Abstract

The fuzzy adaptive PID control algorithm based on OPC (Open Process Control) is designed for the flow process station to improve the control performance better than the conventional PID controller. PID controller works well only if the mathematical model of the system could be computed. Hence it is difficult to implement PID control for variable as well as complicated systems. But Fuzzy logic control doesn't require any precise mathematical model and works good for complex applications also. In this paper, a two input and three output self adapting fuzzy PID controller was designed to control the final control element of the flow.
Fuzzy Adaptive PID for Flow Control System Based on OPC

process station. S7-300 PLC is connected with the process station. Real time data exchange between the PLC and MATLAB is realized by means of OPC server. Fuzzy logic is developed using fuzzy toolbox available in MATLAB and OPC toolbox helps in fetching data from the OPC server. The proposed method can be used to realize data process and advanced control to improve the quality of the control. New control algorithms created in MATLAB can be checked with real time systems using this method.

Reference

- Sun Xiang, MATLAB 7.0 Basic Tutorial [M]. Beijing, China, Tsinghua University Press, 2005.

Index Terms

Computer Science          Control Systems

Key words

Fuzzy Adaptive PID
MATLAB
OPC