ABSTRACT

Toddlers are particularly vulnerable to disease, especially gastrointestinal diseases. One disease that often strikes toddlers are dysentry amoeba. The disease is caused by the entry of amoeba into the toddler's body, causing dysentery accompanied by bleeding. The identification of this disease can only be done through tests on the stool of patients are microscopic and can only be done at local laboratories. In the case of telemedicine, laboratory tests are deemed less effective and accurate.

This final project aims to establish a system of dysentery amoeba identification program that often affects toddlers based on image of feces based digital image processing. The system is able to identify the image of feces that infected and the image of feces that is not infected dysentery amoeba. Broadly speaking, process identification of dysentry amoeba in this system consists of several steps. Starting from the reading of the image, using the radiometric noise removal, pre-processing, feature extraction using 2D Gabor wavelet, then the classification using k-Nearest Neighbor. Way to analyze system performance is to compare the truth of the identification data to the system was tested with its multitude of misidentification that occurred.

From the results of performance testing system, it is known that the performance of the system reaches the highest level of accuracy when using 2D Gabor wavelet feature extraction with 24 features and k-Nearest Neighbor classification using Cityblock with a value of k = 5 with 80.00% accuracy rate. The fastest computing time when using 2D Gabor wavelet feature extraction with 16 features and k-Nearest Neighbor classification using the Euclidean with k = 3 is for 2.9464 seconds.

Keywords: amoeba dysentery, feces, toddlers, 2D Gabor wavelet, k-Nearest Neighbor (k-NN)