***Detection of granuloma from dental x-ray by using texture analysis and k-Nearest Neighbor* – Zein Hanni Pradana - 111081009**

ABSTRACT

Dental health is directly related with body metabolism because tooth is one of digestive system organ, and digestive system organ is tightly related with body metabolism. The purpose of this study is to check up our dental health by using x-ray image, because there is some part of our tooth that is unseen. One kind of dental disease is granuloma. Granuloma is an inflammatory disease near the tooth's apex. This kind of disease is difficult to be identified by general dentist, though radiology specialist dentist is too way too rare in Indonesia.

This study is made to detect granuloma by image processing of its x-ray image, where the steps are: feature extraction using Texture Analysis dan classification using k-NN (k-Nearest Neighbor). Texture Analysis is used because there are some texture differences in granuloma. K-NN is used in this study because it was a simple classification method without training process.

This system had an accuracy of 73% when there is no image normalization. But, if some image normalization was done, the accuracy is increase to 80%, and the computation time is 1,448 seconds.

The conclusions of this study is already successfully designed a system to detect granuloma by using feature extraction using Texture Analysis dan classification using k-NN (k-Nearest Neighbor).

***Keyword**: dental x-ray image, granuloma, Texture Analysis, K-NN classification*