ABSTRACT

Iris is one of the unique and stable parts of human body. That's why iris is possibly used for individual identification. In this final project, an individual identification system is made through iris digital image by combining the Independent Component Analysis (ICA) as extraction algorithm and Support Vector Machine (SVM) as the classification method.

The reason of using ICA is to produce a maximum basic function which can represent feature of iris efficiently. On the other hand SVM is a learning machine method that works based on Structural Risk Minimization (SRM) in order to find the best *hyperplane* which is dividing input space into two classes.

In practice, digital image from iris is taken then processed through image acquisition process and preprocessing stage. Output image from preprocessing stage will be changed into iris signal form by using Gaussian function. After that, iris signal is extracted by using ICA extraction algorithm to be saved in database. The database classification will be done by using Multiclass SVM.

The system testing result has been analyzed and evaluated so that the system with higher accuracy, faster detection time, and system that can handle more database than the previous system can be found.

Key words: *Iris Identification, Biometrics, Support Vector Machine (SVM), Independent Component Analysis (ICA), feature extraction, Gaussian Function, Multiclass SVM.*