ABSTRACT

Nowadays, Information and Communication Technology, especially Computer Network Technology, is rapidly developed. Used communication medium is *wired* and *wireless.* Wireless communication network technology enables the information can be accessed in mobile and practically by using smartphone, laptop, and tablet PC. This development enables a mobile version of Supervisory Control and Data Acquistion (SCADA) system of industrial process be made regarding the high level mobility of operator and supervisor of industrial process control.

Control and monitoring by using personal computer as an interface with wired communication is limited on the maximum distance. Because of that, a design of SCADA system using wireless local area network is very important so that control and monitoring can be done in a distance and high mobility. Mobile device development is rapidly increased. There are many kinds of smartphone and tablet PC with varies specification. In this project, Android application is used as *Human Machine Interface,* and Omron CP1H Programmable Logic Controller as a controller.

The result of system measurement, average *round trip delay* between Android device as Human Machine Interface and web server are 0.01590659 second for controlling and 0.01110103 second for monitoring. The result of web service controller average execution speed measurement for one query is 0.03982 second. And optimum sampling period of webserver to PLC is 0.2 second. So total time needed for one execution process is 0.25572659 second.

Keyword : SCADA (*Supervisory Control* and *Data Acquisition*), PLC (*Programmable Logic Controller*), Android Application.