

ABSTRACT

Cholesterol is the most important component of cell membranes that contain fat with most of it being produced in the liver and other parts of food. In general, cholesterol can be known through blood samples carried out in the laboratory. But scientifically, cholesterol can be determined through cholesterol in the iris or called Arcus Senilis. To see the cholesterol ring in the eye is not easy, the iris part of a person is very unique so that the patterns and structures are different so that it becomes a feature of identification on someone.

Cholesterol can be determined through the thickness of the white value of the cholesterol ring so that it can produce training characteristic values. In addition, linear regression analysis was used to obtain linear regression modeling and then from the results of the linear regression modeling that will be used to determine the value of cholesterol levels. Therefore, through this paper the author designed an Android-based application for measuring cholesterol levels from eye images. The extraction method used is Gray-Level Co-Occurrence Matrix (GLCM) and calculation of cholesterol levels using Linear Regression.

In the finale project, cholesterol consisted to the several classes including Normal Cholesterol, Risk Cholesterol, and High Cholesterol. The process of taking eye images through a smartphone camera which is the number of training data is 20 images for each class and the number of test data is 10 images for each class. From this research, it was concluded that at an angle of 45 with pixel distance 2 it produces greater accuracy than the pixel distance 1. Based on these parameters the greatest accuracy is 82.58% with computation time of 0.0365 seconds in each image and Standard Error of 6.83992.

Keywords: *Cholesterol, Gray-Level Co-Occurrence Matrix, Regresi Linear*