Abstract

Based on minutiae points algorithm, this paper proposes a fingerprint recognition technique to match one fingerprint among various fingerprint images accurately. First, in order to raise quality of blurred and broken images, we implement the preprocess using enhancement and Gabor filter. Then two kinds of minutiae points are extracted from the print and validated. Finally, during the matching step, points are matched using Ransac under an affine transformation model. After testing upon database FVC2002 and FVC2004, we prove that our method is robust and accurate with %d accuracy.

Introduction

Fingerprints are one of the most common and trusted biometrics for personal identification. Because of their uniqueness and consistency over time, fingerprints have been used for identification for over a century. Fingerprint identification is popular because of the inherent ease in acquisition, the numerous sources available for collection, and their established use and collections by law enforcement and immigration.

In this paper, main objective is to present and implement an accurate and robust fingerprint recognition method. We adopt two most prominent kinds of minutiae: ridge ending and ridge bifurcation. To improve the robustness, we use Gabor filter several times to raise the image quality. For finding correspondences for points, we use geometric hashing instead of SIFT because of uniqueness of fingerprint.