Chapter – 3

Aim and Objectives

Biometric authentication and their template security are increasing day by day over the past decade with challenging requirement in Automated Secured Personal Authentication System. The reason behind on this demand for the replacement of old-fashioned automatic personal identification tools by new one. The old-fashioned automatic personal identification tools uses traditional approaches such as Personal Identification Number (PIN), Login Id, ID card, password etc. to verify the cognizance of a person, are no longer considered as credible adequate to gratify the security concern for person identification system. A biometric scheme delivers automatic recognition of a person depending on some particular trait.

But, there are various unfolded challenges in the existing researches in biometric personal authentication. Among these, major challenges of iris recognition systems are related to *Iris Template Security* and *Iris Recognition Performance. B*iometric being an integral part of human body, loss of one's biometric corresponds to loss of his/her identity. Security of iris templates is one of the most important issues in any biometric authentication system. Following are the four types of biometric systems:

- Traditional Biometric Systems

- Biometric Key Release Systems

- Cancelable Biometrics Systems

- Biometric Key Generation Systems

Though the last three non-traditional systems mentioned above are quite effective in resolving template Security related issues.

- But, in most of the systems, recognition performance is affected.

- Speed of these systems is always slower as compared to Conventional Iris Recognition Systems.

- Moreover, most of these systems do not perform well with Noisy Iris Image datasets.

Due to all these issues, we require a reliable and efficient solution to solve template security related issues.

3.1 Aim of the Study

The basic aim of this research study is to design an effective and secure technique for personal authentication using iris recognition and also evaluate the performance of the designed framework by comparing the performance of existing iris recognition system. The study also provides the iris template security mechanism to secure iris recognition system.

3.2 Objectives of the Study

The following are the objectives of this study.

1. To develop or improve existing algorithms to make the IRIS recognition accurately in possible on Noisy Iris Images.

2. Performance Evaluation of proposed framework by comparing the performance of existing Iris recognition system.

3. Design of a Security Template to secure Iris recognition system.

3.3 Findings in the Study

The major findings of the study can be summarized as under:

1. For making the iris recognition more accurate, an effective iris segmentation technique for noisy iris images is proposed.

2. The proposed effective iris segmentation technique for noisy iris images is implemented.

3. Performance evaluation of proposed segmentation framework with existing techniques for noisy iris images has been studied.

4. A hybrid protection mechanism is proposed to Secure Iris Template.