

无线传感器网络安全路由协议的研究

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摘要:

目前无线传感器网络路由协议的研究多以网络生存时间为目标, 缺乏对路由安全的考虑。分析了无线传感器网络路由协议容易受到的攻击形式, 研究了典型的分簇路由协议LEACH(Low-Energy Adaptive Clustering Hierarchy)协议存在的安全隐患, 并提出改进的安全LEACH (LEACH-S1) 协议。改进后的算法通过三重安全机制、节点定位技术、动态随机多路径簇头链的建立不仅有效避免了恶意节点的攻击, 保障了路由安全, 而且延长了网络生存时间。

关键词: 无线传感器网络; 攻击; 路由安全; LEACH; LEACH-S1

Research on Secure Routing Protocols in Wireless Sensor Networks

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Abstract:

At present, most routing protocols in wireless sensor networks take the survival time of network as their design target, and don't take security into consideration. The paper analyzes several classes of attacks against wireless sensor networks, makes a research on the security of LEACH and proposes an improved algorithm—Safe LEACH (LEACH-S1). The improved algorithm can not only avoid the attacks of adversary effectively, ensure the routing security, but also balance the power consumption over all nodes, prolong the lifetime of the network via using tripartite security mechanism, node localization technology and dynamic stochastic multi-paths cluster heads chain.

Keywords: wireless sensor networks; attacks; routing security; LEACH; LEACH-S1

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