Numerical Technique for Autonomous Robot Path Planning Based on QSAOR Iterative Method Using Indoor Environment

ABSTRACT

In recent years, a significant amount of research on robot path planning problems has been devoted. The main goal of this problem is to construct a collision-free path from arbitrary start location to a specified end position in their environment. In this study, numerical technique, specifically on family of Accelerated Over-Relaxation (AOR) iterative methods will be used in attempt to solve mobile robot problem iteratively. It's lean on the use of Laplace's equation to constrain the generation of a potential values. By applying a finite-difference technique, the experiment shows that it is able to generate smooth path between the starting positions to specified destination. The simulation results shows the proposed methods performs faster solution and smoother path compared to the previous research.