

# CHAPTER 9

## Conclusion and Future Work

The thesis proposes a novel fingerprint recognition system which consists of fingerprint image enhancement, fingerprint minutiae extraction, fingerprint matching system and fingerprint retrieval system from the database. To remove unwanted information, a combination of Fast Fourier Transform and Gaussian filter is applied on preprocessing stage. Connection Number (CN) is used to identify the type of minutiae and their location in the post processing stage. For fingerprint matching, a robust and efficient matching function using Minheap is proposed and to extract fingerprint records from database, distance feature indexing technique is used.

For experimental purposes, the fingerprint standard database FVC2002 has been used. The overall performance of the proposed system at 95% hit rate is 28% of penetration rate and when the hit rate is at 100%, the penetration rate is 35%. The Equal Error Rate (EER) for the proposed algorithm is 1.44 which gives better results when compared to the fingerprint recognition algorithm available in the literature by using the parameter FMR and FNMR.

The proposed fingerprint recognition algorithm is not effective in latent fingerprint image. For latent fingerprint, the work should more focus on image enhancement. In the future, an effective and improve enhancement algorithm will develop for latent fingerprint identification.