



SDSU
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Master of Science
degree in
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GMCS 418

Saifuddin Tariwala

Grid Navigation & Path Planning Algorithm Using a Proposed New Greedy Approach

Abstract

In this research, I am proposing a solution for grid navigation and path planning using a Greedy Approach. Path planning is a major challenge for agent on given conditions which includes mandatory visits points and mandatory avoidance of certain obstacles to reach final destination. Hence, finding a shortest path is considered a core issue in collision free path planning. In order to deal with these issues successfully, I am proposing a solution for shortest path determination and navigation with obstacle avoidance mechanism. A map composed of coordinates (trace points, obstacle points and the final target) is entered using an interactive user Interface. The goal is to find an optimal Path to reach the destination starting from a predefined coordinate and orientation in the grid from where it could head to the final target in the grid by following the respective trace points and avoiding obstacle points.

On the output side, a rectangular grid is displayed clearly showing mandatory points to either visit or avoid. This makes it visually simple for a user to see the original problem and its solution

Thesis Committee

Carl Eckberg, Thesis Chair, Department of Computer Science
Joseph Lewis, Department of Computer Science
Peter Blomgren, Department of Mathematics & Statistics