

ABSTRACTION

Based on conference meeting of DPR 6th Committee, government decide to *mark up* the revitalization program for the sugar factory with a worth of 9.7 billion rupiah for PT PG Rajawali II, a national sugar factory under advisory of PT Rajawali Nusantara Indonesia. With a total of 5 main processes starting from *a nira squeezing, nira purifying, nira evapouring, nira crystallization, and packaging*. In fact there are still problems occur in *nira purifying* work station caused by an *off-age* and *manual handled* system. Human errors and unfine blending in chemical compositions are the main problems. Those, based on the government revitalization program and to solve this critical production problem, the Supervisory Control and Data Acquisition (SCADA) system designed to control and monitor automatically is a fit solution.

In designing a whole complete system, there are 5 phases to better fixing the problem, it is divided in 5 stages, they are the identification stage, existing system analyzing, creativity, simulation and summary stage. Involved in the first identification stage the problems are being specified, research objectives and problems boundaries also literatural studies and field identification are being held. Next stage is in analyzing existing system data collecting in machine specification, machine parameters and operator standard operational procedure. The system designing in creative stage and followed by system testing and report analyzing. After all of those 4 stages completed it is urgent to summarizing the data.

The system designing process is taken from the basic theoretical standard of nira purifying in accordance to produce a highly standardized nira with high density of sugar extract or essence. Phosphate concentrate, juice heater temperature, pH defecator, pH sulvitor and florokulan concentrate are some of main parameters in controlling and monitoring the automation system. Keeps those five parameters in a green line means lowerage the risk of bad quality of nira production.

This research provides a SCADA system for nira purifying process in PG Tersana Baru Cirebon held in a better way for controlling and monitoring purposes.

Key words : Nira purifying, SCADA (*Supervisory Control And Data Acquisition*), PLC (*Programmable Logic Controller*), HMI (*Human Machine Interface*)