

UNIVERSITI TEKNOLOGI MARA

**DEVELOPMENT OF ANDROID
APPLICATION FOR PENINSULAR
MALAYSIA GEOID HEIGHT
CALCULATOR**

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Thesis submitted in fulfillment
of the requirements for the degree of
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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 Pre Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

There are several mobile applications available for providing geoid height. Unfortunately, this software has many weaknesses, lack some features and most importantly, it does not provide geoid model specialized for Malaysia. This study aims to produce an android application for Peninsular Malaysia geoid height calculator. The research begins with the collection of data which is geoid model WMGEOID04, PMGG2020 and PMSGM2014. There is four interpolation method implement in this study which is Bilinear Interpolation, Bicubic Interpolation, Inverse Distance Weighted Interpolation and Simple Kriging. The development of an android application is done and provided with three calculation method which is an absolute method, relative method and finding suitable geoid model method. There is also an analysis that been done which is the verification of the algorithm in the developed application and the comparison between a different interpolation method. This analysis is done to verify the algorithm of interpolation method and to find the best interpolation method for implement in the developed android application. Verification of algorithm of interpolation method had verified that only two interpolation methods are useable for producing results which are Bilinear Interpolation and Inverse Distance Weighted. In the comparison between different interpolation methods, the Inverse Distance Weighted show the best result and suitability to be implemented in the android application. Based on the result and analysis, the developed android application had been rebuilt and implement the Inverse Distance Weighted to generate results. As a result, it can be concluded that this geoid height interpolation android application was successfully developed for providing users with geoid height.

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