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Power-Aware Adaptive Coverage Control with Consensus Protocol

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Abstract : In this paper, we propose a new approach to coverage control problem by using adaptive coordination and power aware control laws. Nonholonomic mobile nodes position themselves suboptimally according to a time-varying density function using Centroidal Voronoi Tesellations. The Lyapunov stability analysis of the adaptive and decentralized approach is given. A linear consensus protocol is used to establish synchronization among the mobile nodes. Also, repulsive forces prevent nodes from collision. Simulation results show that by using power aware control laws, energy consumption of the nodes can be reduced.

Keywords : power aware, coverage control, adaptive, consensus, nonholonomic, coordination
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