Abstract

Motion planning is one of the important tasks in intelligent control of an autonomous mobile robot. Path planning is to generate a collision free path in an environment with obstacles with respect to some criterion. Trajectory planning is to schedule the movement of a mobile robot along the planned path. Several approaches have been proposed to address the problem of motion planning of a mobile robot. If the environment is a known static terrain and it generates a path in advance it said to be off-line algorithm. It is said to be on-line if it is capable of producing a new path in response to environmental changes. This paper presents an algorithm for three dimensional (3D) path planning to a target for mobile robot in unknown environment. A few path planning algorithms are described here followed by the aim work of research in detail. Our autonomous mobile robot is able to achieve these tasks: avoiding 3D obstacles, taking a suitable decision, and attending the target which are the main factors to be realized of autonomy requirements. Using our principle of set creation IP and the results of SET(2*n); the 3D algorithm returns the best response of any entering map parameters. The key idea is around the main line from the source to the destination and the m^{th} obstacle causing the collision where they construct the 3D feasible path (a set of non linear segments) which is the neighbour of non linear safety size robot segments. The concept is explained in detail. The robot moves within the unknown 3D environment by sensing and avoiding the obstacles coming across its way towards the target. The proposed algorithm deals with 3D environment complexity and finds the optimal feasible path