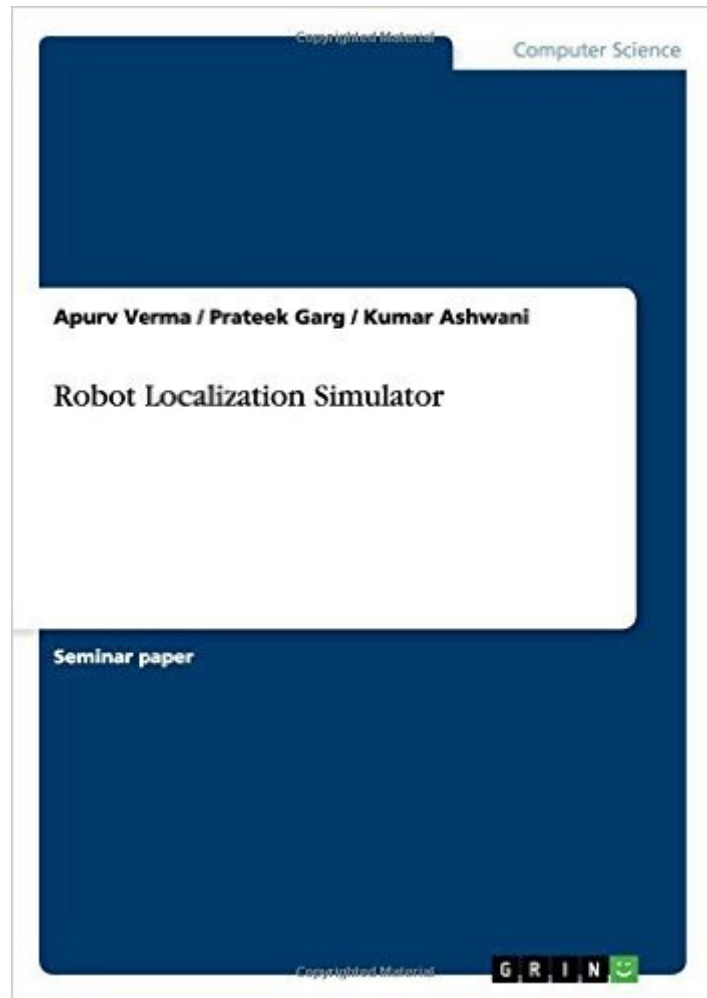


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# Robot Localization Simulator



## Synopsis

Seminar paper from the year 2012 in the subject Computer Science - Miscellaneous, grade: none, Indian Institute of Technology, Delhi, course: Computer Science and Engineering, language: English, abstract: In this project we explore the various algorithms for the Robot Localization Problem and build a simulator to visualize the results on various 2D maps. Robot localization is an important problem in robotics. Simply put, the robot localization problem is as follows. A robot is placed at an unknown point inside a simple polygon  $P$ . The robot has a map of  $P$  and can compute visibility polygon from its current location. The robot must determine its correct location inside the polygon  $P$  at a minimum cost of travel distance. We implement an approximation algorithm as given by Apurva Mudgal [2006]. The paper gives an  $O(\log^3 n)$  factor approximation algorithm however our main emphasis is to show the practicality of the algorithm. In this project we are simulating it on different maps without taking time complexity in consideration. Computational Geometry Algorithms Library CGAL has been used for the various computational geometry algorithms.

## Book Information

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