

ABSTRACT

In today's modern society, a lot of things that require the authentication of the identity of a person, for example: health care, management of bank accounts, aviation services, immigration, and many others. There are several ways to prove or recognizing the identity of a person who is used by the general public, one of which uses biometric systems. Biometrics is a way to recognize a person based on its characteristics and behavior. One example the sophisticated biometric is biometrics using finger vein. Finger vein have feature that are unique to each individual. Moreover, unlike the fingerprint, finger vein is difficult to be duplicated because the vein is used in the authentication process lies under the skin.

This final project realize an individual authentication system with finger vein image using Support Vector Machine (SVM) and Gabor Filters. In this research, SVM method is used for process of matching/ classification. Unlike the neural network method which search class separating hyperplane, SVM trying to find the best hyperplane in the input space. While for the feature extraction method is used Gabor filters. Generally, the process of this system is the pre-processing, feature extraction, and matching or classification.

From the test results obtained the system accuracy for OAO is 94.29% while for OAA was 93.33%. Thus there is an error 5.71% in the OAO and 6.67% in the OAA. Error caused by the position of the image at the time of the acquisition process still allows fingers to move, so the resulting image still sometimes different. If the image of the acquisition is different, it is possible to image the ROI will also be different, so it could be an error, because basically this system is to compare the results of the training ROI image with the image of the ROI results of the test.

Keywords: finger vein authentication, biometrics, SVM, Gabor Filters