

AIR CONTROL USING FUZZY LOGIC

Prepared by: Lim Chang Jin

ABSTRACT

As stated in the project title, this project focuses on using a simple Fuzzy Logic program to control the speed of a DC motor fan, hence the term “Air Control”. By controlling the air flow in the chamber, the height of the ball could be increased or decreased depending on the speed of the blowing fan.

The uniqueness of Fuzzy Logic is that it is able to gather many inputs and predict a possible outcome, similar to the way a human makes a decision. In this project, 2 inputs are gathered. One from the infrared sensors on the current position of the floating ball and the other input being keyed in by the user. From comparing both the inputs, the Fuzzy Logic program will be able to decide on the appropriate change of speed to be applied to the PWM Motor Speed Controller circuit. A longer pulse width will increase the speed of the fan whereas a narrower pulse width will result in reduction of speed.

There is no limit to Fuzzy Logic applications. More and more machineries are using Fuzzy Logic to run its control processes. Certain industries even require Fuzzy Logic to handle complex calculations or situations that the traditional true/false logic cannot adequately deal with. In the future, it can be seen that most machinery will have at least a little Fuzzy Logic in them.