

ABSTRACT

The lungs are the respiratory system organs that is related to the human's blood circulation, who breathes through air. Its function is to exchange oxygen from the air with carbon dioxide from the blood. The process can be called breathing. The lungs also have a nonrespiratory function. The normal lungs are healthy lungs, its function is infusing oxygen and removing carbon dioxide when the body breathe. Lung Tuberculosis (TB) is a contagious disease of the lung caused by the Mycobacterium tuberculosis bacillus. While Pleura Efusion is a buildup of fluid between two layers of pleura that wrap the lungs. Of the three types of lungs, have been obtained 60 training data and 60 test data which has been divided into 20 training data for the normal lungs, Tuberculosis (TBC), and Pleura Effusion. And also has been divided into 20 test data for Normal lung, Tuberculosis (TB), and Pleura Effusion.

In this Final Project the author will explain how to classify the type of lungs. There are several methods which can be used for the classification of lung types. In this final project, the author uses extraction method of Gray Level Co-Occurrence Matrix (GLCM) with K-Nearest Neighbor (KNN) classification that begins with pre-processing process.

This testing is conducted using 60 images of lungs, with the composition of each class having 20 Effusion Images, 20 Normal Images, and 20 TBC Images. So, the highest accuracy result acquired is 81.67% for the detection of lung condition using GLCM parameter of second order Correlation and Homogeneity, distance of 3 pixel with direction of 0 degree and quantization level 8, while KNN parameter with $k = 5$ euclidean distance.

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