Study of enhancement of quality of Finger print using fuzzy set and neural network

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Abstract : In biometric identification, fingerprint recognition is most popular and widely used method Fingerprints were used as a means of positively identifying a person as an author of the document and are used in law enforcement. Fingerprint recognition has a lot of advantages, a fingerprint is compact, unique for every person, and stable over the lifetime. A predominate approach to fingerprint technique is the uses of minutiae. This dissertation presents an investigation and comparative study to extract minutiae points in fingerprint image. In most cases, fingerprint images available are not of good quality; they may be corrupted and degraded due to variation in skin and effective condition. So first a fuzzy logic based image enhancement method has been applied to obtain a more reliable estimation of minutiae points and their location and then a different algorithm used to extract them. Neural network is used to give the training to the location of these minutiae point and to improve the performance of the system.

Key Words : biometric identification, fingerprint recognition, fuzzy set and neural network

Introduction : The quality of the input fingerprint image affects the performance and fingerprint matching methods. The quality of a fingerprint image measured corresponds to the clarity of the ridge structure in the fingerprint image. A fingerprint that contain high contrast and well defined ridges and valleys, are called as good quality image while a poor quality