Authentication using Hashed Fingerprint

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Abstract

Due to the great increase in information technology systems where user authentication is needed, security in those systems relies on using PINs or passwords. During the last years, the scientific community is trying to improve biometric techniques to be accepted as an alternative to other user authentication schemes. Fingerprints are the oldest and most widely used form of biometric identification. Local and global features are important features in fingerprint images used for classification and matching purposes. The main goal of this work is using the fingerprint technology to generate a number of hashes that can be used for identifying person identity and authentication purposes. Local and global features has been used to obtain a robust recognition system where a robust algorithm is used to extract these features accurately. The orientation and flow of ridges is used as the key factors for processing to avoid eliminating true features. Then, the hashing concept has been applied on the calculated distance between each feature extracted inside the region of interest and the core point. Finally, the extracted hash values is compared with those stored in the database. It is shown by the experiments that the presented verification system improves the features extraction accuracy and the performance of
the matching process.

References


Index Terms

Computer Science

Image Processing

Keywords

Biometrics, Fingerprints, Feature Extraction, singular point, Hash Function, and Authentication