Abstract

This paper presents a new control method for path tracking of mobile robots based on using fuzzy logic and FOPID controllers. Two FOPID controllers are used. Parameters of the two FOPID controllers are optimized offline using genetic algorithm. These optimized FOPID controllers are used for speed control and azimuth control. Parameters of these controllers are adjusted online via fuzzy systems. Each FOPID controller is supported by a fuzzy controller for adjusting the parameters online. The adjusting mechanism in the designed control scheme works well when there are variations in the plant parameters and changes in operating conditions.

References


Index Terms

Computer Science
Fuzzy Systems

Keywords

Mobile Robot, Particles Swarm Optimization, fuzzy control, FOPID Controller, Trajectory tracking.