UNIVERSITI TEKNOLOGI MARA

APPLICATION OF CLOSE PHOTOGRAMMETRY FOR EXPLOSION AFFECTED AREA ANALYSIS

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

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ABSTRACT

Close Range Photogrammetry (CRP) is a process of making measurement from photographs. In generally, CRP is generating from 2D image into 3D image. The aim of this study is to generate 3D modelling of area affected by explosion. In order to achieve the stated aim and objectives, the study designated to use the current data to be collected on the field. So, the data to generate 3D modelling of area affected by explosion come from capturing picture by camera or other devices. Capturing the incident on the field as the result which is 3D model of that area looks like a real world. The entire places the data to be collected is at Arau, Perlis which is explosion site simulation. The designated of this study is to generate 3D model of area affected by explosion as the output. Agisoft PhotoScan Professional software is needed to process the data that have been collected. In this process phase, camera calibration is needed to acquire the exterior orientation with sufficient redundancies in every photo at least six ground control points should appear although this number depends of each photograph (Aguilar et al., 2007). The 3D model be able identify the measurement before and after explosion. In order to identified the changes between two condition, the result will compared the radius area affected before and after by using three software. In this simulation uses a chemical compound which is calcium carbide with chemical formula CaC2. Then, to identify the chemical reaction of calcium carbide the result of chemical reaction between two types of surface with different quantity of calcium carbide by interpreting the depth of area affected.

Keyword: Close Range Photogrammetry, 3D modelling, explosion, calcium carbide

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