ABSTRACTS

In Robot Contest, mazes are still an important criteria for the robot performance evaluation. Excellent Robots are expected to be able to do a great manuver within the track, walk smoothly without bumping into the wall. Therefore, Fuzzy Logic Method are applied for the Robot as a speed control method. The Fuzzy Logic Method are implemented by providing 3 inputs based on 3 ultrasonic sensors - which operates as a tools for comparing the Robot position and the wall position.

The Fuzzy Logic Method is chosen due to the need for clarity in determining the robot position, the need for conducting a precise speed control in specific condition, and the open possibilities that the Robot might face within the track. The Fuzzy Logic Method is the perfect method to be applied under above circumstances.

Three steps are involved in Fuzzy Logic System. First step is Fuzzyfication; the process of transformation from crisp input (the non fuzzy system value) into the fuzzy value.The result of this process will be used on the next phase of the Fuzzy Logic System. The second step is rules evaluation. At this phase, the relationship between the crisp input and crisp output are defined by certain rules. The last step is defuzzyfication; a fuzzy output value (from rules evaluation) are transformed into quantitative (number) output that can be read by the system provided.

After employing the Fuzzy Logic, the result will act as an input for the microcontroller to be executed directly into the system. The expected outcome is the Robot will be able to walk through the maze smoothly, without bumping/crashing/having a friction with the wall during the performance.

Keyword: robot, fuzzy logic, ultrasonic, speed control