

Navigation is a major challenge for autonomous, mobile robots. The problem can basically be divided into positioning and path planning. In this paper we present a scheme for path finding, we focus on positioning. Starting out from an initial position in the grid, the mobile robot can autonomously head for destination cells in the grid. On its way it determines the current location in the grid using a connectivity_cell principle by picking up line Crossing cells. This principle will be clarified in detail. A key ability needed by an autonomous, mobile robot is the possibility to navigate through the space. The focus is on the ability to move and on being self sufficient. The robot navigates on a grid which regularly divides the ground into rectangular cells. To carry out tasks in various environments as in space applications, the robot succeeds to reach its target without collisions. The proposed approach can deal a wide number of environments. This navigation approach has an advantage of adaptivity such that the intelligent autonomous mobile robot approach works perfectly even if an environment is unknown. The results are promising for next future work of this domain