

## **ABSTRACT**

*Teeth are hard parts present in the mouth and has the function of mastication, speech, and aesthetics. Teeth's health should be maintained for not to cause disease. Diseases that can occur on the teeth that is pulpitis. Pulpitis is an inflammation of the pulp tissue that cause pain.*

*Teeth are estimated to pulpitis photographed using a periapical radiograph and the images in the form of medical images (x-ray). X-ray image can not be identified by the doctors directly. But taking into account the clinical symptoms experienced by patients and supported by looking at the x-ray image. The image generated by periapical radiograph equipment generally has low quality because there is a lot of noise, low contrast and sharpness of the image quality. Low image quality may lead to misdiagnosis, so it takes a certain method to improve the image or commonly called image enhancement. Image enhancement required to produce medical images better than the original images to assist physicians in diagnosing a disease. The method used to repair the image of this final project is adaptive morphological filter.*

*This final project concern about the low quality of the periapical radiograph image produced for pulpitis. By using adaptive morphological filter, is able to produce better quality images to help detect pulpitis, so it can be considered to be implemented in real conditions. The testing system in this final project using the periapical radiograph image of teeth number 47 reveals that 2<sup>nd</sup> masking gives the best result based on the value of variance, energy, and entropy of the image.*

**Keyword :** *periapical radiograph, pulpitis, morphological filter, image enhancement*