

ABSTRACT

Nowadays, industrial automation system uses a Programmable Logic Controller (PLC) to control an industrial machine. PLC has a programmable processor, so the output is in accordance with the input given. In industrial processes, monitoring of industrial machinery has to be done at any time. Industrial machine state can be detected under the condition of input and output PLC.

Monitoring PLC with a computer as an interface with the user using a serial cable and the bus cable has the limitation on the length of the cable. Therefore, we need a monitoring system of PLC via Ethernet that can be done remotely. At this time, the PLC has been supported by the Ethernet module so that the monitoring of the PLC can be done through an Ethernet network. One type of Ethernet module that can connect the PLC via Ethernet is a type CJ1W ETN-21. PLC OMRON CP1H can be supported by the Ethernet module CJ1W type ETN-21 so that the monitoring of PLC OMRON CP1H can be done on line via Ethernet.

In this Final Assignment, a monitoring system of PLC OMRON CP1H via Ethernet was implemented. Ethernet modules used by the PLC OMRON CP1H to connect with an Ethernet network was CJ1W ETN-21. The monitoring system was based on web as user's interface with the PLC, so the condition of the PLC inputs and outputs could be accessed remotely. From the results of this implementation, round trip time delay between computer and PLC could be measured .

From the results of measurements that have been done, the result showed that the addition of background traffic on the network and increment of nodes that accessed the Ethernet module CJ1W ETN-21 could increase the round trip time delay between computer and PLC and decreased the throughput. Background traffic with UDP packet had more round trip time delay than background traffic with TCP data. Packet loss occurred while network has been giving 96% of background traffic.

Keyword : monitoring, PLC, network, Ethernet.