

الآية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ ﴿1﴾
الْحَمْدُ لِلَّهِ رَبِّ الْعَالَمِينَ ﴿2﴾
الرَّحْمَنِ الرَّحِيمِ ﴿3﴾ مَالِكِ يَوْمِ
الدِّينِ ﴿4﴾ إِيَّاكَ تَعْبُدُ وَإِيَّاكَ
تَسْتَغِيثُ ﴿5﴾ أَلْهَدِنَا الصِّرَاطَ
الْمُسْتَقِيمَ ﴿6﴾ صِرَاطَ الَّذِينَ
أَنْعَمْتَ عَلَيْهِمْ غَيْرِ الْمَغْضُوبِ عَلَيْهِمْ
وَلَا الضَّالِّينَ ﴿7﴾

سورة الفاتحة (7-1)

DEDICATIONS

The words and measures can never express my deepest gratitude to my parents. They have been a force of strength all along, and without them it would have been an uphill task for me to complete this work.

Last but not the least, I am deeply indebted to my brothers, sisters and my friends; their incessant support made me achieve new heights in life and built my character and career.

ACKNOWLEDGEMENT

I wish to express my profound gratitude to my Supervisor **Dr.AwadAlla Taifour**, for his valuable guidance, continuous encouragement, worthwhile suggestions and constructive ideas throughout this research. His support, pragmatic analysis and understanding made this study a success and knowledgeable experience for me.

ABSTRACT

Distributed programmable logic control integrated of programmable logic control (PLC) and process controllers of process line into coordinate interactive system. The objective of this research is study theory and structure of distributed PLCs and the program which produced by Siemens company and how to connect three modules s7-300 with communication topology used the company software.

The problem has been addressed in this study of distributing PLC control over an industrial network. And consider a synchronous industrial network, where data transmission delays can be computed. A particular class of PLC control applications are consider, namely applications that support periodic input acquisition. It is shown how control specified with the Siemens s-7300 and s-7400 can be achieved in a distributed PLC control system, when data delivery delays are not negligible, and how the input acquisition period can be minimized. A technique is introduced to transform the program of a PLC application into one that can be executed in a distributed environment.

In this study there are many elements used such as s-7300/s-7400 CPU, power supply, input/output module, local area network (LAN) technique, Siemens software.

Really there are three plc's connected together with LAN hardware and Siemens software any one of these plc's have a sprats program to do their task and the master one can control all these plc's and can add or remove a program in any plc from the master plc.

المستخلص

انظمة التحكم الموزعه هي عباره عن مجموعه من اجهزة التحكم القابلة للبرمجة والتي تربط مع بعضها البعض لكي تشمل النظام باكملة وربط هذه الانظمه بهذه الطريقه يمكن من ادارة العمليات لكل اجزاء النظام

الهدف من هذا البحث هو دراسة كيفية ر بط مجموعه من اجهزه التحكم القابله للبرمجه مع بعضها البعض واخذت الاجهزة s7-300.s7-400 من شركة سيمنز كمثال, تم ربط ثلاثة اجهزة مع بعضها البعض واستخدمت خوارزميات الشركة المصنعه في عملية الربط.

في هذه الدراسة تمت معالجة كيفية توزيع المتحكمات المنطقية الموزعة في الحقل الصناعي وتوضيح التزامن في الشبكات الصناعية حيث يمكن حساب زمن التأخير للبيانات ,تم توضيح التصنيف التطبيقي للمتحكمات المنطقية تسمى التطبيقات الداعمه لفترات الدخل وهي تظهر كيفية التحكم الخاص عن طريق شركة سيمنز s-7300 -s-7400 في انظمة التحكم الموزعة التي لا يهمل فيها

زمن تاخير البيانات المرسله وفيها فترات الدخل المكتسب تكون اقل مايمكن ,
هذه التقنية يتم فيها تحويل البرنامج للاجهزة التي تم توزيعها لكي يتم تنفيذ
البرنامج في تلك البيئة .

هنالك عدد من العناصر التي استخدمت في هذه الدراسة مثل وحدة المعالجه
المركزية الخاصة ب s-7400,s-7300 مصدر قدره وحدات دخل وخرج شبكة
داخلية (LAN) , برمجيات شركة سيمنز.

في الواقع هنالك ثلاثة اجهزة متحكمات منطقية قابله للبرمجه تم توصيلها مع
بعضها البعض عن طريق شبكة (LAN) وبرمجيات سيمنز ,كل جهاز في هذه
الاجهزة يحتوي علي برنامج منفصل لتنفيذ المهمة الموكله له ام الجهاز الماستر
(الرئيسي) فهو يتحكم في جميع الاجهزة ويمكنه اضافة او حذف البرامج من اي
جهاز من الاجهزة داخل الشبكة.

TABLE OF CONTENTS

	PAGE
الآية.....	i
DEDICATIONS.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
المستخلص.....	v

TABLE OF CONTENTS.....	vi
LIST OF FIGURES.....	ix
LIST OF TABLES.....	xiii
LIST OF ABBREVIATIONS.....	xiv
LIST OF SYMBOLS.....	xv

INTR CHAPTER ONE :INTRODUCTION

1.1	General.....	1
1.2	Problem Statement	1
1.3	Objective	1
1.4	Methodology.....	2
1.5	Layout	3

CHAPTER TWO: THEORETICAL BACKGROUND AND GENERAL

OVER VIEW

2.1	Introduction.....	4
2.1.1	History of plc's.....	4
2.1.2	PLC Programming	6
2.1.3	Reduction of operating costs	8
2.1.4	Increase in machine cycle rates	8
2.1.5	New functions	8
2.2	The hardware architecture	10
2.2.1	The CPU	10
2.2.2	Input output system (I/O).....	11
2.2.2.1	Inputs	12
2.2.2.2	Outputs	12
2.3	PLC configuration file	12
2.3.1	CPU 31x-2 as DP Master.....	13

2.3.2	Status/Control, Programming via PROFIBUS.....	14
2.3.3	Profibus DP Interface	14
2.3.4	Connectors	14
2.4	Distributing PLC.....	14
2.5	Local Area Network.....	15
2.5.1	Principle of local area network	15
2.5.2.1	Advanced PLC Topics and Networks.....	18
2.5.3	LAN applications of the PLC's.....	18
2.5.4	Network topologies.....	19
2.5.4.1	Star topology	19
2.5.4.2	Common bus topology	21
2.5.4.3	Ring topology.....	22
CHAPTER THREE: SIEMENS SIMATIC STEP 7 PLC		
3.1	Introduction.....	24
3.2	The STEP 7 Project	25
3.3	3.3 The SIMATIC Manager.....	25
3.4	Project management system	26
3.5	s7-300/s7-400 programmable controller structure	26
3.6	The step-7 components	26
3.6.1	Racks.....	27
3.6.1.1	S7-300 Rack	28
3.6.1.2	S7-400 Central, universal, and expansion racks	29
3.6.2	Interface modules (IM).....	29
3.6.2.1	S7-300 IMS.....	30

3.6.2.2	S7-400 IMS.....	30
3.6.3	Power supply (PS)	31
3.6.4	Central processing UNIT (CPU).....	32
3.6.5	Signal modules (SM).....	32
3.6.6	Function modules (FM).....	33
3.6.7	Communications processors (CP).....	33
3.6.8	Multipoint programming interface (MPI).....	33
3.7	Starting the simatic manager and creating projects.....	34
3.8	Configuring hardware	37
CHAPTER FOUR: SIMULATION OF DISTRIBUTED PLC		
4.1	Introduction.....	
4.2	Tools.....	55
4.2.1	Step 7 station.....	55
4.2.2	Power supply.....	55
4.2.3	CPU.....	55
4.2.4	MPI.....	56
4.2.5	Industrial Ethernet.....	56
4.3	Simulations.....	56
CHAPTER FIVE: CONCLUSIONS AND RECOMMENDATIONS		
5.1	Conclusions.....	
5.2	Recommendations.....	74
	References	74

LIST OF FIGURES

Figure	Title	Page
(2.1)	Simple ladder diagram	7
(2.2)	CPU	11
(2.3)	INPUT/OUTPUT UNIT	11
(2.4)	Network distance ranges.	17
(2.5)	LAN city cable TV network.	18
(2.6)	Bus, star, and ring topologies.	19
(2.7)	Star topology	20

(2.8)	Common bus topology.	21
(2.9)	Master/slave bus topology.	22
(2.10)	Ring topology.	23
(2.11)	Star-shaped ring topology with a wire center.	23
(3.1)	Configuring an S7-300 as DP Master	34
(3.2)	New project	35
(3.3)	Simatic libraries	35
(3.4)	Create new project name	36
(3.5)	Display the new project name	36
(3.6)	Insert simatic 400 stations	37
(3.7)	Open the project name	37
(3.8)	Chose the PROFIBUS DP slave	38
(3.9)	Step 7 simatic 400 rack -400	39
(3.10)	PROFIBUS interface address	39
(3.11)	Ethernet interface address	40
(3.12)	Hardware configuration simatic 400	41
(3.13)	Consistency check	42

(3.14)	Netpro project name	42
(3.15)	Communication process for CP 4431	43
(3.16)	Ethernet properties	44
(3.17)	MPI/DP properties	44
(3.18)	MPI interface with DP	45
(3.19)	Connecting simatic 400 to the Ethernet	46
(3.20)	Display MPI and PROFIBUS	47
(3.21)	DP properties	47
(3.22)	PROFIBUS interface properties	48
(3.23)	Connecting DP to the PROFIBUS (1).	49
(3.24)	IM interface properties	50
(3.25)	IM connecting to the PROFIBUS	51
(3.26)	Distributing rack	52
(3.27)	Hardware configuration for IM 153-2	53
(3.28)	DP slave properties	54
(4.29)	Download module data	55
(3.30)	Stop target module	55
(3.31)	Save the downloaded data	56

(3.32)	Selecting started module	56
(4.1)	selecting simatic manager icon	59
(4.2)	step7 new project	59
(4.3)	selecting type of CPU	60
(4.4)	CPU witch was selected	60
(4.5)	choose the OBI	60
(4.6)	write the name of project	59
(4.7)	saving the name	60
(4.8)	the opens	60
(4.9)	insert project devices	61
(4.10)	select type of station	61
(4.11)	simatic 300 stations is chosen	62
(4.12)	the three stations are ready	62
(4.13)	Ethernet icons selected	63
(4.14)	station select one for programming	63
(4.15):	OBI cycle execution	64
(4.16)	simple program station one	64
(4.17)	select station two for program	65

(4.18)	simple program for station two	65
(4.19)	Figure select station three for program	66
(4.20)	simple program for station three	66
(4.21)	Ethernet net works	67
(4.22)	configuration station one	67
(4.23)	Four station networking	68
(4.24)	Connecting to Ethernet	68
(4.25)	Connecting to the MPI & PROFIBUS net work	69
(4.26)	configuration station two	69
(4.27)	Connect station two to Ethernet and MPI	70
(4.28)	Configuration station three	70
(4.29)	Connect station three to Ethernet and MPI	71
(4.30)	Configuration station four	71
(4.31)	Connect the last station to the Ethernet and MPI	72

LIST OF TABLES

Table	Title	Page
(3.1)	Step 7 basic components	26
(3.2)	The rack types	27
(3.3)	Interface module	29
(3.4)	Power supply module	30
(3.5)	Subfolders central processing unit	31

LIST OF ABBREVIATIONS

CPU	Computer process unit
CP	Communication Processors
DP	distributed input/output
FIP	Factory Instrumentation Protocol
FM	Function Modules
HW	Hard ware
IM	Interface Modules
I/O	Input/output
MPI	Multi-Point Interface
PS	Power supply
PG/PC	Programming Device
PLC	Programmable logic control
PS	Power supply
S7-300	Step seven 300

SM	Signal Modules
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