

**UNIVERSITI TEKNOLOGI MARA**

**MODELLING OF HYBRID DIGITAL  
ELEVATION MODEL**

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Dissertation submitted in partial fulfilment  
of the requirements for the degree of  
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## 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.

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

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## **ABSTRACT**

Digital Elevation Model (DEM) are commonly produced through different surveying approaches that varied in processing techniques, cost and time. DEM is used to represent the terrain of the earth. On this century, Unnamed Aerial Vehicle (UAV) has been widely used in many surveying applications as a data acquisition. There are two (2) types of UAV which are multi-rotor and fixed wing. Multi-rotor UAV is used as an instrument for data acquisition for this study because it has all the specification for monitoring and mapping. The DEM in the study was collected and evaluated and corrected by using the levelling elevation points observed by Global Navigation Satellite System (GNSS). Therefore, in this research study is to improve the DEM integrate with GNSS levelling by using parametric model. The evaluation and correction method of the DEM were based on the parametric model. There are five (5) parametric model have been tested to eliminate the error in order to improve the DEM. The results reveal that the Remove Mean has higher accuracy than the other four (4) in parametric model. This approach will be used to recommend for a new DEM in the future, and it can be applied for making a high accuracy DEM to model the earth's terrain.

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