

Comparative Survey of Iris Recognition Using Hough Transform Method

Ankit Garg*

Assistant Professor in Computer Science, R.K.S.D. (P.G.) College, Kaithal

Abstract – Automatic recognition of a person depends upon the physical or behavioral characteristics of an individual. Out of all characteristics like fingerprint, voice, face, keystrokes, the most popular method of identifying an individual is based on iris recognition. The most difficult step in iris recognition is the segmentation because it enhances and affects accuracy of matching the iris from database. Hough transform method is popular method for detection of circular features. As the iris and pupil are circular in shape, hough transform is used to locate the center of iris in image. The first step is acquisition of iris image, after that segmentation is done, feature extraction is done and finally iris image extracted is compared form database. In this paper, circular hough transform method was discussed and then comparative survey has been done on hough transform which is used by various researchers to localize iris image.

Keywords: - Iris Recognition, Iris Segmentation, Circular Hough Transform, Feature Extraction, Matching.

-----X-----

1. INTRODUCTION

Recognition and identification of an individual is required in every area like banking, airports, government and public sector. These authentications are based on person physical and behavioral characteristics. The physical characteristics include face, fingerprint, iris and behavioral characteristics include voice, keystrokes etc. Iris recognition is more popular in all traits because of large sample size, very simple and robust compared to other biometric traits. Segmentation is one of the most crucial step in iris recognition system as it localize iris inner and outer boundaries (Figure 1). The image can be captured in constrained environment where full cooperation of subject is required. But the most difficult step is when the iris image is captured in less constrained environment [2] due to reflection caused by light source, subject moving, rotation of camera and non uniform illumination caused by position and angle of light source. Iris is considered as a donut including colored ring of tissue around the pupil and has a very rich pattern of furrows, ridges, crypts, corona, freckles and pigment spots. These minute details of iris texture are believed to be determined during initial eye development. They are different for different persons and even for the two eyes of same person. Iris is found to be a well-protected and age invariant biometric.

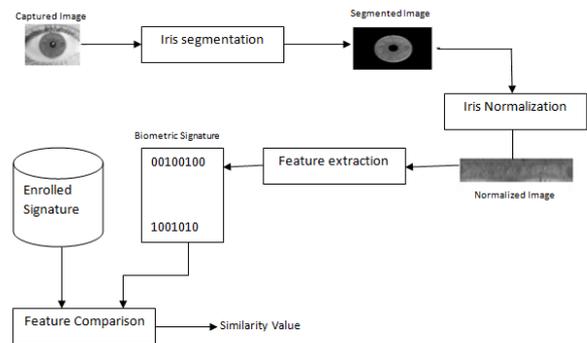


Figure 1 Iris Recognition steps

Almost all methods stated are based on the assumptions that centre of iris (Outer Boundary) and Pupil (Inner boundary) is same and iris is perfectly circular in shapes, which are practically incorrect. Therefore, the iris segmentation and localization from an acquired image leads to the loss of texture data near to pupil and/or outer iris boundary.

2. HOUGH TRANSFORM:

The hough transform is an algorithm presented by Paul Hough in 1962 for the detection of features of a particular shape like lines or circles in digitized images. The classic Hough Transform is a standard algorithm for line and circle detection. It can be applied to many computer vision problems