ABSTRACT

Checking the hemoglobin level in the blood is one way to know if someone has anemia. Generally, to detect anemia requires blood samples. However, the method is invasive because it uses a syringe. There is a non-invasive way as alternative to detect anemia, such as checking the conjunctival pallor level of the eye.

Based on these problems, in this thesis the author will perform digital image processing to detect the conjunctival pallor level of the eye. This is done by testing Red Green Blue (RGB), Hue Saturation Value (HSV) and grayscale using first order of statistical feature methods. The results of feature extraction are classified using the Artificial Neural Network method - Backpropagation (JST-BP).

Using this method, the system for detecting anemia has performance with the greatest accuracy of 70% with computation time of 8.56 seconds using 40 sample of training image and 40 test images. With this system can be a comparison with invasive anemia detection and can be beneficial to public health.

Keywords: *Hemoglobin; Conjunctiva; Anemia; Image; Artificial Neural Network*