

## ABSTRACT

Water is a basic need of people for their life. However, the need of water is increasing along with the growing demand from manufacturing, thermal electricity generator, and domestic use. Artesian water as commonly used water usually has poor water quality. Artesian water in Telkom University has a high compound of iron (Fe). The high level of iron (Fe) compound indicate weak water quality and could cause dark spotting on the white stuff, iron smell, and colloid which cause a health damage. Furthermore, it requires much time to discover a problem in water treatment and distribution because the controlling and monitoring process which is done by an operator is done manually. To maintain water quality appropriate to standard and to discover a problem regarding distribution process efficiently, it needs a system to do centralized monitoring and controlling process using SCADA which contains the design of PLC program, HMI, and databse. The result of this research is a proposed automated system which is simulated in a water treatment and distribution model. Water treatment process is designed based on the water treatment standard which consists of coagulation, flocculation, sedimentation, aeration, filtration, and disinfection. The overall system of water treatment and distribution process is connected to PLC Siemens and HMI.

Keywords – Automated water treatment, SCADA, PLC, HMI, centralized controlling, centralized monitoring