

# Conclusion & further work

### 8.1 Conclusion

Basically, the HAM System addressing five key goals, Alarm management, Colour management, History management, Real-Time monitoring and Search & Printing.

This system is the best solution for the staff of Hutchison Telecommunication (Pvt.) Ltd. The system is helped to realize most important events relate to operation and maintenance. Also using this system they can do their work easily, efficiently, and in accurate way without wasting their valuable time. User documentation is provided to the users of the system and it can be used by the users to learn the system easily, because it is user friendly documentation. GUIs are simple and limited colors are used to develop the interfaces. The final output of the project is highly user friendly and attracting application which can be used by the Hutch staff.

As this new system is functioning now for 2 Servers, Hutch staff could study the system well. Further modifications are added to the original design after user requests. All the staff members are happy to work with the new system.

### 8.2 Limitations of the project goals

HAM system is involves with the Hutch live Operation and Maintenance system. Because of that system reliability become major issue.

### 8.3 Suggestions to overcome problems

This system monitors a live system. System should be thoroughly tested at least three months before add all the five Servers. Then other Servers can add one by one with continuous monitoring.

### 8.4 Further work to be carried out

The proposed system was almost completed in order to user requirements but it can be enhanced as well. With connecting internet the system can send SMS message to relevant engineer via SMS gateway. The proposed system only identifies “power failure and battery drain” using history comparison. This feature can further modify if battery bank duration  $< (\text{Current Time} - \text{Failure Time})$  only give above failure reason.

Also “Cell break due to high room temperature” and “Site out of service due to E1 errors” can be identified.