Design and Implementation of Fuzzy based Robot Gripper Control System

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Abstract

With the developing of technologies, people invented many kinds of robots such as autonomous robots, industrial robots, and mobile robots. One kind of important part of the robots is industrial robots that usually consist of a joined arm and end effectors that is attached to a fixed surface. One of the most common types of end effectors is a Robot Gripper System which is very useful and important part of the industrial robots.

The purpose of the system is to control for gripping and placing the object from one place to another place with two-degree -of-freedom robot by using fuzzy approach. Microcontroller (PIC16F877A) is used to control the robot's gripper operations based on the situation receiving from sensors (IR, Ultrasonic and limit switch) by the fuzzy concept get the suitable pulse width using PWM. Then the voltage output from the PWM is used to control the speed of motor. The purposed system is to show how a robotic can be controlled he grasp and place of the object from one place to another based on fuzzy approach. The system is implemented by using Assembly programming language.