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Assessment of Unmanned Aerial Vehicle (UAV) Orthophoto Images Based On Different Dense Cloud Density

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AUTHOR'S DECLARATION

I declare that the work in this thesis/dissertation 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

Unmanned Aerial Vehicle (UAV) photogrammetry has recently become affective instrument that provides alternative variables to conventional land surveys, especially for applications covering relativity big and small areas. Orthophoto are one of the most applicable geo-referenced products that usually produced based on aerial or satellites images. The aim is to determine the accuracy of orthophoto images based on Agisoft Photoscan Professional and Pix4D Mapper. Objective of this study focus on to assess the accuracy of orthophoto imagery based on different dense cloud density provided by ASPRS and to compare the accuracy of orthophoto imagery using Agisoft Photoscan Professional and Pix4D Mappers. This will help users make a good choice to choose the three good products with different parameter setting by knowing its tolerance based on standard accuracy for suitable scope of work. The aerial image is collect using drone type multi-rotor DJI Phantom 4 Pro to generate the orthophoto images. In addition, there are four stages of methodology in order to produce the orthophoto imagery which is planning and collecting data, processing using Pix4D software and Agisoft Photoscan software, data analysis and outcome. The results of these studies are particularly interest in producing orthophoto production with different dense cloud generation that is 'low', 'medium' and 'high' quality. It was found that changing the parameter from low to high on steep terrain and structure area has a significant different on horizontal accuracy and has a less effect on vertical accuracy either Agisoft Photoscan or Pix4D Mappers. Other than that, Agisoft Photoscan proved to be more excellent on determining the geometrical accuracy compare to Pix4D Mapper even the different not to significant. Based on ASPRS, the orthophoto production on both software are within the accuracy tolerance and can be used for survey work.

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