ABSTRACT

Crimes and natural disasters are very common in Indonesia. Oftentimes, the victim or perpetrator is not identified. Forensic biometric approach can be used to investigate the individual identity. Forensic biometric can be applied through a software which automatically recognise the person's identity. The data is inserted using various special features, such as lip prints.

Lip prints have a high individual nature. Similar to the specific characteristic on the fingerprints, everyone has a unique pattern on their lips that appears as fissures on the upper and lower lips. Lip prints are permanent, which means the patterns remains stable from the 6th week intra uterine until adulthood.

This research aims to classify human identity through the lip print patterns by using the Singular Value Decomposition (SVD) feature extraction method and the Learning Vector Quantization (LVQ) classification. Lip print images were taken from 30 individuals.

The results showed that the systems are able to identify human identity from the lip prints based on the Suzuki and Tsuchihashi classifications. The system has a performance with an accuracy rate of 87,103% with a computing time of 170,570 seconds by using the layer SV parameters, hidden layer 40 and epoch 600.

Keywords: Forensic science, biometrics, lip prints, Singular Value Decomposition, Learning Vector Quantization, Suzuki *and* Tsuchihashi.