

Penerapan Fitur *Web Server* PLC SIMATIC S7-1200 Untuk *Monitoring* dan Kontrol Pada Studi Kasus Simulasi *Caramel Cooker Process*

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ABSTRAK

Pemakaian sistem kontrol otomatis dengan *Programmable Logic Controller* (PLC) banyak diterapkan pada industri. PLC SIMATIC S7-1200 memiliki fitur *web server* di dalamnya, sehingga suatu sistem dapat dikontrol dan dimonitor melalui perangkat yang memiliki *web browser* tanpa harus melakukan instalasi *software* tambahan. Fitur *web server* terdapat pada PLC yang memiliki antarmuka PROFINET.

Tugas Akhir ini bertujuan menerapkan fitur *web server* PLC SIMATIC S7-1200 untuk *monitoring* dan kontrol pada studi kasus simulasi *caramel cooker process*. S7-1200 CPU terhubung dengan PC yang menampilkan simulator *Human Machine Interface* (HMI) dan *user-defined web pages* pada *web browser* melalui *Compact Switch Module* (CSM) 1277 menggunakan RJ-45.

Aplikasi untuk *monitoring* dan kontrol pada studi kasus simulasi *caramel cooker process* berhasil diterapkan menggunakan fitur *web server* PLC SIMATIC S7-1200. Pada *auto cooking process* (*Cooking Time* = 3600 sec, *Moving Time* = 1200 sec) diperoleh *delay* rata – rata 8,65 sec (pengontrolan via *web*) dan 2,31 sec (pengontrolan via simulator HMI), sedangkan pada *auto cooling process* (*Cooling Time* = *Moving Time* = 1800 sec) diperoleh *delay* rata – rata 7,14 sec (pengontrolan via *web*) dan 2,84 sec (pengontrolan via simulator HMI). Pengontrolan via simulator HMI menghasilkan respon pada *web* relatif lebih cepat dibandingkan via *web* karena HMI sudah terintegrasi dengan TIA PORTAL.

Kata kunci : *Programmable Logic Controller*, SIMATIC S7-1200, *web server*, PROFINET, *Human Machine Interface*, *Compact Switch Module*, *caramel cooker process*, TIA PORTAL

Web Server Features Application of SIMATIC S7-1200 PLC For Monitoring and Control on Caramel Cooker Process Simulation

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ABSTRACT

Automatic control system with Programmable Logic Controller (PLC) has become very popular in the industry. SIMATIC S7-1200 PLC has web server features in it, so that a system can be controlled and monitored via devices that has a web browser without having to install additional software. Web server features found on the PLC which has a PROFINET interface.

The purpose of this final project to implement a web server features of SIMATIC S7-1200 PLC for monitoring and control on caramel cooker process simulation. S7-1200 CPU connected to a PC which displays Human Machine Interface (HMI) simulator and user-defined web pages on a web browser via the Compact Switch Module (CSM) 1277 using a RJ-45 connector.

Applications for monitoring and control on caramel cooker process simulation successfully implemented using web server features of SIMATIC S7-1200 PLC. In the auto cooking process (Cooking Time = 3600 sec, Moving Time = 1200 sec) obtained average delay is 8.65 sec (for control via web) and 2.31 sec (for control via HMI simulator), while the auto cooling process (Cooling Time = Moving Time = 1800 sec) obtained average delay is 7,14 sec (for control via web) and 2.84 sec (for control via HMI simulator). Control via the HMI simulator gives response on web is relatively faster than control via the web because the HMI is integrated with a TIA PORTAL.

Keywords : Programmable Logic Controller, SIMATIC S7-1200, web server, PROFINET, Human Machine Interface, Compact Switch Module, caramel cooker process, TIA PORTAL

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