

ABSTRACT

Teeth are hard parts organ in the mouth and has the function of aesthetics, mastication, and speech. Dental care is essential to prevent various dental and mouth diseases. One of the most common dental diseases, namely pulpitis. Pulpitis is a disease of dental pulp becomes inflamed and divided into two Reversible pulpitis and Irreversible pulpitis. Diagnosis of the disease is relatively difficult for the dental radiology since it requires precise accuracy in analyzing the results of periapical radiographs. Therefore, previous studies have been conducted with the digital image processing of the results of periapical radiographs to aid in diagnosing pulpitis disease by utilizing some good features in spatial and frequency domain and has been investigated several methods of classification that can be used.

This final project studied the detection of pulpitis with image segmentation technique using Multi Direction Gradient Vector Flow (MDGVF) by calculating the gradient direction for each pixel value with different direction. After that, performed classification using K-Nearest Neighbor method which results are expected to produce a system with 8 data image irreversible pulpitis and reversible pulpitis that can detect the characteristic of dental disease which is pulpitis reversible or irreversible with $K=1$ and 128×128 , 256×256 , and 512×512 pixels.

Keyword : Pulpitis, MDGVF, K-Nearest Neighbor