ABSTRACT

Tuberculosis (TBC) is a lung disease caused by Mycobacterium Tuberculosis. That bacteria are rod shaped and commonly referred as Acid Resistant Rods (BTA). Generally, checking the sputum is done manually by using a microscope and then check the sputum in the preparation. While checking the sputum, if there is a BTA, the number of bacteria will be calculated and the disease will be classified. However, a manual check can cause several error that might occur while checking, such as errors when counting the bacteria. Therefore, the existence of this research is expected to facilitate the work of the testing team.

In this research, the TBC detection system designed by three parts of the system, the first is pre-processing which aims to improve the quality of the input image by using the segmentation method in the RGB and HSV colour space. After that, feature extraction which aims to extract features from an image using the Binary Large Object (BLOB) method which will be classfied using Naive Bayes. This classification process purpose to classify images into three conditions, that positive, negative and scanty.

The system designed uses 90 image data with 30 positive, 30 scanty, and 30 negative data. In this research, the parameters used in measuring system performance are by changing the threshold value, median filter, and system accuracy. In this research, the output generated by system using RGB is an average accuracy of 88% with computation time of 0,1155 seconds and using HSV with an accuracy rate of 92% and computation time of 0.1552 seconds.

Keywords: Tuberculosis, TBC, Binary Large Object (BLOB), Naive Bayes, RGB, HSV