UNIVERSITI TEKNOLOGI MARA

ESTIMATION VOLUME OF SOLID WASTE ON NEW DUMPING AREA AT RIMBA MAS, PERLIS.

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Thesis submitted in fulfilment of the requirements for the degree of **Bachelor in Surveying Science and Geomatics (Hons)**

Faculty of Architecture, Planning and Surveying

July 2018

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

The rapid development in the design, research and production of various types of Unmanned Aerial Vehicle has an influence on a wide range of application and fields. UAV offers the rapid data collection and can avoid hazardous environment without risk of human and others. This study is conducted to estimate volume of solid waste on new dumping area at Rimba Mas, Perlis and it can serve as an alternative to conventional technique use in this field. In this study, landfill aerial photographs were obtained using digital cameras attached to the UAV while altitude data were obtained from GPS observations. Data obtained are processed using several software to produce products such as orthophoto, contour map, DEM model, and calculation of solid waste volume contained in each cell in landfill. Each product is evaluated for precision assessment using the root mean square error (RMSE), error in pixel error, and error in image. In conclusion, this study has achieved all the proposed objectives and proves that the UAV system can be used for estimation of volume for solid waste products.

TABLE OF CONTENT