BOILER DRUM LEVEL SINGLE LOOP FUZZY LOGIC CONTROL AT MODEL BDT921

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ABSTRACT

This study had been conducted to determine the best input and output parameter Fuzzy Logic Controller and to study the performance of level process using Fuzzy Logic System. For the analysis of performance of Fuzzy Logic, the boiler drum level controller at model BDT921 PCTS data will be used by using Emerson programming. This is done by tuning the Fuzzy Logic Control (FLC) variables which are analysed the error, change of error and change of output. The collection of data on the variables that will contribute to yield the best performance output is obtained. All these data are then inserted in Emerson programming to be determined the settling time, decay ratio, number of oscillation and integral analysis error (IAE) analysis for each variable could be performed. In conclusion, based on the tuning FLC parameters such as fast response and settling time, small decay ratio, no overshoot, short distance peak to set point, small integral absolute error (IAE) analysis are the criteria that would be final decision for the best performance of Fuzzy Logic Control system.

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CHAPTER 1

INTRODUCTION

1.1 PROCESS BACKGROUND

Process control systems are usually involved in large-scale manufacturing and widely used in the production of oil refining, chemical, food and beverage processing and also power plant to maintain the consistency of mass production in continuous process operation. The objective of process control is to maintain the quantity of desired value and produce the best quality product at some value without disturbance. Desired value is referred to set point. In general, a process control much related to some manufacturing process that required a proper control system.

Many variables may be involved in such process and it may be desirable to control all these variables at the same time. The example of the process variable are temperature, pressure and fluid flow rate and liquid level and other properties of materials such as material stream composition, density, pH viscosity, and speed.

In a process control, Programmable Logic Control (PLC) is a control device that used to read analog input and digital output. Plus, Distributed Control System (DCS), SCADA system or Invensys Foxboro is used to control more complex system.