“DESIGN OF SAFETY INTEGRATED SYSTEM ON MIXING PROCESS LOGIC SOLVER BASED SIMULATORS IN WORKSHOP INSTRUMENTATION LABORATORY”

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Abstract

In the industrial process control processes typically use BPCS (Basic process Control System) to automatic the process plant. At certain industries do penngamatan system with Flow Tree Analisys methods. This method is used to determine the placement of the safety system at workshop ITS instrumentation that does not have a safety instrumented system based logic solver.

There are two controls used are microcontroller ATmega 8535 and Visual Basic 6.0 is used as the control of the plan and at the same time penambil deciding on the plan simulator actuator.

In the HMI (human machine interface) will be showed red and green as a marker of safety operation of this system. For the final executor of this system is all pumps and solenoid shut off or shut down all systems. While the output of this simulator using as indicator lights From the analysis of the data obtained by the number of standard deviations obtained in the process flow by 0066, the temperature at 0.0236. Pressure of 0132, the level of 0.0236. Uncertainty obtained for testing hardware in the process control level is 0.013608, 0.076206 of pressure, temperature at 0.013608, 0.038103 of flow. In the logic of testing on this device showed that the process of high-level high value at 91% level is used as the setpoint for solenoid shut 2dan3 and keep the motor is
still on, with a high level of 81% is used as the high alarm setpoint, low-level 16% used low alarm, and the last is for the low-low water level of 9% is used as the setpoint to turn off the motor and let it stay lit 2dan3 2dan3 solenoid. In the process of low pressure 3psi memilii value is used as a low alarm setpoint to light, to the high pressure of 16psi which is used to power high alarm, high-value to high-20psi and the action is open solenoid valve actuator 1. To process has a temperature of 30C and a low value that the alarm will turn on high, on high value at a temperature of 510C and low alarm turned on, the high-value high 600C value and actuator in the form of MOV (Motorize Operational Valve) 1 open solenoid closes and thus temperature awake and avoid overpressure. For the flow rate has a low limit value m / s and low alarm goes off, to have the value of the high value of 26m / s and high LAalarm reads, the latter if the flow rate has reached 30m / s aktator closes and the display shows the word "off".

Keywords: Design of, Safety Instrumented System, Simulator, Mixing process