

ABSTRACT

Manufacturing industry is a rapidly growing industry today. Industrial activities that previously manual now turning to automation technology because it can make a better quality product. Automation technologies are widely used to perform control and monitoring of a production process or machine work process. The use of automation technology applied by the company to allow the operator to monitor running processes directly and in real time and make the existing system can work for 24 hours to meet production targets. In the production itself is very possible location of the machine as a means of production (plant) away from each other however, should be work simultaneously and integrated. Plant at long distances would require the use of a relatively larger cable to connect the automation equipment that are on the production floor with Programmable Logic Control (PLC). The use of cable as a medium of communication between the PLC automation equipment can be done however, is inefficient and causes long time for troubleshooting if there is damage (broken).

The design of network-based integrated automation system aims to ensure the processes in each work station keeps running and can be connected with each other without being restricted by plant distances far from each other. The creation of communication (transfer of data) between the PLC will allow processes on different work stations away from each other and can be work simultaneously and integrated.

Design automation system which is implemented in the production of three work stations namely: clay cutting, forming and steaming is used as a test for the implementation of network-based automation system that can be communicate with each other, working simultaneously and integrated processes and ensure to keep it running. Based on the research conducted, it can be concluded that the design of network-based integrated automation system has been successfully carried out and can be work simultaneously and integrated without being restricted by distance. The creation of communication (transfer of data) between the PLC has been successfully carried out and is very useful when used for signal transmission, controlling long distance processes and more flexible PLC programming carried on its development.

Keywords : Automation, Networking, Programable Logic Controller, PLC Configuration, PLC Communication