CHAPTER 6

CONCLUSION AND SCOPE FOR FURTHER STUDY

6.1 Conclusion

Research is an iterative process very similar to edge detection where researchers keep testing ideas based on their previous successes and the success was observed by other researchers in the area. Various research observations are presented at the end of each chapter as conclusions but limited to the scope of that chapter only. This chapter aims to conclude the thesis, as a whole, and to aggregate all the off shoots found throughout the work.

The highlights of this study are as follows:

I. More than 20 features have been obtained from histogram equalized eye image database which can give up to 100% accuracy to the implemented iris recognition system.

II. Implemented iris perception’s FRR is 0%, which stands best among the survey of iris recognition system.

III. Performance accuracy using FAR and FRR of iris perception based recognition system was better among the iris recognition systems.

IV. Accuracy of iris perception algorithm is 99.12% which is 1.21% greater than the existing edge detection algorithm.

V. The time taken to identify iris was within ~3.89 seconds which is (12 seconds) less than the existing edge detection algorithm.

VI. This study comes to a conclusion that Iris perception algorithm based iris recognition was better than the existing edge detection algorithms.
6.2 Scope for Further Study

The study made an attempt to develop a simple and efficient algorithm for iris recognition using iris perception algorithm. In the implemented system, experimental results and evaluation were analyzed by using Hamming Distance by MATLAB 7.10.0 (R2010a) software. After the successful experiments and the encouraging results achieved, it could be claimed that the proposed system was capable of fast and efficient iris identification. In the implemented system, UPQL database had been used for IRIS images.

An improvement can also be made in the speed of the system. The most intensive stages of this study includes, performing the Hough transform segmentation and calculating Hamming Distance values between iris templates to search for its match. Speed was not one of the objectives for developing this system, but this would have to be considered if using the system for real-time recognition. The recognition rates produced for this optimization would need to be balanced with the increased imaging difficulty, and inconvenience to the user. In this study, the iris images used in this research work are acquired from the UPOL database.

The images were captured through an optical device, i.e. TOPCON TRC501A, which is attached to a digital camera i.e. SONY DXC-950P 3CCD. The format of captured images is 24-bit PNG. Further, average time consumption of the system can be improved by changing / improving the segmentation technique and other classifiers can also be used to evaluate the system. The system presented in this study was able to perform iris recognition in an accurate manner, but there were still some issues which needed to be addressed. First of all, the automatic segmentation was not perfect since it could not successfully segment the iris regions for all of the eye images in the two databases. In order to improve the automatic segmentation algorithm, a more elaborate eyelid, and eyelash detection system can be implemented.
Further, it can be developed in capturing images from the moving force and videos by using other algorithms. Matching images can be done by using other classifiers to evaluate the recognition system. So that average time consumption of the system can be improved by changing the normalization, filtering, encoding process.