Detection of malaria parasites in blood smear image using color-intensity feature extraction

ABSTRACT

Malaria is one of the life-threatening diseases that affect millions of innocent lives each year, mainly in tropical areas where the most serious illness is caused by the species of Plasmodium falciparum. The conventional microscopy used in the diagnosis of malaria disease has proved to be inefficient since the process is time-consuming and the result is difficult to be reproduced. The alternative diagnosis techniques which yield the superior standard results are expensive and hence inaccessible to poor countries and rural areas. Therefore, this study aims to develop a prototype system that detects malaria parasites automatically from microscopic images by using the color-intensity feature extraction. Two objectives had been made for this study which is to develop an automatic malaria parasite detection system and to detect the malaria parasites in the microscopic blood images using color-intensity feature extraction. The input image is processed with image processing algorithms which include image sharpening, image segmentation (Canny Edge Detection and Watershed segmentation), and feature extraction of the malaria parasites (color-intensity feature extraction). Overall, the accuracy test of the proposed system achieved 98.7% when tested in 300 blood smear images.