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Preparation of Papers for Fault Detection is Round Trip Delay TimeMeasurement ofPath Wireless Sensor Networks

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ABSTRACT

In recent years, wsns detect to the fault sensor node based on round trip delay using path in wireless sensor networks. Portable sensor node is low cost in Wsns. Measured in the round trip delay time and number of sensor node. Existing method is used to large value of sensor node, identification of sensor node time and distance. it is used to linear selection path, disadvantages are data loss, more number of path, complexity. in this proposed method using distributed autonomous sensor software implementation in NS2.it is detected fault sensor node and malfunction ,in this analysis time and path using discrete Rtp. real time applicability in received signal strength ,separate wavelength for end of the node avoid the data loss and complexity. Hardware implementation using ZigBee and Microcontroller .Equal to the hardware and software implementation. It is overcomes to the data loss. comparing the threshold and Rtd time. Finally, the algorithm is tested under different number of faulty sensors in the same area. Our Simulation results demonstrate that the time consumed to find out the faulty nodes in our proposed algorithm is relatively less with a large number of faulty sensors existing in the network.

Index Terms— Faulty sensor node , round trip delay, round trip path, Wsns.

INTRODUCTION

The advanced in wireless communication technologies enabled large scale wireless sensor networks (WSNs) deployment . Due to the feature of easy of deployment of sensor nodes, wireless sensor networks (WSNs) have a vast range of applications such as monitoring environment, military, medical, industrial and rescue missions . Wireless sensor network is composed of large number of sensor nodes. The event is sensed by the low power sensor node deployed in neighborhood and the sensed information is transmitted to a remote processing unit or base station ,To deliver crucial information from the environment in real time it is impossible with wired sensor networks whereas wireless sensor networks are used for data collection and processing in real time from environment . The ambient conditions in the environment are measured by sensors and then measurements are processed in order to assess the situation accurately in area around the sensors. Over a large geographical area large numbers of sensor nodes are deployed for accurate monitoring. Due to the limited radio range of the sensor nodes the increase in network size increases coverage of area but data transmission i.e. communication to the base station (BS) is made possible with the help of intermediate nodes. Depending on the different

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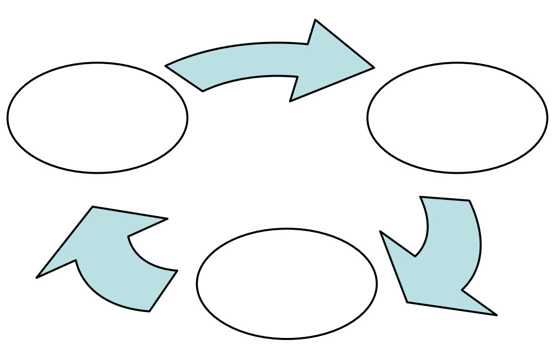
applications of wireless sensor networks they are either deployed manually or randomly. After being deployed either in a manual or random fashion, the sensor nodes self-organize themselves and start communication by sending the sensed data.

A. **Networking Topologies**

We can use several network topologies to coordinate the Wireless sensor network gateway, end nodes, and router nodes. Router nodes are much similar to end nodes in that they can store measurement data, but they also can be used to pass along measurement data from other nodes . The first, and most basic topology, is the star topology, in which each node maintains a single, direct communication link with the gateway. This topology is very simple but restricts the overall distance that our network can achieve. To increase the distance that a network can cover, you could implement a cluster, or tree, topology.

B. Proposed method

Changed topology and protocol .it is used to alternate path .in this paper result in number of nodes and delay using round trip path. Coverage vs number of nodes avoid to the data loss .it is improved the efficiency



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C. **Node selection**

Coverage is one of the most important issues in WSNs and it has been studied extensively in recent years. In most cases, "coverage" means area coverage. And K-coverage can be described as that every point in the monitored field is covered by at least K sensors. In , the authors consider that it is hard to guarantee full coverage for a given randomly deployment area, even if all sensors are on- duty. Small sensing holes are not likely to influence the effectiveness of sensor networks and are acceptable for most application scenarios. It's enough to meet the application's requirements if the active nodes in the network could maintain reasonable area coverage— coverage expectation.

$$P_{cov}=\sum_{i=k}^{m} C^{I} (r/R)^{2i}(1-r^2/R^2)^{m-i}$$

where P cover is the coverage expectation of sensing field determined by specific applications; and r is sensing radius, R is cluster radius; m' is the number of active nodes

2. Simulation result

The improved efficiency scheme will be applied in a real wireless sensor network system. It is expensive to run schemes on the hardware of the system, so the feasibility and accuracy of the schemes should be verified before being applied. Therefore, simulation becomes the best alternative way of testing, evaluating and verifying. We programmed the data loss and improved efficiency scheme using Visual NS2.

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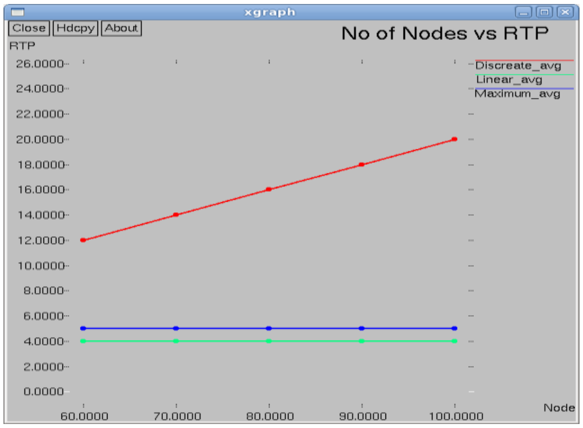

CONCLUSION

Modification is made to the detection criterion of and an improved efficiency scheme is proposed to address this short coming. Simulation results show that the fault detection accuracy of the improved sensor node performs the for different average numbers of neighbor nodes and node failure ratios. It can also be applied to wireless sensor networks where there are high neighbor nodes and the node failure ratio is less.

Future work for number of sensor nodes in this corresponding path.it will reduce detection time and avoid data loss.

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