

Abstract

In medical, human blood is classified into blood type A, B, AB, O and Rhesus. This classification based on antigen type implied in Human's blood cell membrane so called agglutinin. To prevent the happening of transfusion reaction between donor bloods and recipient at blood transfusion, hence we should do blood type inspection. Agglutination process can be observed visually either through microscope or can be observed by medical expert. On medical or forensic and to handling hospital database, required an inspection of accurate blood type and quickly.

On this project made a software which can recognize clotting pattern image of blood type by using digital image processing and artificial neural network. Learning Vector Quantization Artificial Neural Network is one of the type of artificial neural network which use competitive layer net for study process. In Classification process, this method has capability of quick learning and high accuracy. Clotting pattern image of blood type got from some blood drips dropped with reagent. This clotting pattern image of blood type taken their image to be analysed. Some steps for image processing is distorting of image becomes grayscale, edge detection, segmentation and extraction of image characteristic. Result of the characteristic extraction will be applied as the input of LVQ Artificial Neural Network. From result of research has a conclusion that LVQ Artificial Neural Network can recognize clotting pattern image of blood type quickly and has accuracy 96,5%. Besides Parameter in LVQ Artificial Neural Network, edge detection process and the measure of characteristic extraction for the input of LVQ Artificial Neural Network also influences for accuracy and system speed.

Keywords: blood type, LVQ artificial neural network, digital image processing