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NITROGEN PLANT AUTOMATION USING PLC & SCADA

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ABSTRACT

Today most of the industrial processes are controlled by the use of PLC. They are used in industrial like petroleum, gas, chemicals etc. The air, flow, temperature etc in these industries can be controlled, using PLC. SCADA (supervisory control and data acquisition) is a type of industrial control system (ICS). Industrial control systems are computer-controlled systems that monitor and control industrial processes. This project deals with Nitrogen plant automation using PLC and SCADA. A Programmable logic controller (PLC) is a digital computer used or automation of electromechanical processes, such as control of machinery on factory assembly lines, amusement ride, or light fixtures. PLC is designed for multiple inputs and outputs arrangements, extended temperature ranges, immunity to electrical noise, and resistance to vibration and impact.

Plant has two tanks of similar capacity constituting with different solenoid valves and other associated paraphernalia. Now, oxygen and other impurities absorb by the CMS (Carbon Molecular Sieve) then nitrogen is separated. When first tank works for 40 seconds the nitrogen generated in first tank pass to the storage tank, through appropriate solenoid valves and surge vessel by releasing the impurities. Then the operation repeated in the second tank. Both tanks operate simultaneously one after another with an interval of 10 seconds. So that process is continued and Nitrogen storage tank is filled as required.

KEYWORDS: Nitrogen, Plant, PLC and SCADA