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APPLICATION OF REMOTE SENSING AND GIS IN MINERAL EXPLORATION OVER MINERAL RESERVES IN PENINSULAR MALAYSIA

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Thesis submitted to the Universiti Teknologi MARA Malaysia
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DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Teknologi MARA (UiTM). This project/dissertation is original, and it is the result of my work, unless otherwise indicated or acknowledged as referenced work.

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ABSTRACT

Remote sensing has become an important tool in today's time. The usage of remote sensing has decreased costs and increased productivity in all sorts of fields. In the past decade or so, different types of techniques have been developed by geologist to analyze hyperspectral data in order to quantitatively extract geological information from the high-spectral-resolution remote sensing images. The main objective of this study is to classify natural resources with the usage of remote sensing and to determine whether remote sensing can be used as a more economical and environmental approach to find natural resources. Satellites are utilized to find specific spectral signatures. Certain minerals have a specific pattern of spectral signatures which allows one to compare with pre-existing and confirmed wavelengths with ones that are recently just found. One such satellite that provides the relevant information to measure the spectral wavelength is Landsat. For the processing of the satellite image datasets, band ratios and principal component analysis (PCA) techniques were adopted and implemented. The end goal of this research is to determine the feasibility of remote sensing in mineral exploration whether it be cutting down costs, time, or environment friendly.

TABLE OF CONTENTS