ABSTRACT

The need to identify individuals in the world today is very necessary, either for health, safety, and also data collection. The best solution for this problem is biometrics. In biometrics, there are several parameters that can be used as a reference to distinguish an individual with other individuals, one of them is the palm of the hand (palmprint).

In this final project, pattern recognition system by palm print feature is designed to work realtime. Identification by using the palm of the hand (palmprint) has several advantages, such as cheaper than iris identification and more resistant to wet hands and dirty compared to the fingerprint method. The processes conducted in this project are image acquisition, preprocessing, feature extraction, and classification. Image acquisition is done in box that is previously designed.

Preprocessing is done by changing the format of image acquisition results in a grayscale format, stretching contrast, removing noise with median filter, and detecting edge. Feature extraction technique used is Wavelet Transformation, and the classification method applied is Fuzzy Logic optimized with Genetic Algorithms. Fuzzy method used is 0th order of Takagi Sugeno method.

Palm recognition systems in real time by Fuzzy Logic and Genetic Algorithms are proven to work well by giving the best accuracy of 82% for genuine data test, 76% towards false data and range of computation time is between 0.8830-3.2741 seconds. This condition is in reach at threshold is 5, first level decomposition, 5 fuzzy set to represent each feature and LOM method applied for defuzzification purpose.

Keywords: Biometrics, Palmprint, Fuzzy Logic, Genetic Algorithms