

## ABSTRACT

### **SMITH PREDICTOR ANALYSIS AND IMPLEMENTATION ON NCS (NETWORK CONTROL SYSTEM)**

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*In control system we will always meet the plant. Plant is something that we will control. In reality, a plant always has a bad performance that make an output does not same with something that we want. For make plant performance better, we need to give a controller.*

*The most controller that used is PI or PID. PI orPID control is control that many peoples used because it is better and has a simply in implementation, also cheap. But PI or PID control has a bad side that is PI or PID control has a bad response for plant that has a big delay/deadtime in application. For make PI or PID performance better, Smith Predictor will be used. Smith Predictor is a kind of predictive control that used to fix a controller that has a bad response top plant that has a big delay/ dead time. Smith Predictor is PI or PID control development. Networked Control System is a feedback control system that is connected via network communication channel, which can be shared with the other nodes outside of the control system <sup>[15]</sup>. The control system that used the communication network is shared-networked control system and remote control system. In this study, Smith Predictor applied on RC circuit and Network Control System added. Then the writer will make an analysis for the performance.*

*The result showed that the Smith Predictor on RC circuit that using the Networked Control System is influenced by the delay recieved dan delay delivered on the client server wich caused the influence on the respon system. The test results without Networked Control System with setpoint = 128 obtained value of rise time = 1 seconds, settling time = 2 seconds, and overshoot = 0% and with network with setpoint = 512 obatined values of rise time = 27 seconds and overshoot = 21.093% because of network delay 0,0615222 seconds when using the Networked Control System.*

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