ABSTRACT

Wood as a material for household appliance needs to be considered of quality. Quality of wood can be classified according to colours, texture, and fibre pattern differences. In general, wood industries had been doing the wood quality classified process used conventional method with sense of vison which the results only 55% for the accuracy rate where it will be subjective in terms of accuracy and time efficiency.

In this final project, a Python-based software was designed and implemented a classification system to determine the quality of wood based on fibre patterns and wood texture as online digital image processing system. This system is given image input with five types of cedar classification taken using Logitech C930E HD which is integrated with Arduino Uno through ultrasonic sensors. Then the image will be extracted using a Histogram of Oriented Gradient. Then the feature extraction results will be classified using Support Vector Machine. The classification results will be displayed through an indicator light that is connected to the Arduino Uno communication series according to the type of classification.

Based on the result of testing, SVM classification using Linear kernels have an accuracy of 90% and 01,40 second for computational average time.

Keywords: *automatic wood classification, wood fibre pattern, histogram of oriented gradient, support vector machine.*