

UNIVERSITI TEKNOLOGI MARA

**CLASSIFICATION TECHNIQUE FOR DETERMINING THE HEALTHINESS OF
COCONUT TREE**

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**Thesis submitted in fulfilment
Of the requirement for the degree of
Bachelor of Surveying Science and Geomatics
(Hons)**

Faculty of Architecture, Planning and Surveying

JANUARY 2020

AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as referenced work. This thesis has not been submitted to any other academic institution or non-academic institution for any degree or qualification.

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ABSTRACT

Large scale planting of coconut trees requires on-time detection of diseases such as Red Palm Weevil (RPW) is more than 60% of coconut tree plantations in the Peninsula of Malaysia. In order to overcome this problem, Remote sensing offers a better solution to detect pest diseases and map the coconut trees healthiness by the disease on time. It is also useful tool to monitor the development of coconut plantations. Remote Sensing satellite image can provide user requirement data and has the ability to acquire data in narrow and contiguous spectral bands, enabling to detect the healthiness and pest infestation by using remote sensing technique. In this study, two different classification technique used to detect and classify the healthiness of coconut trees such as unsupervised classification method based on Normalized Different Vegetation Index (NDVI) value and supervised classification method based on Maximum Likelihood (ordinary method) and Support Vector Machine (machine learning). Results: All these methods usually showed better results, as it could provide overall accuracy about 88% and the kappa value is 0.7533 when compare the NDVI value with the ground truth data. Besides, supervised classification method with different technique that is ML and SVM also provide better results in classify the healthiness of coconut tree. Based on the result, it can conclude that Remote Sensing technique can be a used to detect the healthiness of coconut tree and RPW infestation.

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