Modern societies give higher relevance to personal recognition system that contribute to the increase of security and reliability, essentially due to terrorism and other extremism or illegal activities. The objective of this work is to present a multi-algorithmic biometric authentication system for physical access control based on iris pattern for high security access. The CASIA database of IRIS images provided by Chinese Academy of Sciences Institute of Automation is used and the system is implemented in MATLAB. The iris recognition is based on Daugman's approach and multiple classifiers using Hamming distance and Neural networks. In Daugman's approach, the iris features are extracted using 2D Gabor Wavelets. The proposed work provides match for iris pattern if hamming distance is below 0.15 whereas for the existing works it is 0.20. The Neural Classifier uses a feed forward network with three hidden layers and used
after normalization and feature extraction phase. Features given to neural network are Energy, Entropy, Standard deviation, Covariance. The error rate has been reduced from e-3 to e-5 in this proposed work. The multi-algorithmic approach together with improvement in segmentation and matching stages is found to report higher verification accuracy with lower error rate.

References

- Uma Maheswari S., Anbalagan P. and Priya T. 2008 Efficient Iris Recognition through

**Index Terms**

Computer Science  
Pattern Recognition

**Keywords**

Iris Recognition  
2D Gabor Wavelets  
Hamming Distance  
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Feed Forward Network

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