

一种基于确定性理论的无线传感器网络信任机制 nTRUST

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摘要：

信任机制作为一种安全保护机制，目前在无线传感器网络安全中有着显著效果并得到广泛应用。本文基于不确定性推理中的确定性理论，提出了一种新的无线传感器网络信任模型——nTRUST，该模型采用综合信任值作为评价节点信任依据，相关实验证实了nTRUST的有效性和可行性。同时，在nTRUST信任机制作用下，进一步考虑节点剩余能量，通过实验取得较好效果，改进后的模型可以达到均衡网络内节点能量消耗和延长整个网络生存周期目的。

关键词：无线传感器网络，安全，信任机制，确定性理论

nTRUST - A New Trust Scheme Based on Certainty Theory in Wireless Sensor Networks

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Abstract:

As a safety protection scheme, trust scheme has significant effects and been widely used in the wireless sensor networks security. In this paper, we propose a new trust model named as nTRUST which based on Certainty Theory in uncertainty reasoning. An integrated trust value is computed to decide a node is reliable or malicious. Some related experiments are testified with effectiveness and feasibility of nTRUST. In addition, under the work of this new trust scheme, we further consider the residual energy of the nodes. The simulation results also show that the modified nTRUST with residual energy can balance the node's energy consumption and prolong the whole network lifetime.

Keywords: wireless sensor networks; security; trust scheme; Certainty Theory

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