UNIVERSITI TEKNOLOGI MARA

ACCURACY ASSESSMENT OF NON-METRIC DIGITAL CAMERA FOR LAB AND FIELD CALIBRATION

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Thesis submitted in fulfillment
of the requirements for the degree of
Bachelor of Surveying Science and Geomatics (Hons)

Faculty of Architecture, Planning and Surveying

July 2018

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 Post Graduate, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

In surveying field, the most important thing that need to be focus is accuracy, whether it is in engineering survey or in photogrammetry survey. In order to provide the best and accurate result, the most important thing is the instruments must be in a good condition. In photogrammetry, the camera that use to capture image, need to be calibrate. The camera is considered calibrated when the focal length (f), coordinate of the centre of projection of the image (xp,yp) and radial lens distortion coefficient (k1,k2,k3) are known. Camera calibration techniques can be divided into two broad categories that are metric scene based calibration and non- metric scene based calibration. The aim of this study to analyze the accuracy of lab test camera calibration and field test camera calibration quantitatively. There are three objectives in order to complete this study, first is to perform lab test camera calibration and field test camera calibration, second to examine the accuracy between lab test and field test camera calibration and third is to compare the calibration parameter between lab test and field test. The result of this study will be tested for statistical significance. The significance of this study are to show the procedure for camera calibration in UAV mapping, development of medium range calibration platform for UAV camera and proving which method of camera calibration gives the accurate result.

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