ABSTRACT

Iris recognition is one of the most reliable and accurate biometric identification systems. Iris based biometric personal Identification and Verification methods have gained much interest with an increasing emphasis on security. Iris patterns are stable throughout the lifetime and are not surgically modifiable. It has been assumed that an individual's left iris vary from that of the right iris. Its uniqueness among all human has made it a reliable and efficient human recognition technique.

In this project we have studied different approaches for Iris Recognition and implemented some of them to verify its performance. Both the training and testing set of Iris is taken from the database CASIA-IrisV1. The system is based on four main steps: Localization, Normalization, Feature Extraction and Matching. The Localization part comprises the detection of pupil boundary and Iris boundary based on Circular Hough Transformation occluding the eyelid and eyelashes using threshold. The Iris region is then extracted from it. The extracted Iris Patterns undergo Normalization to create a dimensionally consistent representation of it. The Wavelet features i.e. phase information is then obtained by convolving the Iris region with 1D Log Gabor and Gabor filter. A template containing bit information of the most discriminating features of the iris is created by phase quantization process of the complex valued convolution result. Matching includes classification of templates by employing Hamming Distance technique obtaining the difference as a fraction of mismatched bits. 80% of images of the training set are successfully segmented and nearly 87.5% matching rate is achieved by the implemented technique.