Abstract

This research presents an optimization technique for route planning using simulated ant agents for dynamic online route planning and optimization of the route. It addresses the issues involved during route planning in dynamic and unknown environments cluttered with obstacles and objects. A simulated ant agent system (SAAS) is proposed using modified ant colony optimization algorithm for dealing with online route planning. It is compared with evolutionary technique on randomly generated environments, obstacle ratio, grid sizes, and complex environments. The SAAS generates and optimizes routes in complex and large environments with constraints. The SAAS is shown to be an efficient technique for providing safe, short, and feasible routes under dynamic constraints and its efficiency has been tested in a mine field simulation.

Reference
Optimization of Route Planning using Simulated Ant Agent System


Index Terms

Computer Science
Computational Intelligence

Key words

agent
Ant colony optimization
Optimization
Route planning
Swarm intelligence