

## ABSTRACT

Kidney is the organ that is very important for living things, especially humans. One of these important function is to filter blood and dispose of the remaining substances from the body in the form of a liquid called urine. Urine itself, not only used as residual waster substances, but also be used as an indicator of whether a person healthy or not. The trick is to measure the levels of substances contained in urine, one of them is red blood cells or erythrocytes, which are used to detect symptoms of hematuria based on its quantity.

Based on the problem above, this final task has been created an application to detect symptoms of hematuria based on digital image of urine using Matlab 2009a via several parameters. The process are acqusiting image, noise removal with filter, and thresholding, until the image is ready to be detected. Detecting process base on reading the labels and extensive information on the number of white pixels in the image. From the experiments conducted, the best results are obtained by using combination of parameters  $WS = 30$ ,  $C = 0.1$  in adaptive thresholding,  $K = [3 \ 3]$  in median filter, and  $R = 9$  in opening using disk structure element. Based on the results of testing using 105 test images, obtained an accuracy rate of 97.14% and average process time 1.740 seconds.

**Keyword : urine, hematuria, image processing, eritrosit**