

## **ABSTRACT**

Programmable Logic Controller (PLC) is a tool created as a replacement set of mechanical relays used in control systems. PLC works by reading the status (conditions) experienced by its inputs, for later use in changing the status of its output. Whereas the form and amount of changes that occurred in the PLC output, is depend on the program given by the user in the form of ladder diagrams called ladder opcode.

This Final Project discuss about a system that can monitor the PLC based on ST microcontroller through a Local Area Network (LAN). This will allow a user to monitor the PLC as it can be accessed remotely without having to go to the client. Ethernet system designed in this Final Project is ATMega128-microcontroller-based, using the C language as a programming language, and Visual Basic to design the ethernet communications interface software, and use the WIZ107SR serial to ethernet module. The Ethernet hardware system itself includes a minimum system, a series of power supplies and converters TTL voltage levels to RS232 voltage levels.

The system implemented in the Final Project has been tested and works fine. From the test results obtained by using Ethernet communication, the delay values is range from 0.0014888 to 0.00478726 second. The success rates of the system to be able to monitor is by 92%. If compared with the testing that has been done before by Rastri Dzulsendhi in her Final Project, entitled " PLC (PROGRAMMABLE LOGIC CONTROL) REMOTE PROGRAMMING BASED ON PSTN NETWORK", the monitoring process using Ethernet communications is much better.

Key words : Ethernet, Microcontroller ATMega128, WIZ107SR