Finger code matching algorithm using circular tessellation

Baruni, Kedimotse P
Council for Scientific and Industrial Research
Pretoria, 0001, South Africa
Email: KBaruni@csir.co.za

Abstract

Due to the rising concern of data security and privacy, fingerprint recognition has been used for identity verification. This paper presents a minutiae-based finger code matching algorithm for identity verification. It describes the effect of using different sizes circular neighborhood minutiae tessellation to generate a finger code for identity verification using a fingerprint. The analysis of how the matching accuracy is affected using different sizes of circular neighborhood minutiae tessellations is described. A minutiae-based matching algorithm using multiple reference minutiae to generate a finger code is presented. The proposed finger code matching algorithm offers the advantage of matching speed due to the usage of binary codes and it can also be implemented on embedded platforms such as smart cards. The finger code matching algorithm obtained the highest matching accuracy of 7.03% Equal Error Rate (EER) using database DB1-b of Fingerprint Verification Competition 2002 (FVC2002).