Abstract

The scope of this paper is to simulate, analyze and compare path planning algorithms for mobile robots to move smoothly in a collision free grid based static environment for extinguishing forest fires with A* Algorithm. The algorithms are compared in terms of parameters such as cost of the path, execution time of the algorithm, obstacle position and number of obstacles. We have taken two algorithms for comparison with A* algorithm and the simulation is carried out using MATLAB. The results obtained indicate that path planning algorithms for Extinguishing forest fires are better choice than A* Algorithm as time taken for executing (i.e. finding Paths) these algorithms is less than the time taken by the A* Algorithm in the same configuration space. Further more distance based algorithm produces path, the cost of which is less or same as A* in most of the cases and line based algorithm produced path the cost of which is more in eighty percent of the cases for the samples we have taken.

References

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Comparison of Path Planning Algorithms for Extinguishing Forest Fires with A* Algorithm


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Index Terms

Computer Science          Artificial Intelligence

Keywords

A* Algorithm  execution time  path cost  MATLAB