CSCI2412

Fuzzy Logic Coursework
To be handed in before Friday noon week 29 (15th April 2005)

Fuzzy Logic Exercise (worth 20% of the module's assessment)

The following problem needs to be solved:

You have a battery operated model boat with a fixed speed electric propeller and an adjustable steering (you have the option to control this with a Radio Control -R/C- unit). You want to make it cross the canal. The intention is to make it go to the other side exactly on front, where a friend is waiting to pick it up.
The problem is that there is a variable current in the water approximately perpendicular to the desired trajectory of the boat. Therefore you need to control the steering to correct for the drift while the boat is crossing so that it will reach the point you want, rather that somewhere downstream!

Produce a succinct report describing and explaining the following:

- ➔ Why is this a suitable problem to be solved using Fuzzy Logic?
- ➔ What do you need to know before you create a Fuzzy Logic Controller for this problem?
- ➔ What do you need to control? (i.e. Which is your controlling action?)
- ➔ What variable do you need to monitor and how are you going to represent the error?
- ➔ Give an example of the Fuzzy Sets that you would define.
- ➔ Give examples of the rules you would use to create the Fuzzy Logic Controller.

Your report must also include a conclusions/reflections section in which you will reflect on what it means to solve a problem using Fuzzy Logic rather than a Classic Controller.

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