concluded that software simulation gives us opportunities to simulate scenarios which are otherwise very difficult (as well as dangerous) to try on complex and large assemblies.