ABSTRACT

In Indonesia there are various types of criminal cases such as kidnapping, sexual abuse and murder. Many victims or perpetrators are difficult to identify in these cases because the data of an individual is not found in the population data set. Therefore, biometrics are needed which can show distinctive features, one of which is lip prints. Lipstick is consistent, never changes its pattern throughout life. Lips have a unique pattern on the image of the sulci in the mucosa of the upper lip and lower lip that is different in each individual and has a different combination of lip print types. The lip print type consists of types I, I ', II, III, IV, and V which are characteristic and contain biometric information on the lips. As far as the author knows, there is no research to distinguish lip prints based on ethnicity, especially distinguishing the fingerprints of Minangkabau and Sundanese tribes.

This final project aims to detect the ethnic origin of individuals originating from the Minangkabau and Sundanese tribes by analyzing the similarity of lip print patterns of individuals from the same tribe so as to minimize the scope of individual identity searches in the application of forensic science. Lip print images were taken from 29 Minangkabau tribes and 29 Sundanese individuals.

The system that is made to have input in the form of lip print image then the preprocessing using the application of lip print image registration with feature extraction using the Local Binary Pattern (LBP) method and classification using the K-Nearest Neighbor (K-NN) method. System performance achieves the highest accuracy of 81.89% with computation time of 189.65 seconds achieved by the number of training data totaling 177 images and test data totaling 116 images using skewness, kurtosis, and entropy, quantization level 10, radius block size with radius R = 1 (matrix 3×3*), and the value of the KNN parameter value k = 5 with neighbor distance measurements using city block.*

Keywords: *Forensic, lip, LBP, K-NN, Minangkabau, Sundanese.*