

UNIVERSITI TEKNOLOGI MARA

**THE POTENTIAL AREA FOR SOLAR PHOTOVOLTAIC
INSTALLATION BASED ON INSOLATION PATTERN
DERIVED FROM LiDAR IMAGERY**

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of the requirements for the degree of
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AUTHOR'S DECLARATION

I declare that the work in this report was carried out in accordance with the regulations of Universiti Teknologi MARA. It is original and is the result of my own work, unless otherwise indicated or acknowledged a referenced work. This report 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 Undergraduate, Universiti Teknologi MARA, regulating the conduct of my study.

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ABSTRACT

In Malaysia, the existence of solar energy systems has rapidly expended both in rural zones in form of solar farms and in urban zones as part of house installation. Due to all of this abundant benefits that can be extract from solar energy, this study is purposely conducted to assess and analyse the potential area for solar PV installation based on insolation pattern derived from LiDAR imagery. The main source of electricity in Malaysia is primarily generated from natural fossil fuel such as coal, oil or natural gases which contributes some negative impact toward environment. Solar photovoltaic (PV) technology is a very effective today's solution to reduce the environmental phenomenon and utility cost. This study is significant to create awareness among Malaysian citizen on the utilization of solar power while testing the reliability of LiDAR dataset to perform the modelling of insolation pattern for the entire year 2018. The approach of this study comprises of three main stages of analysis. The first one is the analysis on the aspect and slope of topographic and manmade structure, the insolation pattern per month and year 2018 and the determination of potential area on rooftops for solar PV installation. The final output of this study is the map of potential area for solar PV installation on rooftops with the specific aspect and slope.

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