UNIVERSITI TEKNOLOGI MARA

Assessment of orthophoto generated from UAV images in different geodetic projection

MOHD SHAFIQ BIN ABDUL HADI

A thesis submitted in full fulfilment of the
Requirement for the award of
Bachelor of Surveying Science and Geomatic (Hons)

Faculty of Architacture, Planning and Surveying

January 2020

AUTHOR'S DECLARATION

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

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Name of Student	: Mohd Shafiq Bin Abdul Hadi
Student's ID No.	: 2015209512
Faculty	: Faculty of Architecture, Planning and Surveying
Programme	: Bachelor in Surveying Science and Geomatics (Honours)
Code Programme	: AP220
Project Title	: Assessment of orthophoto generated from UAV images in different geodetic projection.

Signature of student :……

Date

ABSTRACT

In aerial photogrammetry, accuracy assessment of orthophoto can be influenced by many factors, where this study is a concern to carry out the analysis of the effect of coordinate's accuracy that generated from the images by a process using different geodetic projections. To studies on how the error can affect the orthophoto when converting the projection of orthophoto. Usually when the orthophoto is converted from geographic projection into geodetic projection. This study has been focusing on two types of geographic projection which are GDM2000 and WGS84. The purpose of the study is to identify the error contain an orthophoto when transforming the orthophoto into Malaysia's coordinated environment by using Root Mean Square Error. The area of the study is in Universiti Teknologi MARA, which located at Arau, Perlis. The process starts with a geo-referencing technique where there are two geographic coordinates are been used which is GDM 2000 as a local geographic coordinated and WGS 84 as global geographic coordinates, then the orthophoto that generated using these two coordinates is transformed into a local projection, where the Malaysia coordinated system is used in this study. To determine the difference in positional accuracy the thirty Verification Point is used to compare between generating coordinated and ground coordinate. Based on this study implementation of GDM 2000 in geo-referencing technique is most suitable compare by using the world geographic coordinates projection, where the result show when the orthophoto is transformed from the geographic coordinate into the projected coordinate for GDM 2000 converted into RSO has achieved the 0.141m, 0.168 and 0.259 for x, y and z respectively compare orthophoto in RSO convert from WGS 84 where it get 1.343m, 1.359m and 0.405m for x, y and z. the result also shows the same result for orthophoto that convert into GDM2000/ Cassini. Based on the result it shows by implementing the GDM 2000 in the geo-referencing setting the orthophoto can achieve the high quality of surveying using a UAV platform.

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