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QUANTITATIVE STUDY OF ERROR DISPERSION EFFECT IN  
DEPLETING THE POSITIONAL ACCURACY OF CADASTRAL  
RECORD

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**Thesis submitted to the Universiti Teknologi MARA Malaysia  
in partial fulfilment for the award of the degree of the  
Bachelor of Surveying Science and Geomatics (Honours)**

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## DECLARATION

I declare that the work on this project/dissertation was carried out in accordance with the regulations of Universiti Technology 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

In the realm of cadastral measurement, the Certified Plan (CP) stands as the final product from cadastral measurement, providing critical information such as bearings and distances derived through finalizing bearing and distance. However, the final observation yields information in CPs, necessitating the preservation of the positional accuracy of the cadastral record. The goal of this study is to look into this problem more closely by looking at how error propagation affects it and how well the least-squares estimation (LSE) method can handle the differences between the final observations and the ones that were adjusted. This study will employ a method that quantifies the error propagation issues in several CPs and compares the direct versus indirect LSE. The study's goal is to show that using direct measurement (angle) could keep the positional accuracy of cadastral records and reduce the differences between final and adjusted observations with a relatively low increase in error dispersion.

**Keywords:** Least Square Adjustment, Error Propagation, Certified Plan, Positional Accuracy Improvement

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