

ABSTRACT

Dental enamel is the outermost constituent part of the tooth. Each individual has a different tooth enamel pattern. The unique pattern of individual tooth enamel makes it an important aspect for the identification process. Identification of tooth enamel patterns aims to make it easier to identify victims in an accident or disaster. The pattern of tooth enamel will be seen more clearly at the position of one-third of the tooth that is close to the tooth neck. This position is considered very safe so that the patterns obtained can be considered quite accurate.

This final task aims to produce a system that can identify the enamel pattern on the teeth personally. The method used to obtain the extraction value of this system is the Gray Level Run Length (GLRL) method which has 5 characteristics of texture analysis i.e. SRE (Short Run Emphasis), LRE (Long Run Emphasis), Run Length Uniformity, GLU (Gray Level Uniformity), and RPC (Run Percentage). The sample images were taken from 10 teeth for the data acquisition. Then the images were converted to grayscale and then performed feature extraction and carried out image recognition process with the K-Nearest Neighbor classification.

The result obtained from this final task is a Matlab-based application with an accuracy rate 84% and average computation time 0.7707 seconds. The system uses training data consisting of 100 images and 200 images for the testing data from 10 teeth samples.

It can be concluded that this final task can perform testing of biometric identification system that can differentiate the texture of each pattern of tooth enamel. This system has also been able to classify the pattern of tooth enamel based on digital images even though the performance of the system has not worked optimally.

Keywords: *dental enamel pattern, Grey Level Run Length, K-Nearest Neighbor*