Iris Recognition System with Reference to Chhattisgarh Person.

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Summary

Iris Recognition system is one of the challenging problem of current era. Various research is going in this direction due to unique property of Iris. It is a problem that has received much attention due to awareness of public security. Iris recognition is the identification of a person's identity based on an image of their eye. It is found that people's iris will not change throughout the life and is found to be most secure biometric. Most commercial iris recognition systems use patented algorithms developed by Daugman, and these algorithms are able to produce perfect recognition rates. Image processing techniques has been employed to extract the unique iris pattern from a digitized image of the eye, and encode it into a biometric template, which can be stored in a database.

In the present work we created a large database of 5000 images called NITRR database from person of the state i.e. Chhattisgarh. The data were collected using Iris Magic BK1000 scanner. The collected images were filtered in order to remove the noise. We analyzed the segmentation and uniqueness property of Iris. Iris segmentation is important before comparison of iris template. For a perfect matching of iris it requires an efficient algorithm that give good segmented part of Iris. Using Daugman algorithm we got 60-70% part of the iris, however the Daugman segmentation algorithm is not sufficient for getting good accuracy. It was a challenging task due to dense eye lashes of people in this region. The elimination of eye lashes and filling by appropriate values pre-processing were performed in this project.

Normalization of segmented circular iris parts were performed. Further hamming distance and Euclidean distance methods were used to match the two iris templates.

In this project we have developed and used MATLAB based code that take the images of individual person, and efficiently create the database. When a test person images is entered with iris scanner it checks its maximum similarity with the existing templates stored in the database and as a result it provide the information about the person. In present system the module that finds the similarity between left and right iris is also covered. In future it can be extended towards disease diagnosis of person using non-invasive method.

The above database and code generated are the major findings of this project.