

ABSTRACT

Various studies on finger vein biometric system has been carried out by using some specific parameters in accordance with the study but it has not provided its easiness and robustness as a perfect authentication system until now. The main challenges in finger vein biometrics that still become research materials are accuracy which still needs to be improved, large scale biometrics system, and adaptation with uncertain environment.

The proper combination of framework and feature extraction technique is very important in designing a biometrics system in order to achieve the best performace. At this final project study discussed on Local Binary Pattern as the feature extraction algorithm and Personalized Discriminative Bit Map as its framewok. LBP has been able to extract on the finger vein characteristics based on different level of gray of a pixel with its neighbour added in the form of binary code. PDBM used to find best and discriminative bits that can distinguish one subject with other subjects The dissimilarity score of fingervein feature vector between model and testing data are computed using Jaccard Distance.

The result of this research shows the effieciency of LBP algorithm with Personalized Discriminative Bit Map framework and performance of the system is described in detail into several testing scenarios. The parameters to be observed are radius of LBP, step of PDBM , and threshold value for decision making bu the system. The system able to get accuracy 98,26% of id_2, 96,88 % of id_4 , 92,71 % of id_6 with the configuration values of radius 3 and all of the step combination(2,4, and 8). The system's EER gained 0,343792 for optimum threshold and able to get recognition rate 92,94 %.

Keywords: *finger vein biometric system, local binary pattern, Personalized Discriminative Bit Map*