

Robot path planning using four point-explicit group via nine-point laplacian (4EG9L) iterative method

Abstract

Path planning is an important issue as it allows a robot to get from start point to goal point. This work attempts to solve robot path planning problem iteratively using numerical technique. It is based on the use of Laplace's Equation to compute potential function in the configuration space of a mobile robot. This paper proposed a block iterative method known as Four Point-Explicit Group via Nine-Point Laplacian (4EG9L) for solving robot path planning problem. By employing a finite-difference technique, the experiment shows that it able to generate smooth path between the start and goal points. The simulation results show that 4EG9L performs faster than the previous method in generating path for mobile robot motion.