ABSTRACT

Various plant is controlled to meet the needs of industry. One control often done is DC motor speed control. DC motors have been used in many applications such as conveyors, rolling mills, electric trains, and the robotic manipulator. In controlling a plant, commonly used mathematical models to control the plant .However in fact, the value of variables in the mathematical model of a plant is not available.

At this final task , controlling the conveyor system has been designed to drive a DC motor which is controlled by a microcontroller-based controller ATMega 8535 in which the program has embedded is fuzzy logic controller. Set point in the form of a single RPM speed of 100 RPM is regulated through microcontroller.Algoritma used is proportional fuzzy logic controller. Proportional fuzzy logic controller is proven to reduce the overshoot without increasing the maximum steady state error.

At this final testing found the speed sensor error of 8%. That's because there is a difference between the voltage output of frequency to voltage circuit with hand counting.Result of observation yield that fuzzy logic which is embedded can reduce osscilation at 42,8 %. From the test results for a set number of different linguistic found that the set of more linguistic produce longer execution speed and more eating memory consumption of the microcontroller.It can be seen that performance comparison between fuzzy logic with linguistic and 5 set of 3 set of linguistic found that no effect is significantly, although the graphics performance of 5 sets of linguistic look more refined.

Keywords: Fuzzy Logic, *Proportional Fuzzy Logic Controller*, ATMEGA 8535 microcontroller,DCMotor,Conveyor