

ABSTRACT

Cholesterol is a fat in the blood that is needed for the formation of hormones and new cells. Normal cholesterol levels should be less than 200 mg / dL, but if above 240 mg / dL will be at high risk of stroke and coronary heart disease. Coronary heart disease is a disease that causes many deaths. In this study, a system was created that can be used for early detection of cholesterol levels in a short time through eye images using iridology techniques.

This study detected a person's cholesterol levels including normal cholesterol, the risk of high cholesterol, and high cholesterol. Eye image data was obtained from hospitals, clinics and students as many as 120 eye images, with details of 40 normal cholesterol eye image data, 40 high-risk eye image data, and 40 high cholesterol eye image data. The system process begins with processing eye images using the methods of cropping, resize, segmentation, and grayscale. The Histogram of Oriented Gradients (HOG) method as feature extraction, Artificial Neural Network (ANN) as a classification and linear regression as a measurement of cholesterol levels. The choice of the method is intended to divide the eye data into several groups based on the value of the feature extraction then classified.

The results of this study indicate that the Histogram of Oriented Gradients method can extract eye images and the Artificial Neural Network method can classify cholesterol levels into three groups with an accuracy of 96.67%, and Linear Regression can measure cholesterol levels.

Keywords: Cholesterol Level, Eye Image, HOG, ANN, Linear Regression