

## ABSTRACT

Tooth is the one organ that has an important role in human life. There are various type of diseases of the teeth and the mouth and one of them is dental disease granuloma. Dental disiaase is still dificult to be detected and distingushed with eyes, periapical dental radiograph images can only be represented by a specialist dental radiogoly specialits but in Indonesia radiologist in numbers are still slightly in Indonesia.

This final project aims to implement a digital image processing system is realized by designing an android that is expected to detect dental disease granuloma of recording image data from periapical radiograph. The research method in this thesis is the experimental method, which is based on research conducted feature extraction GLCM (Gray Level Co-occurence Matrix) classification method k-NN (K-Nearest Neighbor). Texture analysis is used because there is different texture on the granuloma. The results of the extraction of parameters characteristic of GLCM-parameters will result from the characteristics of first order and second order characteristic parameters are then collected and the classification is done using k-NN (K-Nearest Neighbor).

The outcome of this thesis is a system capable of identifying dental disease granulomas with maximum accuracy rate reaches 76.47 percent android system and the average computation time 3,0455 seconds using x-ray samples of periapical granulomas as test images and training images.

**Keywords** : *radiographs periapical, granuloma, k-NN, Texture Analysis, GLCM, android.*