AN IMPLEMENTATION OF FINGERPRINT IDENTIFICATION SYSTEM USING FILTER BANK GABOR METHOD

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Abstract

Fingerprint identification system is a biometric system used to identify a person based on his/her fingerprints. One of the most important parts of the fingerprint identification system is a fingerprint matching technique. Currently fingerprint matching techniques that have been developed was the fingerprint matching technique based on its pattern. This final project is devoted to develop one of the fingerprint matching technique based on its pattern that is fingerprint matching using filter bank Gabor method. This method filters the input image with 8 orientations of Gabor filter and the results are converted into feature vectors (fingercodes) by using the Average Absolute Deviation (AAD).

The identification process of individual is conducted by comparing the query feature vector with the entire reference feature vector stored in the database. Matching process on two feature vectors is done by calculating the normalized Euclidean distance in both vectors to produce a score. The smallest distance value indicate the highest score. So, the identified individual is the one who has the highest score in their reference feature. Based on the experiment that identify every individual using the method of Gabor filter banks, the method has the sufficient accuracy result. This is indicated by the percentage success rate in identifying individual equal to 90.667%.

Key words: Gabor Filter, Fingerprint, Identification System, Filter Bank Based Matching