

ABSTRACT

ANALYSIS OF POSITION CONTROL DIRECT CURRENT (DC) MOTOR WITH ANFIS ALGORITHM USING ARDUINO APPLICATION

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Currently, there are many known methods algorithm for digital control system which proposed by the experts of control systems , such as PID , root - locus , state-space and optimal control. The method helped many industrial fields even today. However, these methods are limited to the linear system or plant, the system is relatively small , and limited need to know the mathematical model of the system .

In this last project, the author designed the system with Adaptive Neuro -fuzzy Inference System (ANFIS) algorithm that a combination of Fuzzy Logic and Artificial Neural Network (ANN). ANFIS method was chosen because it can provides the calculation without mathematical modeling and good for the " non linear prediction " problem. The system is to control a DC motor, the goal is to reach a given position with accuracy and speed that need by the system. DC motor will be given a varying load to test resolve the “non linear prediction “ problem.

Set Point as the reference system is given of an android phone. Android communicated with the Arduino as a controller by routers device in LAN communication. All data and condition of the system are displayed on the phone as the user Interface (UI).

Keywords : Control Algorithms, ANFIS , Adaptive - fuzzy , DC Motor , Position , Velocity, Arduino , Android