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PADDY STRESS DETECTION
USING UAV WITH THERMAL SENSOR

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Thesis submitted to the Universiti Teknologi MARA Malaysia in partial fulfilment for the award of the degree of the Bachelor of Surveying Science and Geomatics (Honours)

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DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

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ABSTRACT

Detecting stress in paddy fields using Unmanned Aerial Vehicles (UAVs) equipped with thermal sensors represents an advanced approach to agricultural monitoring and management. This technology offers the potential to identify areas of stress within paddy fields by detecting temperature anomalies or variations in heat signatures from the crops. By leveraging UAVs and thermal sensors, we can enhance our ability to monitor crop health, optimize irrigation, and improve overall yield.The aim of this study is to investigate the potential of using the UAV based thermal imaging for the detection of paddy stress fields. The method for detecting paddy stress using UAVs with thermal sensors involves regularly flying the UAVs over the target area to capture thermal images. These images are then processed using advanced image analysis techniques to identify temperature variations indicative of stressed cropsThe study successfully demonstrated the effectiveness of utilizing UAVs equipped with thermal sensors for detecting stress in paddy fields. The thermal imagery collected and analyzed revealed temperature anomalies that correlated with areas of crop stress, enabling timely intervention and management practices to mitigate stress factors. This approach enhances monitoring capabilities, allows for more precise agricultural interventions, reduces crop losses, and contributes to better resource management.The result of this study is to produce a thermal orthomosaic model based on UAV thermal images and to analyze the paddy stress data using the thermal orthomosaic image. This will provide valuable insights into crop health and stress patterns, supporting more informed and sustainable agricultural practices.

Keyword: Paddy stress, Unmanned Aerial Vehicle (UAV), Thermal sensor, Temperature ,Crop Health

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