

## **Biometric Multimodal Security System**

Now days, Security has become one of the major concerns with the growing technology. Biometrics has recently become one of the highly secure techniques for protection. Every biometric has its own set of pros and cons, therefore, instead of using single biometric, combination of two or more will help to increase the efficiency as well as the security level.



This System implements a web application where the access will be granted only when the user will complete 3 levels of biometric security check instead of simply using the passwords or pin numbers for login. It can be used in various applications like online payments or taking attendance in classrooms and anymore. Firstly, the user will have to read out a “captcha “sentence generated by the device.

This kind of text generation preserves expressions and style from the original text to some degree and produces text that is statistically similar to the original text. In this system, the sentences are generated by means of a using Dynamic Time Warping and Mel-Frequency Cepstral Coefficients Algorithms, using literary works in the public domains input. After this the user has to complete fingerprint recognition in which a minutiae based fingerprint recognition algorithm is used which is based on Neighborhood Distinctiveness.

After completion of these two levels the user will have to go through face recognition mechanism where the face image will be verified with the face image stored in memory. PCA and LDA algorithms with Eigen Face average Image and training set is used for the same. Also use a shadow compensation method that compensates for illumination variation in a face image so that the image can be recognized under normal illumination condition. After passing all these levels the user will be granted access to the system.

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