

Thesis Title	Automatic Ripeness Grading of Durian Flesh by Using Color Histograms and Density
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#### Abstract

Non-destructive grading of durian flesh is a very important step in the production of durian. This is due to the fact that durian flesh has its own specific characteristic such as non-uniformity of color and shape. Destructive grading not only destroys parts of the flesh and its overall quality, but also is a very time-consuming operation. This thesis proposes a technique, which can be used to grade the durian flesh according to its ripeness based on its color histograms and density.

An automatic grading technique proposed in this thesis involves the use of color histograms, which were obtained from two video cameras, and the density, which is the ratio of weight obtained from balance and volume obtained from video cameras. In the case of ripe durian, its color has more yellow and its density is high. Determination of the ripeness was done by defining the appropriate threshold values of color and density. Fuzzy logic was then used to make decision based on the data obtained.

In this work, 88 “Monthong” durians were used. The results were compared with those obtained using the standard percent-dry-weight method. The accuracy of

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the proposed technique was 90.91 percent.

**Keywords : Non-Destructive Testing/ Durian / Color Histograms / Density**