HUMAN EAR RECOGNITION SYSTEM

A dissertation submitted to the

Computer Science and Technology Degree Program,

Uva Wellassa University

in partial fulfillment of the requirements for the award of the

Degree of Bachelor of Science in Computer Science & Technology

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October 2013

Abstract

Human Ear Recognition is one of the challenging research areas nowadays. This research proposes a method to recognize human by using ear biometrics. Most of the other biometrics (Face, voice, and gait) change with age. When face was bearded and with emotions (smiling, crying, etc), it changes the basic shape and the appearance of the face. But in case of ear, the shape and appearance is fixed.

Basically this research was focused to develop suitable algorithm to compare two ear images. This algorithm is based on Euclidian Distance. Before comparison there are several image processing activities to process ear image in order to eliminate unnecessary parts. They are Rotation, Cropping, Canny edge detection and rescale. This algorithm is based on image processing techniques.

Java Programming language is used to implement this system. Java Advanced Imaging API is used to implement the Rotation, Cropping and Displaying components. Graphical User Interfaces are implemented using Java Swing.

IIT Delhi Ear Database is used to test the system. These ear images are taken in several angles from same environmental conditions. So affect of the lightning is eliminated.

This system archives 90% accuracy for this IIT Delhi Ear Database. But the accuracy level may change for other ear images taken from different environmental conditions.

This System can be used for Criminal Investigation purposes. Police department, Custom department and other government agencies can use this system as a tool for person identification.