DERVISH An Office-Navigating Robot

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Abstract

DERVISH won the Office Delivery event of the 1994 Robot Competition and Exhibition, held as part of the Thirteenth National Conference on Artificial Intelligence. Although the contest required dervish to navigate in an artificial office environment, the official goal of the contest was to push the technology of robot navigation in real office buildings with minimal domain information. dervish navigates reliably using retractable assumptions that simplify the planning problem. In this article, we present a short description of Dervish's hardware and low-level motion modules. We then discuss this assumptive system in more detail.
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By navigating sufficiently close to areas of the map that have high information content, the likelihood of getting lost can be minimized. The coastal navigation technique consists of the following: The term “coastal navigation was suggested by Thomas Christaller in a private communication about the work reported here. Modelling the information content of the environment. The motivation for coastal navigation is generating trajectories for the mobile robot that reduce the likelihood of localization error. For example, when a mobile robot follows a path through a wide-open space, such as outdoors, or in a very large or crowded room, all reference points are either outside the range of the sensors or blocked. DERVISH an office-navigating robot. AI Magazine, 16(2):53–60, 1995. [SD98]. Most recent work in robotic office navigation has used a landmark-based approach that relies on topological maps whose nodes correspond to landmarks (locally distinctive places), such as corridor junctions, and whose edges indicate how the robot should navigate between nodes [Korten-kamp and Weymouth, 1994; Kuipers and Byun, 1988]. Dervish: An office-navigating robot. AI Magazine, 16(2):53–60, 1995. [Parr and Russell, 1995] R. Parr and S. Russell.