

Abstract

Digital image processing is increasingly in demand, one of the demand is for biometrics system. Biometrics system is a system based on pattern and personal characters of humans. Image processing is one of techniques that popular in biometrics system. Biometric system is a recognition technique based on pattern or personal characteristic on living creature such as human. Types of biometrics identification which commonly used is fingerprint identification. Fingerprints are widely used in daily life for more than 100 years due to its high acceptability, permanence, accuracy, and uniqueness. The advantages of fingerprint are caused by minutiae which is lines or streaks in fingerprint that different for every individual.

Fingerprints classification is divided into two general steps which are feature extraction and filter classification. Filter method can be used in feature extraction just like gabor filter with four orientation degree of 0° , 45° , 90° and 135° . Result of feature extraction will classified for identification purpose. Method of Support Vector Machine (SVM) can be use as classifier for fingerprint biometrics system. SVM method has kernel tricks that has an effect to the accuracy. SVM one against all is used to classify 25 class of fingerprint. The biggest accuracy is gained by Radial Basis Function kernel, 73% for the original image and 76% for the augmentation image.

Keywords: Biometrics, Fingerprint, Gabor Filter, and Support Vector Machine (SVM).