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APPLICATION OF THERMAL INFRARED SENSOR (TIRS) BAND ON LANDSAT 8 SATELLITE IMAGERY AND ITS SIGNIFICANT ON ROAD ACCIDENT IN KEDAH

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AUTHOR'S DECLARATION

I declare that 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 and acknowledged as reference 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 is conducted by acquiring Landsat 8 satellite imagery data which is Thermal Infrared Sensor (TIRS) band 10, road accident record in year 2015 and Kedah base map. TIRS provide land surface temperature (LST) with 100 meters' spatial resolution and being resample to 30 meters. The processing of TIRS requires two type of software which are ERDAS Imagine 2014 and ArcGIS 10.2. At initial stage, the processing stated with pre-processing of image which geometrically change the projection by reproject the image. Then, the LST can be obtain using spatial model editor by key-in radiometric rescaling coefficient. The processing is followed by creating database using ArcGIS software and data filtering of read accident record is carried out to filter the unrelated and incomplete data. LST extraction for each road accident point is extracted using Extract Values-to-Points toolset provided by ArcGIS software. In order to produce hotspot analysis, the image undergo process of Getis Ord Gi* to get the hotspot area and inverse distance weighted (IDW) spatial interpolation is conducted to get the interpolation value of hotspot. For the final output, the mapping is conducted for road accident distribution, hotspot and severity by quarter of year 2015 and correlation between road accident against temperature is obtained.

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