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研究论文

带状传感器网络节点分布式自部署算法DSDA-VC设计

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摘要：

带状传感器网络的发展源于无线传感器网络的发展，从广义上来说是一类特殊形态的传感器网络，在许多重要领域均具有极其广泛的应用需求和前景．针对带状网区域内节点的有效覆盖问题，对节点的覆盖进行了定量的数学建模分析，设计了基于Voronoi细胞单元的节点分布式自部署算法DSDA-VC．该算法可以有效提高带状网节点的部署覆盖度，经仿真验证，对于较高密度覆盖的带状网络，覆盖率可提高10%以上．基于该研究成果，完成了在某山区的带状网的设计和实际测试验证工作．

关键词： 传感器网络 带状网 自部署 节点覆盖

Design of a distributed self-deployment algorithm DSDA-VC of belt-type sensor networks

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Abstract:

The development of the belt-type sensor networks derives from the development of the wireless sensor network. In the most general sense, the belt-type sensor network is a sensor network in a special form. The application requirements and prospects of the belt-type sensor network are extremely wide in many important fields. For the effective coverage problem of the node in the belt-type network region, the quantitative mathematical modeling analysis of node coverage is implemented, and a self-deployment algorithm DSDA-VC for the node distribution of the Voronoi cell unit is designed. The method can effectively improve the deployment coverage for the node of the belt-type network. By simulation check, the coverage rate of the belt-type network with a relatively high coverage density can be increased by 10% or more. According to the results, the design and actual validation test of the belt-type network in a mountainous area are carried out.

Keywords: sensor networks belt-type sensor networks self-deployment nodes coverage

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