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Abstract

Target tracking is a serious function for an autonomous mobile robot navigating in unknown environments such as disaster areas, projects sites, and any dangerous place which the human cannot reach. This paper deals with modified the parameters of PID controller using Artificial Bee Colony (ABC) and Genetic Algorithm (GA) for path tracking of autonomous mobile robot. Two PID control are designed, one for speed control and the other for azimuth control. The MATLAB program is used to simulate the autonomous mobile robot model with optimal PID controllers, ABC algorithm and GA. To test the effectiveness of the proposed controllers, two path trajectories have been chosen: circular path and sine wave path. The results have clearly shown the effectiveness and good performances of the PID controllers which are tuned using ABC algorithm than using GA.

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Index Terms

Computer Science

Artificial Intelligence

Keywords

Autonomous mobile robot artificial bee colony genetic algorithm PID controllers.

