

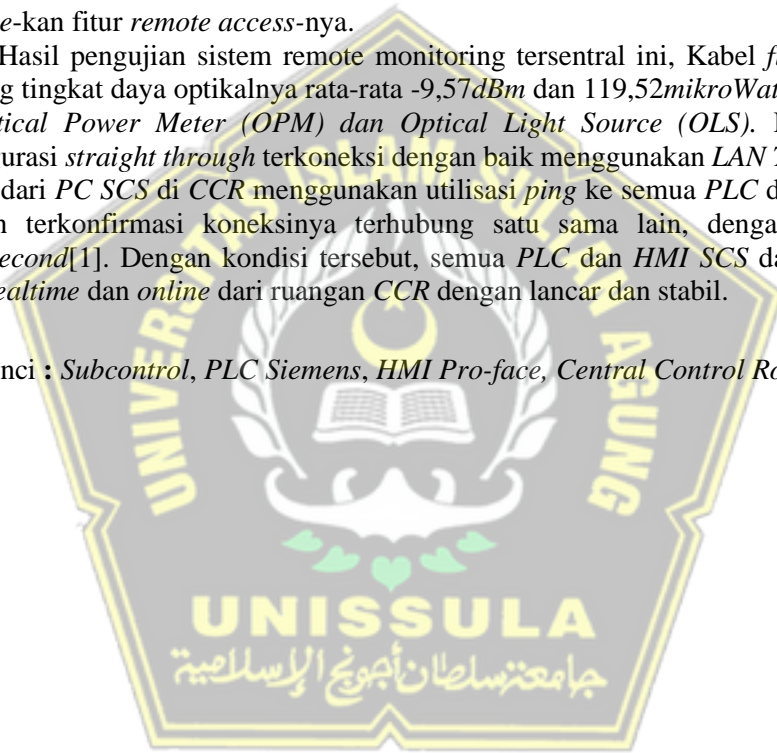
## ABSTRAK

Pabrik Tuban IV – PT Semen Indonesia (Persero) Tbk menggunakan *PLC Siemens S7-400* sebagai *Central Control System (CCS)* berjumlah 8 unit dan *Sub Control System (SCS)* menggunakan *PLC Siemens S7-300* dan *HMI Pro-face* sebagai sebanyak 11 unit. Jarak antar lokasi *CCS* dan *SCS* berjauhan. Jika perlu *troubleshooting*, modifikasi program, *back-up* dan *restore*, Akses ke *PLC* dan *HMI SCS* hanya bisa dilakukan langsung di lokasi.

Dari masalah di atas dibangun sebuah sistem remote monitoring tersentral, *PLC Siemens S7-300* dan *HMI Pro-face SCS* yang lokasinya berada di lapangan dapat dipantau dan dimodifikasi dari satu lokasi yaitu di *Central Control Room (CCR)*. Koneksi dari lapangan ke *CCR* menggunakan media kabel serat optik *Multimode* dan komunikasi datanya dengan protokol *TCP/IP*. Supaya *PLC* dan *HMI SCS* dapat berkomunikasi dengan *CCR*, *PLC Siemens S7-300* ditambahkan modul komunikasi *CP343-1* dan *HMI Pro-face* di-*enable*-kan fitur *remote access*-nya.

Hasil pengujian sistem remote monitoring tersentral ini, Kabel *fiber optik* yang terpasang tingkat daya optikalnya rata-rata  $-9,57\text{dBm}$  dan  $119,52\text{mikroWatt}$  menggunakan alat *Optical Power Meter (OPM)* dan *Optical Light Source (OLS)*. Kabel *Ethernet* dikonfigurasi *straight through* terkoneksi dengan baik menggunakan *LAN Tester*. Hasil uji koneksi dari *PC SCS* di *CCR* menggunakan utilisasi *ping* ke semua *PLC* dan *HMI SCS* di lapangan terkonfirmasi koneksinya terhubung satu sama lain, dengan respon time  $<5\text{millisecond}$ [1]. Dengan kondisi tersebut, semua *PLC* dan *HMI SCS* dapat di monitor secara *realtime* dan *online* dari ruangan *CCR* dengan lancar dan stabil.

Kata Kunci : *Subcontrol, PLC Siemens, HMI Pro-face, Central Control Room*



## **ABSTRACT**

*Tuban IV plant - PT Semen Indonesia (Persero) Tbk uses 8 units of the Siemens S7-400 PLC as the Central Control System (CCS) and 11 units of the Sub Control System (SCS) uses the Siemens S7-300 PLC and HMI Pro-face. The distance between the CCS and SCS locations is far apart. If you need troubleshooting, program modification, back-up and restore, access to PLC and HMI SCS can only be done on site.*

*From the above problem, a centralized remote monitoring system was built, the Siemens S7-300 PLC and HMI Pro-face SCS which are located in the field can be monitored and modified from one location, namely in the Central Control Room (CCR). The connection from the field to the CCR uses Multimode fiber optic cable media and the data communication is with the TCP / IP protocol. In order for the PLC and HMI SCS to communicate with the CCR, the Siemens S7-300 PLC was added with the CP343-1 communication module and enabled the remote access feature of HMI Pro-face.*

*The test results of this centralized remote monitoring system, the optical fiber cable with an average optical power level of -9.57dBm and 119.52mikroWatt using Optical Power Meter (OPM) and Optical Light Source (OLS). Ethernet cables are configured straight through and connect properly using a LAN tester. The result of connection test from PC SCS at CCR using ping utilization to all PLC and HMI SCS in the field confirmed that the connection is connected to each other, with a response time <5 milliseconds[1]. With these conditions, all PLCs and HMI SCS can be monitored in realtime and online from the CCR room smoothly and stably.*

*Keywords: Subcontrol, Siemens PLC, HMI Pro-face, Central Control Room*

