

**OIL CONTENT ESTIMATION OF OIL PALM FRUIT
USING DIGITAL IMAGERY**

BY

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ABSTRACT

Currently, oil palm quality is graded manually. This method has some disadvantages. Firstly, it is an extremely tedious and time-consuming process prone to errors or inconsistencies. It is inaccurate and has a strong bias towards the mill. A new technique is needed in oil palm grading system. The main objective of this research project is to investigate the correlation between recognizable parameters of oil palm fruit such as color, shape and size against the content of the oil palm fruit. This study is confined to only a single species of oil palm fruit called TANERA and samples of this study are based on three kinds of ripeness of fruits which are known as *ripe*, *under ripe* and *over ripe*. The image of the samples is captured using NIKON micro lens camera which conducted in a room, that had proper lighting technique and with known distance between the camera and the fruit. The analysis is carried out using MATLAB image processing. The chemical composition of the samples was also examined in order to get an accurate result. The findings of this study will lay the foundation for better oil palm grading system.