

ABSTRACT

A polyp is an unwanted cell growth. Polyps are usually located in the nose and intestines. In particular, intestinal polyps are collections of cells in the form of small nodes that fill the digestive organs. Most colon polyps are harmless, but they carry the risk of developing colon disease which can cause death if not treated quickly. Early detection is very important to detect polyps before they turn into malignant colorectal cancer, one of the procedures is a biopsy. The result of the biopsy procedure is an image of colonic tissue (histopathology) with certain characteristics which will be analyzed by specialists to classify colonic tissue. However, this method is still done manually and has a subjective component. Errors can occur which produce a lot of noise in the image. Contrast Limited Adaptive Histogram Equalization is an image processing method that can increase the contrast in an image. Using CLAHE, image quality that was previously subpar can be further improved. Technological developments can assist in detecting polyp types based on images through machine learning modeling. This modeling is done to teach the machine to be able to distinguish polyp images automatically. One approach to image recognition is to use deep learning. One of the algorithms that apply the concept of deep learning is the Convolutional Neural Network. Inception-V3 is the development of CNN. The best results obtained from this research are the dataset model with the application of CLAHE and the number of epochs of 40 with an accuracy of 93.19%.

Keywords: Polyps, Convolutional Neural Network, Inception V-3, biopsy, histopathology, Contrast Limited Adaptive Histogram Equalization