

ABSTRACT

Cholesterol is a waxy fatty compound that is mostly produced in the liver and some of it is obtained from food. Excess cholesterol is a condition where cholesterol levels in the blood exceed the normal limit. The ideal cholesterol level that should be present in the human body is <200 while the high cholesterol level is > 200 [5]. High cholesterol or hypercholesterolemia may increase the risk of other serious diseases such as stroke and heart attack. Given the seriousness of the disease that can arise due to excess cholesterol, it is necessary examination to determine the level of cholesterol in our body.

Iridology as a science based on an iris imaging analysis is one of the alternatives used to obtain medical analysis results. Iris has specific advantages, which can record all the conditions of the organ, body construction and psychological conditions.

In this Final Project, the author designed a software using Matlab expected system capable of detecting excess cholesterol in human body. This system will be given input in the form of digital image of the iris of the eye to be detected, which then will be done image standardization process. The system will work by first performing feature extraction to obtain information in the image through one of the types of Wavelet Transformations: Discrete Wavelet Transform (DWT). After the image is obtained, the next is the image classification via the closest distance method or K-Nearest Neighbor (KNN) which will then be grouped within the range of the image. From the test results, the system has been able to detect cholesterol with the best accuracy is 55,386%. In this system, the best component is the LL component in the DWT process with an accuracy of 55,386%. While in the process of classification K-NN type of best distance that can be used is the type of Correlation with the best accuracy 55,386% with the best parameters are at $k = 1$.

Keywords: *Cholesterol, Iris, Iridology, DWT, K-NN*