

## ABSTRACT

Lung has a job as a respirator. Lung always do its job well. But some people have lung abnormalities, such as pleura effusion, and nodules on their lungs, those can cause the cancer. The abnormalities can caused by several factors, such as smoking, air pollution and many more. Lung abnormalities can be detected by radiologic examination, such as PA/lateral chest x-ray, thoracic CT Scan, and other radiologic examinations.

This final project was made to produce a system that can detect the abnormalities on chest x-ray and can be classified whether the condition is normal, have some nodules or pleura effusion and analyze the image recognition performed well or not. There are several stages to recognize the x-ray, there are image acquisition, feature extraction by using grey level run length method (GLRLM), and then classification process by using *K-Nearest Neighbor* (k-NN). Image acquisition is done to get the lung images those needed, and then do the feature extraction to acquire the feature of lung images to be included on the recognition process by using *K-Nearest Neighbor*.

From the result of testing system performance, it is known that the highest accuracy is obtained when the feature extraction by using GLRLM with gray level = 8 and then classify by using k-NN classification by adjust the value of  $k = 1$  for the Euclidean distance is equal to  $\pm 92.47\%$ .

**Key words:** lung abnormalities, Grey Level Run Length, *K-Nearest Neighbor*