Thesis Title	Expert System of PID Parameters Control and Monitoring thru PLC
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Abstract

This work concerned the development of expert system for the monitoring of PID process control, in view of the fuzziness and the uncertainty of expert knowledge in fault-diagnosis and parameter-error-correcting expert system. The tested model, in this case, was meant to be an educational-type boiler system, which had control valves, temperature and level sensors attached to the boiler. Involved in the development of a digital-data-transfer technique between a PC and PLCs, the expert system provided the procedure for monitoring and improving the uncertainty of the control loop via recalibrating the parameters. The uncertainty of the control loop was normally caused by the changes of system dynamics such as inrush in/out flow of the fluid or the rapid changes of setting temperature. Although many PLCs have tuning procedures for these parameters adjustment, PLCs still need someone to tell them when to tune. The expert system acquired PLCs' data line analyzing the logic relations of each signal concurrently. In addition, combining the information of a multi-sensor condition monitoring and synthetic decision system, expert and user experience knowledge, a fault-diagnosis and parameters-error-correcting expert system has been built up.

Keywords : PLC / PID / PC / Expert Systems / Interfacing