ABSTRACT

High cholesterol is one condition where the level of cholesterol in the blood exceeds the normal limit. Cholesterol can cause coronary heart disease. Handling less quickly can lead to symptoms such as migraines and joints that are increasingly difficult to move. Prevention of high cholesterol can be done through early detection, the faster the cholesterol level can be detected the more quickly medical treatment is carried out. Diagnosis of cholesterol in general by doing a blood test in a laboratory that takes a long time to get the results. Therefore, in this final project a system that can detect cholesterol levels using an eye image is designed to facilitate sufferers in diagnosing cholesterol levels.

In this final project, a system for measuring cholesterol levels using eye images is designed. The process that will be carried out begins with taking eye images with a camera textit handphone with a minimum resolution of 8 textit Megapixel. Then the preprocessing process will be carried out by changing the image into grayscale image, resizing the image and image segmentation. After getting the segmentation image, the feature extraction process will be carried out using the LBPH method, which is the feature extraction method used to obtain features of the image that will be determined by the cholesterol value. After knowing the value of traits, it will be analyzed using linear regression to obtain the value of cholesterol levels obtained.

The results of this study are based on 60 training images and 30 test images, which obtained the best system performance value, namely textit standard error of 2,511 and computational time of 9,196 s. This value is obtained by neighboring parameters p = 16 and radius = 3 with radius textit cropping of 0.5.

Keywords: Cholesterol, Local Binary Pattern Histogram, Linear Regression.