

## ABSTRACT

*This research will develop a software system that is a device that is able to detect the quality of Uis Gara through digital image processing. Uis Gara is a traditional karo traditional fabric that has a social status value and the value of this fabric is determined by the material and also the manufacturing process. There are three classes of quality of Uis Gara namely good, moderate and bad. The quality of the Uis Gara can be seen from the untidy yarn, the location of the defects in the Uis Gara and the trunk on the surface of the Uis Gara, the determination of the quality of the Uis Gara will automatically help the craftsmen and those who are beginners in this field. In this Final Project, a system that is able to detect the quality of Uis Gara with input images taken by camera DSLR Canon 600D is tested using the Gray Level Co-Occurrence Matrix (GLCM) feature extraction which will produce a GLCM matrix. Each pre-processing image data will be divided into training data and test data. Training data will be a reference for testing the quality of Uis Gara through the Decision Tree classification where training images will be processed into statistical features that will be stored in a database. Testing is divided into two schemes, each scheme consisting of three classes which are the same, good, medium and bad. The Scheme I test consisted of 30 training images and 30 light test images, 30 dark test images and 60 light-dark test images with Energy, Contrast, Correlation, Homogeneity and Variance features at distances of 1, 0° and 45° directions and quantization levels 4 and 8, the highest accuracy in the Schema I test is 93.3% in the light test data. Scheme II testing consists of 120 images with a ratio of 50:50 in training data and mixed test data between light-dark, testing is divided into three tests, namely testing 5 features, 10 features and 15 features at a distance of 1, 0° direction and 4 quantization levels, the highest accuracy results in testing the two schemes is 86.6%. From the two testing schemes, a maximum accuracy of 93.3% was obtained in the Scheme I Test with bright test data.*

*Keyword : Gray Level Co-Occurrence Matrix, Decision Tree, Uis Gara*

