CHAPTER 6

CONCLUSION

6.1 CONCLUSION

In the analysis of projected orthogonal receiver system we consider the problem of detecting a transmitted signal over a white noise channel. To improve the performance of POMF receiver, we proposed whitening transformation was chosen to minimize MSE between input and output. The simulation results suggest that probability of the signal detection and probability of error correction is approximately one and zero respectively and it outperform both the Matched Filter and adaptive filter over a wide range of channel parameters. Since the primary applications of the POMF detector are greatly involved in the context of communication, the Bit Error Rate levels are calculated over a wide range of SNR.

The OMU receiver performs similarly to the linear MMSE receiver at all SNR with minimum probability of error and better than the decorrelator and the single-user MF. The OMU receiver provides further insight properties to transmit the information reliably with wide range of SNR values. The simulation results suggest that in certain cases the OMU, COMU receivers significantly increase the probability of correct detection with low error rate over the MF receiver.

For the optimal quantum measurement design and to minimize the error function, the performance of the CSLS estimator was estimated. It is compared with LS, Shrunken and Ridge estimators for different
applications such as sensor networks, neural networks etc. The CSLS estimator is performed significantly better than others at low to moderate SNR. A comparative analysis between MMSE estimator with other linear and nonlinear estimators has been performed. The analysis proved that the MMSE estimator outperform both linear and nonlinear estimator.

6.2 FUTURE SCOPE

This receiver can be implemented using FPGA, so that real-time application can be performed in O-CDMA systems and other acoustical applications. The extension of this analysis can be applied for real time process. By using this estimator the GPS receiver can be designed. In the future, the tools are to be developed for analyzing the performance of multichannel system and non linear systems.