

ABSTRACT

Cholesterol is a natural substance with physical properties similar to fat but has a steroid group. High total cholesterol levels will form atherosclerosis which can cause hypertension and blockage in leg blood vessels. Checking cholesterol levels can be done through blood tests in the hospital laboratory. The time needed to get the results of cholesterol levels in the laboratory is about two hours, due to the operational standards of the inspection system. Therefore, we need a technological method to facilitate the medical in the field of health.

*This study produced a system that can detect a person's cholesterol level through an iris image using fractal and Discrete Wavelet Transform (DWT) method with Support Vector Machine (SVM). Image processing consists of 4 stages, namely image acquisition, pre-processing, feature extraction, and classification. The first stage is the acquisition of eye image, at this stage the author use secondary data (from previous studies) stored in *.bmp. The second stage is preprocessing which aims to enlarge the image so that it can be detected by the system. The steps taken are by cropping the iris, followed by resizing to get the pixel dimensions of each image, then RGB and segmentation. In the third stage the image will be extracted using the combined image characteristics of the fractal method and Discrete Wavelet Transform (DWT). The final stage is classification using the Support Vector Machine (SVM), classification of iris image will be carried out into 3 classes.*

Results obtained from system design can be used to detect one's cholesterol level through the image of the iris. The image is classified into 3 the iris image of cholesterol, cholesterol, and non-cholesterol. The image of the iris is 105, 75 images for training data, and 30 images for test data. The accuracy rate is 93.33%, precision 88.23%, 100% recall, and 0.1721 seconds of computing.

Keywords: *Cholesterol, Iris Eye, Fractal, Discrete Wavelet Transform (DWT), Support Vector Machine (SVM)*