ABSTRACT

Gemstones have both beauty and high economic value. Classification of gemstone types is important in the trade, but the manual process carried out by gemstone experts requires time and high expertise. This research develops a gemstone classification method using Convolutional Neural Network (CNN) to help lay people recognize gemstone types. The research data consists of 30 types of gemstone images taken from a dataset with various types of stones such as Alexandrite, Almandine, Amazonite, Amber, Amethyst and various other types of stones, then 10 trials were carried out on each stone. CNN was trained with the data and produced 59% accuracy for classification on all types of gemstones. In this test, the results of 3 parameters namely F1-Score, Precision, and Recall. The results of the highest F1-Score, Precision, and Recall values in this test are found in the Blue Lace Agate stone type with a value of 97%, and the results of the lowest F1-Score, Precision, and Recall values in this study are found in the Danburite stone type with a value of 0%. The results of this study indicate that CNN can be used as a method of classifying gemstone types with fairly good accuracy.

Keywords: *Classification, Gemstones, Convolutional Neural Networks (CNN).*