ABSTRACT

Skeleton (bones) is an important structure that can't be separated from the human body . however there are several causes that can lead to abnormalities in the bone which then interfere with the effectiveness of the bone. In this case a broken bone (fracture) and calcification of bones (osteoporosis) are 2 conditions that are very often found.

In this final project will be tested on digital image processing method with texture analysis in the determination of the femur bone. In general, femoral bone condition recognition system consists of two major parts, there are feature extraction and classification. In this case, feature extraction using texture analysis which calculates statistical values based image's histogram and K nearest neighbor (kNN) as classification method . K-NN is an object recognition method based on the calculation of distance closest to the learning data. For the condition of fracture morphology feature extraction operations that may indicate a discontinuity which would be indication on the condition of femur fracture.

The results of testing and simulation analysis shows that testing systems separately have a value higher accuracy than the tests simultaneously. For testing of osteoporosis have the highest accuracy value that is 90%. The selection method of either the stage of pre-processing and classification analysis is the study being undertaken to improve the accuracy obtained as well as the addition amount of data used.

Key words: fracture, osteoporosis, texture analysis, KNN