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CHANGE DETECTION ON LAND SURFACE TEMPERATURE AND
LAND USE LAND COVER IN JELUTONG, PERAK.

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SCHOOL OF GEOMATICS SCIENCE AND NATURAL RESOURCES
COLLEGE OF BUILT ENVIRONMENT
UNIVERSITI TEKNOLOGI MARA MALAYSIA

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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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AUTHOR'S DECLARATION

I declare that the work in this thesis 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.

I, hereby, acknowledge that I have been supplied with the Academic Rules and Regulations for Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

This study utilized geospatial methodologies and satellite imagery to examine changes in land surface temperature (LST) and land use land cover (LULC) in Jelutong, Perak from 2016 to 2019. The goals centered on categorizing LULC, deriving LST using Landsat 8, and examining the relationship between LULC and LST. The research aimed to acquire insight into the patterns, trends, and potential effects of these transformations by conducting change detection studies. This study provides valuable inputs for land use planning, development decisions, and the identification of areas at risk of overheating or negative impacts, all while promoting sustainable land use practises. Advanced algorithms were used for LST extraction using Landsat 8 satellite data and Envi software version 5.3, and geospatial techniques were used for land use land cover classification. The study revealed minimal overall changes in land use land cover, with notable changes observed in urban areas and dry areas, while other land cover types demonstrated comparatively stable conditions. Significant changes were detected in developed areas, highlighting the need for sustainable land management practices. In terms of land surface temperature, the year 2019, had higher temperatures than 2016 did, indicating potential variations in urban heat island effects or other regional factors. This study provides valuable insights into the dynamic relationship between LST and land use land cover, highlighting the importance of continuous monitoring and facilitating informed decision-making for sustainable development in Jelutong, Perak and beyond.

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