ABSTRACT

Death case by malaria is a serious problem. Quoted from a statement by the World Health Organization (WHO) in 2018, it was reported that around 219 million cases of malaria had been detected worldwide, with an estimated 405,000 cases leading to death. Early diagnosis and treatment of malaria patients becomes an urgency that can not be ruled out because it can help delay the onset of symptoms and as a form of prevention against malaria. In this study, a malaria detection system was designed with two classes, namely parasitized and uninfected. The system is designed using the Convolutional Neural Network (CNN) method with the ResNet34 architecture and the Fast-ai Library based on blood microscopy images as input. The input image used in this study is a dataset taken from Kaggle with the name Malaria cell image datashet with a total dataset of 410 where 310 images are train, and 100 images are test. Furthermore, pre-processing of the dataset is carried out to improve image quality and then processed. The system performance parameters used in the test are accuracy, precision, recall, and F1-score. The results of the system's accuracy performance can achieve maximum results, namely 98% in conditions of resized image of 172x172 pixels, Batch size value of 8, Epoch value of 25, and Learning rate of 0.001.

Keywords: Malaria Detection, Convolutional Neural Network, Deep learning, ResNet34, Fast-ai