ABSTRACT

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Tittle : Detection of Pulpitis via Radiograph Periapical Based On Android Using DCT Method and Fuzzy K-Nearest Neighbor**.**

Pulpitis is an inflammation of the pulp as a result of the continuation caries caused by bacterial toxins. Determination pulpitis by naked eye is difficult, one way is to use a periapical radiograph 2D or 3D. Radiography is a diagnostic support tool used by dentists to see the state of the teeth and surrounding tissue with more detail. But needed a dentists who has expertise in the field of radiology to determine the diagnosis of radiographs periapical image. Whereas, in Indonesia is still a bit of a doctor who has expertise in the field of radiology. Therefore, we need a tool or application that can help provide a diagnosis of periapical radiographs image that easily and efficiently to use.

This Final Assignment design an Android application using the texture feature extraction methods Discrete Cosine Transform (DCT) which is the Fourier transform which converts the image from the spatial domain to the frequency domain, and arrange them in an important frequency (DC) to the less important frequency (AC). This arrangement took five most important coefficients in the imagery used to describe roughly of objects. The process of classification with Fuzzy Logic K-NN, which is merging technique and Fuzzy K-NN classifier. One of advantage Fuzzy K-NN is the algorithm is able to consider the nature of vagueness or ambiguity of the value of its neighbors if there is because of this algorithm has been designed so that the neighbors who have a vague or ambiguous does not play an an important role of others in the classification.

The results of this final assignment is a system capable of identifying pulpitis with Android system accuracy rate of 80% with an average computation time of 0.73 seconds using 20 test samples of periapical radiograph results diseased teeth pulpitis and 10 test samples of normal teeth.

Keywords : Pulpitis, Discrete Cosine Transform, Fuzzy K-Nearest Neighbor, Radiograph Periapical.