عنوان مقاله:

Adaptive Coverage Control in Non-Convex Environments with Unknown Obstacles

محل انتشار:

بیست و یکمین کنفرانس مهندسی برق ایران (سال: 1392)

تعداد صفحات اصل مقاله: 6

نویسندگان:

M Adibi - *Amirkabir University of Technology*

H. A. Talebi

K.Y Nikravesh

خلاصه مقاله:

This paper presents an adaptive control law which enables a team of mobile robots to navigate in a non-convex environment in the presence of unknown obstacles. The proposedapproach relies on potential field method, adaptive control techniques and Voronoi-based decomposition. Each agent in thenetwork tasked with starting from random initial positions and navigating to learn regions within the area with greatest importance and concentrate their coverage on these areas whileavoiding collisions with the obstacles. In particular, our presented methodology is able to deal with scenarios where apriori knowledge of the search domain is not available and when the navigation region contains unknown obstacles. Simulationresults are presented to validate the enhanced performance of the proposed approach.

کلمات کلیدی:

adaptive coverage control; mobile robots; potential field method; obstacle avoidance