

Universiti Teknologi MARA

**A Model Base Fitting Via Photogrammetry Approach
in Acquiring 3d Model of National Fruits**

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TABLE OF CONTENTS

CHAPTER 1: INTRODUCTION.....	1
1.1 BACKGROUND.....	1
1.2 PROBLEM STATEMENT.....	3
1.3 OBJECTIVE.....	3
1.4 SCOPE OF RESEARCH /PROJECT.....	4
1.5 RESEARCH/PROJECT AIM.....	4
CHAPTER 2: LITERATURE REVIEW.....	5
CHAPTER 3: RESEARCH METHODOLOGY.....	11
3.0 INTRODUCTION.....	11
3.1 RESEARCH/PROJECT FORMULATION FRAMEWORK.....	11
3.2 RESEARCH ACTIVITY.....	12
3.2.1 <i>Gathering information</i>	13
3.2.2 <i>Data collection</i>	13
3.2.3 <i>System requirement</i>	13
3.2.4 <i>System design and development</i>	15
CHAPTER 4: RESULT AND DISCUSSION.....	20
4.0 INTRODUCTION.....	20
4.1 OBJECT USE FOR MODELING.....	20
4.2 RESULT.....	22
4.3 DISCUSSION.....	25
CHAPTER 5: CONCLUSION.....	26
5.1 CONCLUSION.....	26
5.2 FUTURE WORKS.....	26
APPENDIX A.....	27
REFERENCES.....	27

ABSTRACT

The 3D modeling technology is rapidly increasing as the other technologies. But it is not widely use by many people because of its limitation to get whether from the cost of the equipment or from the aspect of task involves in producing it. This thesis paper is trying to develop application that can do the 3D model reconstruction process based on photogrammetry approach to perform the task. The photogrammetry approach is different with the computer-aided-design (CAD) to reconstruct 3D object. It derives geometric information of an object directly from images. National Fruits will be the object to test this application. It will be the model for 3D reconstruction. The accuracy for the 3D object will be considered in this project. At the same time, we can promote National fruits within 3D visualization.

CHAPTER 1

INTRODUCTION

1.1 Background

Three-dimensional computer graphics are increasingly necessary for the promotion of heritage as they offer alternative possibilities for different kinds of tourist activity (Koutsoudis, Arnaoutoglou & Chamzas, 2007). 3D model of building components or construction resources have been largely created by computer-aided-design (CAD) or by propriety code for virtual reality development (Dai & Lu, 2008).

Existing 3D modelling method based on CAD/VR can achieve high geometric accuracy in representing points, lines, and their spatial relationship (Dai & Lu, 2008). However, this method tackle the 3D modelling of new object from scratch, requiring manually sketching the skeleton of the model much tedious and repetitive effort is demanded on the modeller and modelling procedures are time consuming and inefficient but for most case is not crucial issue for construction simulation visualization (Dai & Lu, 2008).

However, 3D reconstruction using the photogrammetry methodology which derive all the appropriate measurements from the images itself rather than measurements directly from the object(Shashi, Jain, & Kamal, 2007). Unlike CAD modelling, surveying technique of photogrammetry takes a completely different approach by deriving metric information about an object through measurements conducted on photographs of the object, effective and computationally simple (Dai & Lu, 2008). Another approach in 3D reconstruction is close range photogrammetry. Close range photogrammetry is a measurement technology that can be used for the extraction of 3D points from the image; further these points are useful for the accurate 3D modelling and visualization (Shashi, Jain, & Kamal, 2007). Visualization of these model allow user to get the photo realistic impression of the structures than graphic