

ABSTRACT

Forensic Odontology is a branch of the science of dentistry that aims to apply the knowledge of dentistry in solving legal problems and crime. This branch has been used for years to identify victims and suspects in cases of theft, harassment and other crimes. Forensic dentistry can determine a person's identity based on identification, one of which is the identification of lip pattern. Lip pattern that is owned by an individual has a consistent nature, is stable throughout life, and will not change either the pattern or its characteristics.

In the Final Project, a design and research simulation has been carried out to identify the lip print pattern on human identity by using a digital image based on lip print images. By using feature extraction method of Histogram of Oriented Gradients (HOG) and for classification using the Support Vector Machine (SVM) method. HOG is a technique for detecting objects by calculating gradient values in a particular area. While SVM is a learning machine method that works with the aim of finding the best hyperplane that separates classes in input space.

The result of this Final Project is a system that is able to identify the lip print pattern on human identity based on the classification of Suzuki and Tsuchihashi. The system has a performance with the highest accuracy rate of 92% with a computing time of 1.4129 seconds using 50 training image samples and 25 test images. These results are obtained using the parameters HOG Cell Size 4×4 , Block Size 2×2 and Bin Numbers 9. In the SVM classification process the best kernel types are used when linear kernel.

Keywords: Forensic Odontology, lip pattern, Histogram of Oriented Gradients, Support Vector Machine.