ABSTRACT

The rocks contain elements of minerals, and these mineral elements have different colors and texture. From the content of these minerals, the stone can be classified based on the percentage of minerals. The need for these rocks to be classified in addition to educational or scientific purposes, such as providing data for basic reference of communication between geologists and engineers as well as obtaining quantitative data as a reference for designing a project design policy.

In this Final Project the writer has done research to make a Software that can classify rock types. The system can help the task of geologists to classify the rocks types based on the color and texture easier. System classification based on texture, First the system will perform feature extraction to get the characteristic from the image using Local Binary Pattern (LBP) method which is considered reliable in doing texture analysis and can overcome scaling and blurry images. After the characteristic is obtained, it will then be classified by the closest distance method or K-Nearest Neighbor (K-NN) which will then be grouped within the range of the image. The K-NN method was chosen because of its simple implementation. While the Classification system based on color, from the image of rock, the mineral compisition will be estimated, and then will be classify using QAPF diagram.

From the test results obtained the accuracy of the system. By using Local Binary Pattern extraction method with blocksize = 1 size, the accuracy value is 78,57% for parallel nikol and 71,3% for cross nikol. While the classification process of K-NN the best distance regulation used is euclidean that yields the best accuracy value of 75% for parallel nikol and 71,3% for cross nikol with the best parameters on the value of K = 9.

Keyword : *Rocks, Local Binary Pattern, K-Nearest Neighbor*