

ABSTRACT

Biometric techniques are growing rapidly at the moment. Any use of these biometric techniques is for face recognition system that is commonly referred to face authentication. On a face authentication system is required that the system has a high accuracy for recognizing people face and a fast system computational time.

On this face authentication system is used double detection in order to the detection more focuses because the whole face will be detected and also will detect by more focusing on specific facial area. The facial area that has been chosen for double detection is nose. Because of human nose is also unique and it is not susceptible to change due to movement caused such as on the eye and lip area that may change significantly when blinking or smiling. In this final project, the facial images are taken using a digital camera which consist of training images as the input of the database and test images that will be matched with an existing database. The process is used Contourlet method to get the facial features in the training data and test data. After that, Self Organizing Map-Artificial Neural Network is used for authenticating those faces and compare them with the database to determine the authenticity of the image data to be the result.

From the results of system performance testing, it is known that the performance of the system reaches the highest accuracy during the process of feature extraction using Contourlet at level 3 subband 1,2,3 and SOM-ANN parameters for classification using epoch 150, randtop function topology and boxdist function distance. System accuracy is obtained 90.6667% and the computational time around 0.9 s for verification one test data.

Kata kunci : *Biometric, face authentication, Contourlet, SOM*