Abstract

The main objective of this work is the study of forms for the identification of important fingerprint images characteristics. Firstly, a description of the most important aspects of people identification by this biometric form is presented. Afterwards, the digital acquisition form and aspects related to their pre-processing are discussed. Especially, the use of the Fourier transform and the Gabor filter are used to improve the image quality. Forms to evaluate the average size of the fingerprints ridges and valleys had been implemented. This characteristic had shown to be important to obtain the fingerprint directional image. The directional image is a representation of the directions of the digital descriptive lines and is used in the subsequent phases of the singularities points localization. Moreover, different smoothing of directional image options is included in the application developed in this work. The localization of cores and deltas is developed using the Poincaré index, implemented using 2x2 or 3x3 blocks on the directional image. Results show that image treatment together with the use of proper techniques can improve the identification of important fingerprint images characteristics.

Key words: biometric, fingerprint, Fourier transform, Gabor filter, directional image, Poincaré índex.