Abstract

This paper presents an efficient robust design method of PID control scheme based on using fuzzy logic and particles swarm optimization (PSO) method for trajectory tracking of mobile robot. Two PID controllers are used. Parameters of PID controllers are optimized offline using PSO and fuzzy controller is used for tuning the parameters online. The two optimized PID controllers are used for speed control and azimuth control. The online fuzzy tuning in the designed control scheme work well when there are variations in the plant parameters and changes in operating conditions.

References

20. W H Almutar, " Fuzzy Control Schemes for Active Suspension System" M Sc. thesis,
university of Basrah, 2015.


**Index Terms**

Computer Science  
Fuzzy Systems

**Keywords**

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