



**REVERSE ENGINEERING THROUGH 3D OPTICAL SCANNING:
CYLINDER HEAD (4G13) & SIDE MIRROR CASE STUDY**

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“ We declared that this thesis is the result of our own work except the ideas and summaries which we have clarified their sources. The thesis has not been accepted for any degree and is not concurrently submitted in candidature of any degree. ”

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ABSTRACT

Reverse Engineering is the process of reconstructing a computerized model from a digitized 3D object. Laser scanners are commonly used since they can sample 3D range images fast and very accurately relative to other technologies. In our approach, we will consider two method of reverse engineering. First, it will draw an existing parts using conventional method. Secondly, choose a part to redrawing using Rapid Form. Conventional method that used is measuring engine parts using manual equipment such as vernier caliper, ruler and micrometer. For these methods, engine components which will draw are cylinder head and all its components and also side mirror. This increases the complexity of in design and it is quite tedious since it will take much times and energy to reproduce it. Rapid Form is one of newest software in reverse engineering. By using it, component will scan to get the feature before it will modify till get the proper component. Comparison will be made to utilize these methods. This paper aimed to exhibit a computer aided reverse engineering approach in modeling a product through those methods. A comprehensive methodology is presented, and case study illustrated the approach.

TABLE OF CONTENTS

CONTENTS	PAGE
ACKNOWLEDGEMENT	i
ABSTRACT	ii
TABLE OF CONTENT	iii
LIST OF FIGURE	vi
LIST OF TABLE	ix
LIST OF ABBREVIATIONS	x
CHAPTER 1:INTRODUCTION	1
1.1 Reverse Engineering	1
1.1.1 Types of Reverse Engineering	2
1.1.2 Pro and Contra	4
1.1.3 Application	6
1.2 3D Scanning VIVID 910, Polygon Editing Tool (PET) & Rapid Form	8
1.2.1 Non-contact 3D Digitizer VIVID 910	8
1.2.2 Polygon Editing Technique (PET)	9
1.2.3 Rapid Form	9
1.3 Thesis Statement	10
1.4 Objective	11
1.5 Methodology	12
1.6 Thesis Outline	13
CHAPTER 2:LITERATURE REVIEW	14
2.1 Relevant Issues	18

CHAPTER 3:CASE STUDY	22
3.1 Case Study 1: Conventional Method	25
3.1.1 Process Flow	26
3.2 Case Study 2: Reverse Engineering Method	28
3.2.1 Process Flow	30
3.2.1.1 Non-contact 3D Digitizer VIVID 910	30
3.2.1.2 Polygon Editing Tool (PET)	33
3.2.1.3 Rapid Form Software	34
3.2.2 Types of Workbench in Rapid Form	36
3.2.2.1 Scan Workbench	36
3.2.2.2 Polygon Workbench	36
3.2.2.3 Color Workbench	38
3.2.2.4 Curve Workbench	38
3.2.2.5 Surface Workbench	39
3.2.2.6 Feature Workbench	39
3.2.2.7 Inspect Workbench	39
3.2.2.8 Exchange Workbench	40
3.2.2.9 3D Imaging Workbench	40
3.3 Conclusion	40
CHAPTER 4:RESULT AND DISCUSSION	41
4.1 Result	41
4.1.1 Direct Measurement	42
4.1.1.1 Cylinder Head	42
4.1.1.2 Car Side Mirror	45
4.1.2 Rapid Form	46
4.1.2.1 Polygon Editing Tool (PET)	46
4.1.2.2 Rapid Form	48
4.2 Discussion	56
4.2.1 Flowchart	56
4.2.2 Parameter	57
4.2.2.1 Step	57
4.2.2.2 Time	59
4.2.2.3 Tools	59