Correlation of Wood Coconut Quality to the Bundle Density in its Digital Image

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Abstract

Coconut wood has a variety of benefits, namely as a fuel, also used as building material for wooden houses, with a unique texture of coconut wood which is widely used as furniture such as table chairs and cabinets, besides that, with the beauty of the texture of coconut wood, many are made as souvenirs. One of coconut wood quality parameters is the strength of wood in this case the strength of coconut wood holds the loads. This study was directed to determine the correlation between bundle density in digital image of coconut wood and its quality especially the quality of compressive strength. The research phase starts from the preparation stage where coconut wood samples are taken from local coconut species in North Sulawesi with various ages, after going through various preparatory treatments. The sample is then taken the digital image and the sample is also through a compressive strength test. Bundle density values in images obtained through image processing operations to extract the desired features. Coconut wood image sample through a series of image manipulation processes, such as Gray Scale, Histogram Equalization, Threshold, Opening, Invert, and mathematical calculations, on the other hand as comparative values, the same sample was tested by giving the maximum
load so that the compressive test value of each sample was obtained, using a simple statistical test obtained a correlation value between bundle density and compressive test strength of 0.64325 and forming a regression equation so it can be concluded that bundle density has a strong correlation to the quality of coconut wood.

References


Index Terms

Computer Science  Image Processing

Keywords

Image processing, Coconut Wood,