Abstract

Most of the current security and attendance systems are shifting towards automated biometric systems, the most popular biometrics being fingerprints. In Automated Fingerprint Identification Systems (AFIS), the fingerprint of an individual needs to be identified with that stored in the database. In this paper, a method which deals with fingerprint identification in the transform domain is considered and the main focus is on the reduction of the processing time.
Automated Fingerprint Identification System based on Sectorized Complex Walsh Plane

First, the mean of rows (or columns) of the fingerprint image is computed, this converts a two dimensional image signal into one dimension. The one-dimensional Walsh transform of the row (or column) vector is generated and is distributed in a complex plane which is subjected to sectorization to generate the feature vector. The feature vector of a given test image is compared to those present in the database. The scores from row and column transform methods are fused using OR and MAX functions. The results with accuracy of more than 73% (for 16 sectors) and high computational speed show that the method can be used in fingerprint identification in application with requirements of less processing time.

Reference

- Anil Jain et al.: Intelligent Biometric Techniques in Fingerprint and Face Recognition, CRC Press (1999)
Automated Fingerprint Identification System based on Sectorized Complex Walsh Plane


Index Terms

Computer Science   Wireless

Key words

Fingerprint identification   Walsh transform
row and column mean vector   sectorization
complex plane