Abstract

Requirement for accurate and rapid diagnose of malaria in Indonesia is high considering that this disease frequently occurs in isolated areas. To fulfill that requirement, telematic and computer engineering of electrical engineering of ITS propose portable intelligent system for automatic identification of malaria is called M-Analyzer. This intelligent portable system consists of three modules which are acquisition module, segmentation module and classification module.

The role of this research is to apply the appropriate method on the segmentation module. The proposed segmentation methods are active contour and max tree with filtering using branches filtering. Both active contour and max tree are used in segmentation of blood cells from the background, segmentation of infected blood cells from healthy blood cells and segmentation of plasmodium from blood cells. From the experiments on 120 images of blood cells that consist of 40 ring phase of plasmodium, 40 trophozoit phase of plasmodium and 40 schizonts phase of plasmodium, 0.96 accuracy for segmentation of blood cells from background, 0.94 accuracy for segmentation of infected blood cells from healthy blood cells and 0.92 accuracy for segmentation of plasmodium from blood cells were produced.

Keyword: segmentation, plasmodium, active contour, max tree