

Indoor Path Planning for Mobile Robot using Half-Sweep Gauss-Seidel via Nine-Point Laplacian (HSGS9L)

Abstract

This paper proposed a numerical computation for solving path planning problem for a mobile robot operating in indoor environment grid model. It is based on the use of Laplace's Equation to constraint the distribution of potential values in the configuration space of a mobile robot. Consequently, the solution of Laplace's Equation is computed by employing Half-Sweep Gauss-Seidel via Nine-Point Laplacian (HSGS9L) iterative method. The simulation results show that this half-sweep iteration performs much faster than the previous methods in generating smooth path for mobile robot to move from start to goal position.