

Title

An Embedded Fuzzy Type-2 Controller Based Sensor Behavior for Mobile Robot

Abstract

This paper presents a type-2 fuzzy logic controller that has been applied to a mobile robot utilizing eight ultrasonic sensors as distance sensors. The inputs are obtained from the mounted ultrasonic sensors and sent to a microchip PIC 16F84 microcontroller onboard the robot. Furthermore the PIC16F84 analyses the inputs as data and provides the necessary control signal. The controller, which based on sensor behavior and consist of three tasks obstacle avoidance, wall following, and emergency condition was designed using AT89X55 microcontroller. The experiment result obtained demonstrate that the efficiency of type-2 fuzzy logic controller and performs better than on-off and type-1 fuzzy logic controller

Keywords: *Embedded Controller, Fuzzy type-2, Mobile Robot, Sensor Behavior*