Abstract

Underwater Wireless Sensor Network (UWSN) is a new network paradigm that is being proposed to explore, monitor and protect the oceans. Some of the Underwater Sensor Nodes applications include oceanographic data collection, pollution monitoring, offshore exploration, disaster prevention, assisted navigation and tactical surveillance applications. The topology and model of communication play crucial roles in UWSNs. Very different topologies for UWSNs have been proposed which some of them are two- dimensional and three dimensional. In this paper we have presented a new topology called tree of wheels (ToWs) that is very suitable for three dimensional (3D) domains like aquatic environments. This topology is hierarchical and
Tree of Wheels: A New Hierarchical and Scalable Topology for Underwater Sensor Networks

scalable which is capable of adapting itself to large numbers of nodes and overcoming distributed localization. With accurate connectivity degree and hierarchical level we can exactly estimate number of nodes which we are going to deploy for this environment. Furthermore, this topology can solve some other problems such as coverage and self-localization. ToWs has some specific properties that we will investigate them and explore its advantage and disadvantage.

References

- W.B. Heinzelman, A.P. Chandrakasan, H. Balakrishnan, Application specific protocol

Index Terms

Computer Science
Wireless Information Networks

Keywords

Topology Network  Tree of Wheels (ToWs)  Underwater Wireless Sensor Network (UWSN)  Wireless Sensor Network (WSN)