

The Path Planning and Control for Mobile Robot

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ABSTRACT

In this project, we will study the path following control problem for mobile robot. The fuzzy controller will be developed to control the mobile robot's path following motion. For a mobile robot, there are three control objectives during the path following control: 1. To follow the planned path For different types of paths, line or arc path, we will design fuzzy controller for the mobile robot to follow the planned path. 2. To avoid the unknown obstacle in the path When the obstacle, unknown at the path-planning stage, is detected on the planned path, we have to design a fuzzy controller to run the obstacle real time. The distance measurement sensor will be used to feedback the obstacle information into the fuzzy controller. This will enable the mobile robot to the obstacle-avoidance function. 3. To control the form initial and to final orientation To make the mobile robot efficiently follow the planned path from the initial orientation and to final position and orientation, we must consider its motion property: moving forward and backward. This design consideration will reduce the motion space for the path following.

Keywords: Mobile Robot . The Path Planning . Control

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