

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.

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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 CaC_2 . 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

TABLE OF CONTENTS

CONFIRMATION BY PANEL OF EXAMINERS	ii
AUTHOR'S DECLARATION	iii
ABSTRACT	iv
ACKNOWLEDGEMENT	v
TABLE OF CONTENTS	vi
LIST OF TABLES	ix
LIST OF FIGURES	x
LIST OF ABBREVIATIONS	xii
CHAPTER ONE : INTRODUCTION	1
1.1 Research Background	1
1.2 Problem Statement	2
1.3 Aim & Objectives	3
1.4 Scope Of Study	3
1.5 General Methodology	5
1.6 Study Area	6
1.7 Summary	7
CHAPTERTWO : LITERATURE REVIEW	8
2.1 Introduction	8
2.2 Explosion	8
2.2.1 Issues of Explosion	9
2.2.2 Issues of Explosion in The Eyes of The World	9
2.3 Type Of Explosives	10
2.4 Chemical	11
2.4.1 Natural Chemical	11
2.4.2 Artificial Chemical	11
2.5 Calcium Carbide	12
2.6 Water	12
2.7 Calcium Carbide React With Water	13
2.8 Close Range Phtogrammetry	13
2.9 Data Processing	14
2.9.1 The Ability of Photomodeler	14

	Depth of Area Affected by Explosion	
3.6.3	Analysing The Relationship between Type of Surfaces and Radius of Area Affected by Explosion	30
3.6.4	Analysing The Velocity of Explosion	31
3.7	SUMMARY	31
CHAPTER FOUR : RESULT AND ANALYSIS		32
4.1	Introduction	32
4.2	Results	33
4.2.1	Results of Soil Surface After Explosion by Using Photomodeler Software	33
4.2.2	Results of Sand Surface After Explosion by Using Photomodeler Software	34
4.2.3	Three Dimension Model of Agisoft PhotoScan	36
4.2.4	Results of Soil Surface Before Explosion by Using Agisoft PhotoSacn Software	37
4.2.5	Results of Soil Surface After Explosion by Using Agisoft PhotoScan Software	38
4.2.6	Results of Sand Surface Before Explosion by Using Agisoft PhotoScan Software	39
4.2.7	Results of Sand Surface After Explosion by Using Agisoft PhotoScan Software	40
4.3	Analysis	41
4.3.1	Radius Area Affected by Explosion Based on Type of Surfaces	41
4.3.2	Chemical Content Against Depth Area Affected by Explosion	43
4.3.3	Velocity and The Formulation	45
4.4	SUMMARY	45
CHAPTER FIVE : CONCLUSION AND RECOMMENDATION		46
5.1	Introduction	46
5.2	Conclusion	46
5.3	Recommendations	47
5.4	Summary	47
REFERENCES		48
APPENDICES		51