

**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

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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

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

CONFIRMATION BY PANEL OF EXAMINERS	i
AUTHOR'S DECLARATION	ii
SUPERVISOR'S DECLARATION	iii
ABSTRACT	iv
ABSTRAK	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENT	vii
LIST OF TABLES	x
LIST OF FIGURES	xi
CHAPTER ONE	1
INTRODUCTION	1
1.1 Research Background	1
1.2 Research Gap	2
1.3 Problem Statement	6
1.4 Aim	7
1.5 Objectives	7
1.6 Research Question	7
1.7 Study Area	7
1.8 Significant of Study	8
CHAPTER TWO	9
LITERATURE REVIEW	9
2.1 Introduction	9
2.2 Solid Waste Management in Malaysia	9

3.5.2	Generating Volume Solid Waste	32
3.5.3	Accuracy Assessment	35
3.6	Data Output	37
3.6.1	Orthophoto Map	37
3.6.2	Prediction of Solid Waste Volumes	37
3.7	Conclusion	41
 CHAPTER FOUR		42
RESULT AND ANALYSIS		42
4.1	Introduction	42
4.2	Solid Waste Monitoring at New Dumping Area in Perlis	42
4.3	Volume of Solid Waste from February 2018 to April 2018	45
4.4	Time Prediction of Volume Limit for Solid Waste	50
4.5	Conclusion	53
 CHAPTER FIVE		54
CONCLUSION AND RECOMMENDATION		54
5.1	Introduction	54
5.2	Conclusion	54
5.3	Recommendation	55
 REFERENCES		56