ABSTRACT

DESIGN AND IMPLEMENTATION OF NETWORKED CONTROL SYSTEM ON THE DC MOTOR SPEED CONTROLLER USING FUZZY –PI

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Communication technology development has increased the use of communication technology to process the data communication. For example is data communication in a control system, called *Networked Control System (NCS).* In a network, the distance differences between the controller and the plant which can affect to the delivery of control and feedback signals.

In this research, designed a system of motor DC speed control with fuzzy-PI. Namely the adaptation of fuzzy logic methods integrated with the PI controller. This device consists of two main parts, the client and the server. On the server used a computer as the main control wireless xbee. On the client or parts there is a DC motor, mikrokotroler, and wireless standart zigbee communication.

From the test results shows that the application of Fuzzy-PI algorithm can work on the NCS with the acquisition value of the expected scenario is at 12,53 % maximum overshoot, settling time of 0,162 seconds, and the steady state error of 0,39 %. While the distance that can be achieved without significant disruption xbee between the controller and plant is <35 meters.

Keyword : networked control system (NCS), DC Motor, fuzzy- PI, wireless

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