عنوان مقاله:

Fuzzy Control Interface and Semi-Grid D* Algorithm for Robot Navigation System

محل انتشار:

کنگره بین المللی علوم و مهندسی (سال: 1396)

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خلاصه مقاله:

Navigation in unknown and dynamic environments has been considered as acomplex task. We designed a new hierarchy system that contains two levels. Planningalgorithm runs at first level. We used Semi-Grid D* as planning algorithm. Secondlevel is fuzzy control interface. Fuzzy control interface generates smoother paths forpassing wide, sharp edged and complex obstacles. Fuzzy control interface affects bothangle and velocity of robot. Also we defined new linguistic variables for features ofobstacles that are considered as effective in navigation problem like complexity andobstacle s width. The environments that considered here are unknown and dynamic.We evaluate our work in 3D modeling simulator. Results from implementationsshow accuracy and robustness of our work in various environments.

کلمات کلیدی:

Semi-Grid D*, Fuzzy control interface, Fuzzy logic, Hierarchy system, Unknown environments, partially-known environments

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