

## Ripeness level classification for pineapple using RGB and HSI colour maps

### ABSTRACT

An image processing technique is used to evaluate the level of ripeness of fresh pineapple. The classification of the fruit will be judged by the colour change on the skin of the pineapple. A sample image is taken using a digital single-lens reflex camera under a controlled environment. An algorithm is developed using MATLAB software to evaluate features based on an image of the pineapple. Features from the image are segmented according to RGB and HSI colour maps. This paper will introduce a technique to distinguish between unripe, ripe and fully ripe fruit. The maturity index varies from Index 1 through Index 7 where Index 1 is an unripe pineapple and Index 7 is a fully ripe pineapple. By using fuzzy logic classification, the result shows that 100 % accuracy for the fully ripe and 85 % for unripe and ripe level can be achieved.

**Keyword:** Pineapple; Maturity index; Ripeness; Image processing; Fuzzy logic