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SCEER: Secure cluster based efficient energy routing scheme for wireless sensor networks

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ABSTRACT

Balancing network integrity and energy efficiency is the one of major tasks in the network. In existing schemes, it is failed to balance both the metrics. In this research work, the Secure cluster based efficient energy routing is adopted to attain the more network lifetime. In first phase of the research, network and routing assumptions are made to initialize the effective packet transmission. In second phase, stability metric is determined for the cluster to maximize the energy efficiency. There are two cluster metrics used for the analysis of network stability. In third phase, the optimal cluster design model is initialized to balance the network integrity and energy efficiency. The proposed scheme is evaluated with network simulation tool in terms of node stability ratio, node reliability ratio, network lifetime, packet delay and energy efficiency.

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1. Introduction

Wireless Sensor Network contains the huge number of nodes that forms a high density networks. A collection of sensor nodes formed together to create network which can be adopted for various applications such as target tracking, malicious detection, smart network routing and so on. Only scarce amount of resources are spent by the nodes in the network. It is difficult to increase the energy of the resources due to unattended nature of sensor network. The least amount of energy is spent in the sensor network for energy management; hence it is required to design the secure energy efficient routing with least energy consumption and more network lifetime.

In this research work, it is decided to create an energy efficient protocol with security. The optimal cluster design model is adopted to balance the network integrity and energy efficiency.

2. Related works

Vinodhini and Gomathy [1] designed a dynamic multi-hop routing protocol for wireless sensor networks to choose the cluster head and to improve the network lifetime. The single hop communication was done to reduce the network traffic. The network lifetime was improved using multi-hop packet transmission. The energy consumption was dramatically using multi-hop communication. Balancing between power consumption and delay was done using the multi-hop routing protocol.

Varun and Gangwar [2] surveyed the energy efficient routing protocols for wireless sensor networks. Sensor nodes consumed more energy for data transmission. The components were switched off for a particular point of period. Various energy efficient techniques were analysed and challenging issues were also identified to reduce the energy drain ratios.

Arivubrakan and Sundari [3] advanced the protocol primarily based totally on multicast routing to enhance the packet transport ratio and bandwidth and to lessen the delay. In the wi-fi community environment, sensor nodes had been deployed. The wide variety of nodes turned into participated in multi-hop communique. The supply node sends facts to sink node primarily based totally on hop distance and multi-hop bandwidth. The replica course

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