TABLE OF CONTENTS

	TOPIC NAME	PAGE
	TOPIC NAME	NOS.
	LIST OF FIGURES	iii
1.	INTRODUCTION	1
	1.1 Abstract	1
	1.2 Introduction and Motivation	1
	1.3 Problem Statement	2
	1.4 Scope of the project	2
	1.5 Organization of the project	2
2.	REVIEW OF LITERATURE	4
	2.1 Current Methodology and Technology used	4
	2.1.1 Scanner Technology	4
	2.1.2 Reconstruction Algorithms	4
	2.1.3 Limitations of existing methods	5
	2.2 Methodology And Technology Used	5
	2.3 Project Overview	5
3.	ANALYSIS AND DESIGN	7
	3.1 Requirement Analysis	7
	3.1.1 Functional Requirements	7
	3.1.2 Non-Functional Requirements	8
	3.1.3 Software & Hardware Requirements	8
	3.2 Project Design	8
	3.2.1 Design Process	8
	3.2.2 Architecture	10
4.	IMPLEMENTATION AND RESULTS	13
	4.1 Implementation Details	13
	4.1.1 Initial Setup	14
	4.1.2 Image Acquisition	14

	4.1.3 Pre-Processing stage	15
	4.1.4 Processing stage	17
	4.1.5 Point Cloud Generation	17
	4.1.6 BPA Algorithm	18
	4.1.7 Surface Rendering	23
	4.1.8 GUI Design	23
	4.2 Results	26
5	TESTING	29
	5.1 Test Cases	29
6	CONCLUSIONS AND FURTHER WORK	38
U		
	6.1 Conclusion	38
	6.2 Further work	38
	REFERENCES	39
	ACKNOWLEDGEMENT	

LIST OF FIGURES

SR. NO.	FIGURE	PG. NO
3.1	Use Case Diagram	7
3.2	Block Diagram of the System	9
3.3	Architectural design of the system showing components and connectors	11
4.1	Timeline for the project	13
4.2	Initial Setup	14
4.3	Image in light and dark	15
4.4	Pre-Processing on acquired images	16
4.5	Triangulation procedure (calculation of 3D coordinates)	17
4.6	Progression of BPA	18
4.7	3D geometry top view depicting ball pivoting operation	21
4.8	Join operation	22
4.9	Rendering applied on a mesh model	23
4.10	Primary Window	24
4.11	Initial values Window	25
4.12	After 'R' extraction	26
4.13	After thresholding	26
4.14	After noise removal	27
4.15	Point cloud of a cylindrical object	27
4.16	Mesh model of a cylindrical object	28
4.17	Mesh model after surface rendering	28
5.1	Vaseline bottle	29
5.2	Original cropped images of the Vaseline bottle	29
5.3	Images after the pre-processing operation	30
5.4	Point cloud of the Vaseline bottle from different angles	30
5.5	Pass 1, r=20	31
5.6	Pass 2, r=25	31
5.7	Pass 3, r=26	31
5.8	Pass 4, r=27	31
5.9	Pass 5, r=28	31
5.10	Pass 6, r=29	31
5.11	Pass 7, r=30	32
5.12	Pass 8, r=31	32
5.13	Final mesh models for the Vaseline bottle	32
5.14	Final 3D replica of the Vaseline bottle	33
5.15	Dermicool bottle	33
5.16	Original cropped images of the Dermicool bottle	34

5.17	Images after the Thresholding operation	34
5.18	Images after the noise removal operation	35
5.19	Point cloud of the Dermicool bottle from different angles	35
5.20	Pass 1, r=20	36
5.21	Pass 2, r=21	36
5.22	Pass 3, r=22	36
5.23	Pass 4, r=26	36
5.24	Pass 5, r=29	36
5.25	Pass 6, r=31	36
5.26	Final mesh model for the Dermicool bottle	37
5.27	Final 3D replica of the Dermicool bottle	37