ABSTRACT

A dental abscess is a disease that cause a collection of pus that could form between the teeth, in the gums, or in the bone that holds the teeth in place due to bacterial infection. Periapical abscess is very difficult to be seen by the naked eye, therefore some physical testing using periapical radiograph is required to ensure the decay around the teeth. Physical testing is currently carried out manually by radiologists whose results are subjective. Therefore, in order to facilitate the diagnosis, a device or system that could improve the accuracy of diagnosis is needed.

In this final project, a synthesis of all studies related to the technique of diagnosing dental abscesses through digital image processing and periapical radiograph images has been done. Singular Value Decomposition (SVD) and Binary Large Object (BLOB) with k-Nearest Neighbors (k-NN) classification has been chosen as the method to be retested.

The data used is the same data to test both methods, namely training data with 8 numbers for abscess images and 8 for non-abscess images while the test data with 11 numbers for abscess images and 11 for non-abscess images. The result of synthesis in the highest accuracy obtained from the Singular Value Decomposition (SVD) method by using the S matrix, 128×128 pixel size and the k parameter on k-NN is 1 which results in 90.9091% accuracy with a computing time of 0.3548 seconds.

Keywords *: Abscess, Periapical Radiograph, Digital Image Processing, Singular Value Decomposition* (SVD), *Binary Large Object* (BLOB), *k-Nearest Neighboor* (*k*-NN).