Abstract

Biometrics is a knowledge that can recognise someone based on physical characteristic or behaviour. these characteristics must be unique, it means they can be distinguished from each individual. Palm vein is one of biometrics that attract attention researchers, lately. Palm vein have some superiority if we compared by others physical characteristic. First, Palm vein represent or identificate someone still alive or dead; second, palm vein is hard to be tampered; and the third, palm vein is hard to be simulated by palm imitation. In this final task, will be designing and implementation a system who able recognise someone based on palm vein image. Methods that will be used in this system are Principal Component Analysis (PCA) as feature extraction method, and Probabilistic Neural Network (PNN) as classification method. PCA has a superiority that provide a road map that can reduce a complex data group into small dimension matrix, so it will be reduce computation process. PNN is a classification method that known with quick and good training process to get the optimal solution.

The data set that will be used in this final task comes from Database Casia Multispectral. This database consists of 7200 pictures of palm, comes from 100 different people with 8-bit gray level JPEG. In this final task, the datas that will be used is picture who captured with 850nm spectrum and right palm. Beside implementation of methods, will do analyze to parameters PCA (feature length) and PNN (value of g for smoothing parameters). From testing and analysis, obtained the highest accuracy of 84% with a feature length used is 180 and the value of 0001 g at 50 different individuals were identified.

***Keywords**: Palm vein, Principal Component Analysis (PCA), Probability Neural Network (PNN), smoothing parameter, a feature length*