ABSTRACT

The curvature and posture of the spine is very important in in measuring the level of health problems in the human body. The wrong posture of the spine can affect health in the body such as muscle tension and back pain. Scoliosis is one of the abnormalities in the bones that make the spine curl to the left and right sides. So the abnormality can interfere with the effectiveness of the spine function. This final project aims to create a system that can detect abnormalities in the spine on X-ray images, so that the system can automatically sort the scoliosis gap according to the direction of slope and the doctor only determines the degree of slope. The creation of this system is expected to help sort out X-ray image classification data, so that it is expected to help the data classification process quickly and accurately.

In this Final Project, the image used is the result of CT imaging from X-ray results which consists of several counting processes. The system uses the extraction method feature Gray Level Co-Occurance Matrix (GLCM) to get extract level from the image of the health diagnostic tool with the .jpg format. Then the extract level results are classified with K-Nearest Neighbor (KNN) so that there will be 3 classifications namely normal human backbone, dextroscoliosis disorder and levoskoliosis disorder..

This testing is conducted using 128 images of spinal, with the composition of each image class having 53 normal images, 36 decstroscoliosis images and 39 levoskoliosis images. So that obtained the best accuracy of 84.84% in a system that uses second-order GLCM parameters in four parameters, a distance of 3 pixels with direction (0^o , 45^o , 90^o , 135^o), and the quantization level of 8, while the KNN parameter with a value of k = 1 in the four KNN parameters used.

Keywords: Scoliosis, Gray Level Co-Occurrence Matrix (GLCM), K-Nearest Neighbor (KNN)