



Asian Institute of Technology
ELECTRONIC DOCUMENTATION FORM

1. Type

(Thesis/Research Study/Special Study/etc): Thesis

2. Title: Control of pH level by PLC in a Waste Water Treatment Plant

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4. Name(s) of Advisor and Committee Members:

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5. School: SET

6. Field of Study: ME; Mechatronics

External Examiner (*for Dissertations only*)

Expert Comments on the Work and Facility for the Feedback from the Users

7. Abstract of the Work:

Recently, requirements to improve technologies of waste water treatment are become higher than ever. To contribute a solution to this problem, a sub step to improve quality of waste water treatment by controlling pH level is described this study. The control system is implemented on a PLC.

A model contained hardware and software is designed to implement the research. The main point of the hardware is the use of low cost devices like webcam or solenoid valve. The software is control program to connect some points like webcam, PC, PLC, solenoid valves to each other. One of the key points of this study is to use a webcam to simulate pH measurement. Another point is to control effectively pH level PID controller integrated in the PLC SIMATIC S7-300 of Siemens. A HMI is made to enable operators visually to control. Moreover, a DCS integrated with an operator panel to show a network control.

In conclusion, this study recommends a methodology to control pH level in a waste water treatment plant by applying PLC. By applying automation technology, the quality of treated water is significantly improved.

8. Keywords (*minimum 5; maximum 10*):

pH control; Programmable Logic Controller (PLC); PID controller; Pulse Width Modulation (PWM); Solenoid valve; Webcam; Waste Water Treatment; Image Processing; Distributed Control System (DCS); Operator Panel OP35.

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10. Type of Project (*Sponsored/Non-Sponsored*), if applicable

11. Specific Agreement involved in the Sponsorship Agreement, if applicable