

**DEVELOPMENT OF PLC-BASED FUNCTIONS FOR COMMUNICATION  
BETWEEN REAL-TIME DATABASE AND SMART GRID INVERTER**

By

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## STATEMENT BY THE AUTHOR

I hereby declare that this submission is my own work and to the best of my knowledge, it contains no material previously published or written by another person, nor material which to a substantial extent has been accepted for the award of any other degree or diploma at any educational institution, except where due acknowledgment is made in the thesis

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## ABSTRACT

### DEVELOPMENT OF PLC-BASED FUNCTIONS FOR COMMUNICATION BETWEEN REAL-TIME DATABASE AND SMART GRID INVERTER

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The smart grid is a developed technology that will replace the traditional power grid with two-ways flows of information and power transmission as the main benefit of the smart grid. With the massive flows of data, smart grid needs a database system as one of the data management infrastructures. The aim of this thesis is to establish a two-ways communication between the programmable logic controller and the real-time database and visualise all the data in the database. Using the TCP connection and HTTP application between the PLC and the database, the two-ways communication can be implemented to the database system.

*Keywords: Smart Grid, Programmable Logic Controller, Data Management, Real-Time Database, TwinCAT, InfluxDB, Chronograf*



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## **DEDICATION**

I dedicate this work to my one and only God, Jesus Christ, my family, my advisor, my co-advisor, my supervisor, all of my lecturers, and all of my friends.



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## TABLE OF CONTENTS

	Page
STATEMENT BY THE AUTHOR.....	2
ABSTRACT.....	3
DEDICATION.....	5
ACKNOWLEDGEMENTS.....	6
TABLE OF CONTENTS.....	7
LIST OF FIGURES.....	10
LIST OF TABLES.....	13
CHAPTER 1 Introduction.....	14
1.1 Background.....	14
1.2 Problem Identification.....	15
1.3 Objectives.....	15
1.4 Hypothesis.....	15
1.5 Thesis Scope and Limitation.....	16
1.6 Significance of Study.....	16
CHAPTER 2 Literature Review.....	17
2.1 Smart Grid.....	17
2.2 Clustering Power System Approach.....	17
2.2.1 Data Management Infrastructure.....	18
2.3 Programmable Logic Controller.....	20
2.3.1 IEC 61131-3.....	21
2.4 TwinCAT (Beckhoff).....	24
2.4.1 TwinCAT TF6310 (TC3 TCP/IP Server).....	24
2.5 Time-series Database.....	28
2.5.1 InfluxDB.....	29



2.6	Data Visualisation and Monitoring.....	34
2.6.1	Chronograf .....	35
2.6.2	Grafana.....	37
2.7	Transmission Control Protocol (TCP).....	39
2.7.1	Establishing a TCP connection .....	39
2.7.2	Transmission Control Protocol Headers .....	40
2.8	Hypertext transfer protocol (HTTP) .....	41
2.8.1	HTTP request and HTTP response .....	42
2.9	Network Analysis .....	43
2.9.1	Wireshark .....	44
CHAPTER 3	Research Method.....	45
3.1	Introduction.....	45
3.2	Analysis of the Component.....	45
3.2.1	Database .....	46
3.2.2	Visualisation Tool .....	48
3.3	Designing The Main Structure.....	49
3.4	Development of the PLC function.....	50
3.5	Implementation and Adaptation of the program.....	51
3.5.1	Writing Data to InfluxDB .....	53
3.5.2	Querying Data from InfluxDB .....	55
3.5.3	Visualisation Data using Chronograf.....	58
CHAPTER 4	Result and Discussion .....	60
4.1	Program Overview .....	60
4.1.1	Main Program .....	60
4.1.2	Function Block for storing data .....	62



4.1.3	Function Block for reading data.....	64
4.2	Implementation of Real-Time Programmable Logic Controller Platform ....	66
4.2.1	TwinCAT .....	66
4.2.2	InfluxDB .....	70
4.3	Visualisation in Chronograf.....	72
CHAPTER 5	Conclusion and Recommendation.....	74
5.1	Conclusion .....	74
5.2	Recommendation for Future Works .....	75
GLOSSARY	.....	76
REFERENCES	.....	79
APPENDICES	.....	85
APPENDIX A – ERROR CODES.....		85
A1. Global Error Codes .....		85
A2. Router Error Codes .....		86
A3. General ADS Error Codes.....		86
A4. RTime Error Codes .....		88
A5. TCP Winsock Error Codes.....		89
A6. Internal error codes of the TwinCAT TCP/IP Connection Server.....		89
APPENDIX B – STATUS CODE .....		90
B1. HTTP status code .....		90
CURRICULUM VITAE.....		92