

DEVELOPMENT OF PRODUCTION SEQUENCING SOFTWARE
FOR INDUSTRY

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for the award of the degree of
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SUPERVISOR'S DECLARATION

We hereby declare that we have checked this project and in our opinion this project is satisfactory in terms of scope and quality for the award of the degree of Bachelor of Mechanical Engineering with Manufacturing Engineering.

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is my own except for quotations and summaries which have been duly acknowledged. The thesis has not been accepted for any degree and is not concurrently submitted for award of other degree.

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To my beloved father and mother,

Jamak Bin Ismail

Zainun Binti Ahmad

and her,

Nur Syazana Binti Hamzah

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“In the name of Allah, the Most Merciful and the Most Beneficent”

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ABSTRACT

The aim of this project is to develop a production sequencing software for specific company. Research has started with the trailing of a specific area in their production process that undergo problem in term of sequencing. Thus, in the first phase, all the problem sources and correlation in that area have been identified to overcome it using the sequencing element. Next, the problems that have been identified were solved through the development of software to provide an organized computerized sequencing system. The software has been developed by *Visual Basic .NET* that filled all the problem solving criteria and was simulated so that it is suitable with the environment of research area. At the final of the project, the production sequencing software have been developed successfully and accepted by company to improve the sequencing in research area.

ABSTRAK

Tujuan utama kajian ini dijalankan adalah untuk membangunkan alatan lembut turutan produksi untuk sesebuah syarikat tertentu. Kajian ini bermula dengan mengesan mana-mana kawasan tertentu dalam proses produksinya yang mengalami masalah berkaitan turutan. Oleh itu, dalam fasa pertama, semua punca dan perkaitan masalah di kawasan tersebut dikenalpasti bagi mengatasinya menggunakan elemen yang terdapat dalam turutan. Seterusnya, masalah yang telah dikenalpasti diselesaikan melalui pembangunan alatan lembut bagi menyediakan satu sistem turutan berkomputer yang tersusun. Alatan lembut tersebut dibangunkan menggunakan *Visual Basic .NET* yang memenuhi kriteria penyelesaian masalah dan disimulasikan supaya bersesuaian dengan persekitaran kawasan kajian. Di akhir projek ini, alatan lembut turutan produksi telah berjaya dibangunkan dan diterima oleh syarikat itu bagi kebaikan dan kelancaran turutan kawasan kajian tersebut.

TABLE OF CONTENTS

		Page
SUPERVISOR'S DECLARATION		ii
STUDENT'S DECLARATION		iii
DEDICATION		iv
ACKNOWLEDGEMENTS		v
ABSTRACT		vi
ABSTRAK		vii
TABLE OF CONTENTS		viii
LIST OF FIGURES		xii
LIST OF SYMBOLS		xiv
LIST OF ABBREVIATIONS		xv
CHAPTER 1 INTRODUCTION		
1.1	Project Background	1
1.2	Project Objectives	2
1.3	Problem Statement	2
1.4	Project Scope	3
1.5	Background of Selected company	3
CHAPTER 2 LITERATURE REVIEW		
2.1	Introduction	5
2.2	Production Scheduling	6
	2.2.1 Definition of Scheduling	6
	2.2.2 Simple Model of Production Scheduling	7

2.2.3	Purpose of Scheduling in Manufacturing	8
2.2.4	Terminology	9
2.2.5	Types of Scheduling	10
2.2.5.1	Single Machine	10
2.2.5.2	Flow Shop	11
2.2.5.3	Job Shop	12
2.2.6	Simulation and Software	12
2.2.7	Summary	13

CHAPTER 3 METHODOLOGY

3.1	Introduction	14
3.2	Literature review	16
3.3	Company Selection Study	16
3.4	Define Problem	17
3.5	Data Collection	17
3.5.1	Potting Room	18
3.5.1.1	Overview of Potting	18
3.5.1.2	Speed of Hardening	18
3.5.1.3	Manufacturing Process of Potting	19
3.5.1.3.1	Automatic Process	19
3.5.1.3.2	Manual Process	20
3.5.1.4	Conclusions on Ideas	21
3.5.2	The Practice	21
3.6	Data Analysis	22
3.7	Develop Algorithm and Software	22
3.7.1	Structure of a Production Planning System	22
3.7.2	Sequencing Rules	24
3.7.3	Sequencing Results	24
3.8	Simulation	24
3.9	Conclusion	24

CHAPTER 4 RESULTS AND DISCUSSION

4.1	Introduction	25
4.2	Data Collection	25
	4.2.1 Findings	25
4.3	Result Discussion	28
	4.3.1 Problem Description	28
	4.3.2 Solution	29
4.4	Software Development	30
	4.4.1 Earlier Tools	30
	4.4.1.1 Microsoft Excel	30
	4.4.1.2 Visual C++	31
	4.4.2 Confirmation of Tool – Visual Basic .NET (VB.NET)	31
	4.4.2.1 Introduction to Visual Basic	32
	4.4.2.2 Develop an application	32
	4.4.2.3 What is Visual Basic .NET	32
	4.4.2.4 Overview of basic interface	33
	4.4.2.5 Flow Chart of Software Function	36
	4.4.2.6 The Software: Looks and Function	37
	4.4.2.6.1 Model Arrive to Terminal	37
	4.4.2.6.2 Model Moving	41
	4.4.2.6.3 Database	45
4.5	Feedbacks	49
4.6	Conclusions	50

CHAPTER 5 CONCLUSION AND RECOMMENDATIONS

5.1	Introduction	51
5.2	Conclusion	51
5.3	Recommendations for Future Research	52

REFERENCES	53
APPENDICES	56
A Project Planning	56
B Layout of Research Area	59
C Specification of Computer and Tools	60
C1 Specification of Computer	60
C2 Specification of Visual Basic .NET and SQL Server	61
D Guide to Manual Installation	62
D1 System Requirements	62
D2 Software Installation	63
E Source Code	64
E1 app.config	64
E2 AssemblyInfo.vb	64
E3 Form1.vb	64
E4 Form2.vb	75
E5 Form3.vb	88
E6 Module1.vb	90
E7 pottingmanagement.vb	91

LIST OF FIGURES

Figure No.		Page
2.1	Typical scheduling process	7
3.1	Flow Chart for methodology	15
3.2	Automatic system of potting	20
4.1	Production schedule chart	28
4.2	The Microsoft Development Environment	34
4.3	Main components of the visual Studio IDE	34
4.4	Flow chart of software	36
4.5	Potting room sequencing software	37
4.6	Text and Command Box	38
4.7	Date and Time Picker	39
4.8	Command box of save record	40
4.9	Update data in grid one	40
4.10	Action button for moving model purpose	41
4.11	In data	42
4.12	Out data	43
4.13	Model ID warning box	43
4.14	Success moving model information box	44
4.15	File, Help and Clear button	44
4.16	About Us	45

Figure No.		Page
4.17	Database	46
4.18	Entry data table	47
4.19	Out data table	48
6.1	Layout of overall process	57
6.2	Layout of potting room	58
A1	Project gantt chart for PSM 1	56
A2	Project gantt chart for PSM 2	56
A3	Flow chart for PSM 1	57
A4	Flow chart for PSM II	58
C1	Layout of overall process	61
C2	Layout of potting room	61

LIST OF SYMBOLS

t_j	Processing time
r_j	Ready time
C_j	Completion time
F_j	Flow time
L_j	Lateness
T_j	Tardiness

LIST OF ABBREVIATIONS

ASDL	Abstract Syntax Description Language
CMC	Control, Monitor and Coach
CR	Critical Ratio
EDD	Earliest Due Date
FCFS	First Come, First Serve
FIFO	First In, First Out
GUI	Graphical User Interfaces
IDE	Integrated Development Environment
ISO	International Organization for Standardization
<i>LPT</i>	Longest Processing Time
MDE	Microsoft Development Environment
MRP	Material Requirement Planning
MSDOS	Microsoft Disk Operating System
MSSQLServer	Microsoft Structured Query Language
OHSAS	Occupational Safety and Health Administration
PU	Polyurethane
<i>proomseq</i>	Potting Room Sequence
SAP	Systems Applications And Products
SQL	Structured Query Language