

**INTERNATIONAL UNIVERSITY LIAISON INDONESIA**

BACHELOR’S THESIS

**Comparison between Codesys and OpenPLC as a Modbus TCP Protocol Integrated Development Environment (IDE)**

By

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**11201902005**

In Partial Fulfillment of the Requirements for the Degree of

Sarjana Teknik

In

MECHATRONICS ENGINEERING

FACULTY OF ENGINEERING

BSD City 15310

Indonesia

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**APPROVAL PAGE**

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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**

Modbus TCP Protocol is one of the protocols which it is applicated in many industrial applications systems that are used to make a system communicate with one another. One of the uses of this Modbus TCP protocol is acting as the bridge of communication between a Programmable Logic Controller (PLC), Human Machine Interface (HMI), the controlled machine, and the integrated development environment (IDE).

The term of the PLC IDE that can work with the Industrial Standard is often associated with exclusive or expensive software/equipment. This can be a challenge for the first-time learner for the new generations of automation engineers learning the basics of automation programs.

This paper aims to compare two of the most popular, free-to-use programmable logic controller IDE that is popularly used to connect with the Modbus TCP Protocol. Codesys and OpenPLC are the two software that is popular in terms of making industrial automation programming system. Both are also capable of establishing a Modbus communication that let IDE, Human Machine Interface (HMI), PLC, and the automated machine communicate with each other by using an ethernet-based network.

This paper will provide a comprehensive analysis of the two IDEs, including their advantages and disadvantages, to help readers make an informed decision when selecting an IDE for their automation program and their integrated development through the Modbus protocol.

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DEDICATION

I dedicate this thesis to my parents. Without their patience, understanding, support, and most of all love, the completion of this work would not have been possible.

ACKNOWLEDGMENTS

I wish to thank my committee members for their support, patience and good humor. Their gentle but firm direction has been most appreciated. Dr. xxxxxx was particularly helpful in guiding me toward a qualitative methodology. Dr. yyyyyyy interest in sense of competence was the impetus for my proposal.

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I have found my coursework throughout the Curriculum and Instruction program to be stimulating and thoughtful, providing me with the tools with which to explore both past and present ideas and issues.

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LIST OF SYMBOLS