ABSTRACT

Biometric system is a system that is growing vary rapidly as a development era. One of the most popular biometric to be investigated is the palmprint of hand. Various methods proposed to create a palm recognition system that are reliable. Recognition the palmprint of hand can be used to identification and verification as an example for the identification of person's identity in the case of withdrawing money at an ATM that is rife with crime taking ID(PIN) illegally and verify whether the person actually having that ID.

Orthogonal Laplacian is one of the methods used for the recognition of palm. This method is different from the method of PCA*(Principal Component Analysis*) or LDA(*Linear Discriminant Analysis*), which only look at the effectiveness of structures on outcomes *Ecliudean* projections. This method analyzes the result of orthogonal transformation of the projection space to take discriminat feature only of the palm. So, that ultimately results OLPP projection on embedding process produces smaller dimensions than the previous method.

The experiment conducted using a maximum of 30 individuals and a minimum of 10 individuals with 3 data trains and 7 data tests for each individual. With the reduction of smaller dimension, the system can achieve the same accuracy with reduced dimensions before, reaching accuracy 96,67% for 30 individuals. When the palm of hand in wet conditions, the system is still capable identiy 10 individuals with an accuracy 77,14%. The optimum *threshold* value at the classification process is 0,9857 by FAR 3,33% and FAR 0% to reach accuracy 96,67% for 30 individuals. With FRR value smaller than FAR value, it means the system is able to identify well.

Keywords: biometric system, identification the palm of hand, *Orthogonal Laplacian*, dimensions, *threshold*, FAR, FRR