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## SLAM using AD\* Algorithm with Absolute Odometry

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**Abstract:**

The use of mobile robots is continuously increasing in Industrial applications such as assembly line automation, warehouse robots, inspection in power lines in smart grids etc. Localization and mapping are the key technologies of mobile robots and Simultaneous Localization and Mapping (SLAM) is considered as an essential basis for this. SLAM is usually resource intensive and also requires high fidelity sensors in order to navigate an environment effectively. Hector SLAM continuously uses all nearby obstacles and objects in order to determine the location of the robot. This is resource intensive as the agent keeps a track of all the objects in its proximity. To cope with this problem, this paper proposes Anytime D\* algorithm along with absolute odometry we eliminate the factor of continuously monitoring the environment W.R.T to the robot/agent. The localization of the agent is done by using reverse kinematics. This allows for the use of low fidelity sensors such as Infrared sensors as well as Ultrasonic sensors. This algorithm creates an occupancy grid in real time as the agent moves through the environment with a goal to goal controller.

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