



شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ





شبكة المعلومات الجامعية



شبكة المعلومات الجامعية

التوثيق الالكتروني والميكرو فيلم

جامعة عين شمس

التوثيق الالكتروني والميكرو فيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
علي هذه الأفلام قد اعدت دون أية تغيرات



يجب أن

تحفظ هذه الأفلام بعيداً عن الغبار

في درجة حرارة من 15 – 20 مئوية ورطوبة نسبية من 20-40 %

To be kept away from dust in dry cool place of
15 – 25c and relative humidity 20-40 %



شبكة المعلومات الجامعية



بعض الوثائق الأصلية تالفة



شبكة المعلومات الجامعية



بالرسالة صفحات
لم ترد بالأصل

UTILIZATION OF CAD / DIGITAL ENVIRONMENTS IN VARIOUS SURVEYING & MAPPING PROBLEMS

By

Eng. WAEL SAMIR AHMED

A Thesis Submitted to the
Faculty of Engineering, Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
Civil Engineering

Under Supervision of

Prof. Dr. M. SHAWKI EL-GHAZALI

Prof. of Surveying and Photogrammetry
Faculty of Engineering, Cairo University

Dr. MOHAMED M. TAHA

Associate Prof. of Surveying and Photo.
Faculty of Engineering, Cairo University

Dr. HASAN HANAFY

Assistant Prof. of Surveying and Photo.
Faculty of Engineering, Cairo University

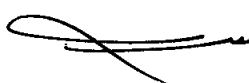
**FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT**

June 1999

B

9122

رئيس مجلس إدارته



UTILIZATION OF CAD / DIGITAL ENVIRONMENTS IN VARIOUS SURVEYING & MAPPING PROBLEMS

By

Eng. Wael Samir Ahmed

A Thesis Submitted to the
Faculty of Engineering, Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
Civil Engineering

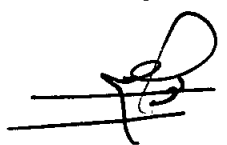
Approved By the
Examining Committee:

Prof. Mohamed. Shawki El-Ghazali, Thesis Main Advisor

Prof. Yousef Ibrahim Abdel Aziz, Member

Prof. Adel Ahmed Hgag, Member

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
GIZA, EGYPT
June 1999

رئيس مجلس القسم


ACKNOWLEDGMENT

I would like to express my greatest appreciation to Prof. Dr. M. Shawki. El-Ghazali for his support, encouragement and valuable comments.

Great appreciation also goes to Dr. Mohamed M. Taha for his guidance and encouragement. His ideas were the main motivation for development of this research. Thanks also go to Dr. Hasan Hanafi for his support and encouragement.

My special thanks to Prof. Dr. Youssef I. Abdel-Aziz for his advice and encouragement.

I would like to express deepest thanks and gratitude to Dr. Yasser Sherif El- Manadili for his great encouragement and support. His ideas and comments were a great help to accomplish this research.

Special thanks go to Dr. Safaa Eldin Moustafa for his encouragement and Valuable comments.

Finally, I wish to express my deepest gratitude to my mother, my father, and my wife for their encouragement and continuous support.

TABLE OF CONTENTS

ACKNOWLEDGMENT	II
TABLE OF CONTENTS	III
LIST OF FIGURES	V
ABSTRACT	VII
CHAPTER (1) : INTRODUCTION	1
1-1 RESEARCH OBJECTIVES	2
1-2 THESIS OUTLINE	3
CHAPTER (2) : PRODUCTION OF DIGITAL MAPS & PROFILES USING LAND SURVEYING.....	5
2-1 DIGITAL MAP PRODUCTION.....	5
2-1-1 <i>Traversing</i>	8
2-1-2 <i>Detail Surveying</i>	10
2-1-3 <i>Routine Description</i>	15
2-1-4 <i>Experimental Work Using Real Data</i>	35
2-2 LEVELLING	41
2-2-1 <i>Field Levelling Procedures</i>	41
2-2-2 <i>Routine Description</i>	41
2-2-3 <i>Experimental Work Using Real Data</i>	54
CHAPTER (3) : SETTING OUT.....	59
3-1 ESTABLISHMENT OF THE CONTROL STATIONS	60
3-2 SELECTION OF SETTING OUT POINTS	60
3-3 ROUTINE DESCRIPTION	61
3-3-1 <i>Visibility analysis for the selection of optimum control station</i>	64
3-3-2 <i>Setting out Report Generation</i>	70

CHAPTER (4) : PHOTOGRAMMETRIC APPLICATIONS	74
4-1 SUMMARY.....	74
4-2 CONVERSION OF HARDCOPY IMAGES TO DIGITAL FORM	75
4-3 DEVELOPMENT OF THE PROPOSED ROUTINE	76
4-3-1 <i>Absolute Orientation Module</i>	76
4-3-2 <i>Map Production Module</i>	79
4-4 ROUTINE DESCRIPTION	80
4-5 EXPERIMENTAL WORK USING SIMULATED DATA	90
CHAPTER (5) : CONCLUSIONS AND RECOMMENDATIONS.....	96
5-1 CONCLUSIONS:.....	96
5-2 RECOMMENDATIONS	97
REFERENCES	97

LIST OF FIGURES

	Page
(2-1) Main Module Flow Diagram.	7
(2-2) Code Description.	12
(2-3) Package Main Menu.	16
(2-4) Project Manager Interface.	17
(2-5) Polygon Traverse Parameters Window.	19
(2-6) Link Traverse Parameters Window.	20
(2-7) Traverse Lengths Editor.	21
(2-8) Traverse Angles Editor.	22
(2-9) Angular Misclosure Information Window.	24
(2-10) Forward Bearing.	25
(2-11) Northern and Eastern Coordinate Difference.	26
(2-12) Closing Error Information Window.	29
(2-13) Coding and Layer System Editor.	32
(2-14) Point Format Option Window.	33
(2-15) General Plan of Autostrad Interchange.	36
(2-16) The Traverse Used to Perform Detail Surveying.	37
(2-17) Description Codes For Different Surveying Features.	38
(2-18) Printout of the Project Site Digital Map.	39
(2-19) Levelling Module Flow Chart.	43
(2-20) Levelling Main Routine Interface.	47
(2-21) The Project Manager Interface.	48
(2-22) Field Book Data Editor Interface.	49
(2-23) Point File Data Editor Interface.	50
(2-24) Levelling Parameters Interface.	51
(2-25) Sample of Generated Profile Output.	57

	Page
(3-1) Setting Out Module Flow Chart.	61
(3-2) Setting out Module Main Interface.	62
(3-3) Points Selection Interface.	65
(3-4) Points Manager Interface.	66
(3-5) Ray Plan View.	67
(3-6) Ray Profile View.	68
(3-7) Site Plan.	70
(4-1) Flow Diagram of the Developed Routine.	76
(4-2) Absolute Orientation Module Flow Diagram.	82
(4-3) Map Production Module Flow Diagram.	83
(4-4) Routine Main Menu.	85
(4-5) Absolute Orientation Module Interface.	86
(4-6) Control Points Editor Window.	87
(4-7) Orientation Initial Value Window.	88
(4-8) Map Production Module Interface.	91