

## **Path planning for mobile robot using 4EGSOR via Nine-Point Laplacian (4EGSOR9L) iterative method**

### **Abstract**

This paper presents an attempt to solve path planning problem for a mobile robot operating in indoor environment model using iterative numerical technique. It is based on the use of Laplace's Equation to compute the potential functions in the environment grid model of the robot. The proposed block iterative method, better known as Four Point-Explicit Group via Nine-Point Laplacian (4EGSOR9L), employs a finite difference scheme to compute the potential functions to be used in generating smooth path between start and goal points. The simulation results demonstrate that the proposed 4EGSOR9L method performs faster than the previous methods in computing the potential functions of the environment model.