Differentiation of Wireless Sensor Networking Routing Protocols

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Abstract
There are so many different type of applications in which the wireless sensor netowks are used. In wireles sensor netowk there are different kind of routing protocols. Bellmanford, AODV, LANMAR, DSR, DYM O,IERP, IGRP, Fisheye etc. These are some routing protocols. In this paper we will discuss the comparison between two protocols namely as Bellman ford and Fisheye routing protocols. Here the comparison of routing protocols is performed on a special type of emulator software and it is Exata developer version 5.1.

Keywords: routing protocol, Exata network emulator software, nodes, Scenario

INTRODUCTION

In wireless communication, the communication takes place through the media. And here in this case we consider Air is a media by which communication is done. Communication means packets are transmitted and received through air. There is a care should be taken that all packets which are transmitted by transmitter are must be received by the receiver. This is very important and challenging role of the receiver that all packets are received by the receiver from the transmitter without any packet loss. So there are some protocols in WSN. In short the protocol means set of the rules for the networking purpose. In WSN to forwarding the data packets routers are used. For wireless communication a router is placed between two or number of wireless network. Routers are located at the gateways. So router performs traffic directing function in wireless communication network. So there are set of algorithms and software tools for routing purpose.

OBJECTIVES

- Implementing Bellman-Ford Routing protocol
- Implementing DSR Routing protocol
- Comparing between Bellman-Ford and DSR Routing Protocol.

DESCRIPTION OF ROUTING PROTOCOLS

Fisheye Routing protocol:

Fish do have 360 degree vision. Fishes do have higher concentration of optic nerves close to the focal point than elsewhere in eye. As a result fisheye captures with high details in the points near the focal point. In the Fisheye routing protocol every node holds the neighbour list, topology table, next hop table, distance table. This protocol is similar to a link state protocol as it a full topology map at every node. It periodically exchange the topology table within local neighbor only instead of flooding entire network. The topology table updates when frequency decreases with distance to destination. As distance increases the information decreases.

Dynamic Source Routing Protocol (DSR)

In wireless sensor network the self-maintaining routing protocol is a Dynamic Source Routing (DSR).The protocol can performed functions with cellular telephone system and about 200 nodes with mobile network. This protocol can configure and organize itself independently of disregard by human

administrators. It is a simple and efficient routing protocol designed specially for to use in multi-hop wireless ad hoc networks of mobile nodes. In this protocol, each source determines the route to be used in transmitting its packets to selected destinations. The main components of DSR are Route Discovery and Route Maintenance. Route Discovery determines the optimum path for a transmission between a given source and destination. Route Maintenance ensures that the transmission path remains optimum and loop-free as network conditions change, even if this requires changing the route during a transmission. these are the functions of these two main components. DSR is officially defined by an Internet-Draft. This protocol is on demanding protocol in all aspects and It is a reactive protocol .The advantage of source routing is intermediate nodes do not need to maintain up to date routing information in sequence of route the packets they forward. When frequency decreases with distance to destination. As distance increases the information decreases.
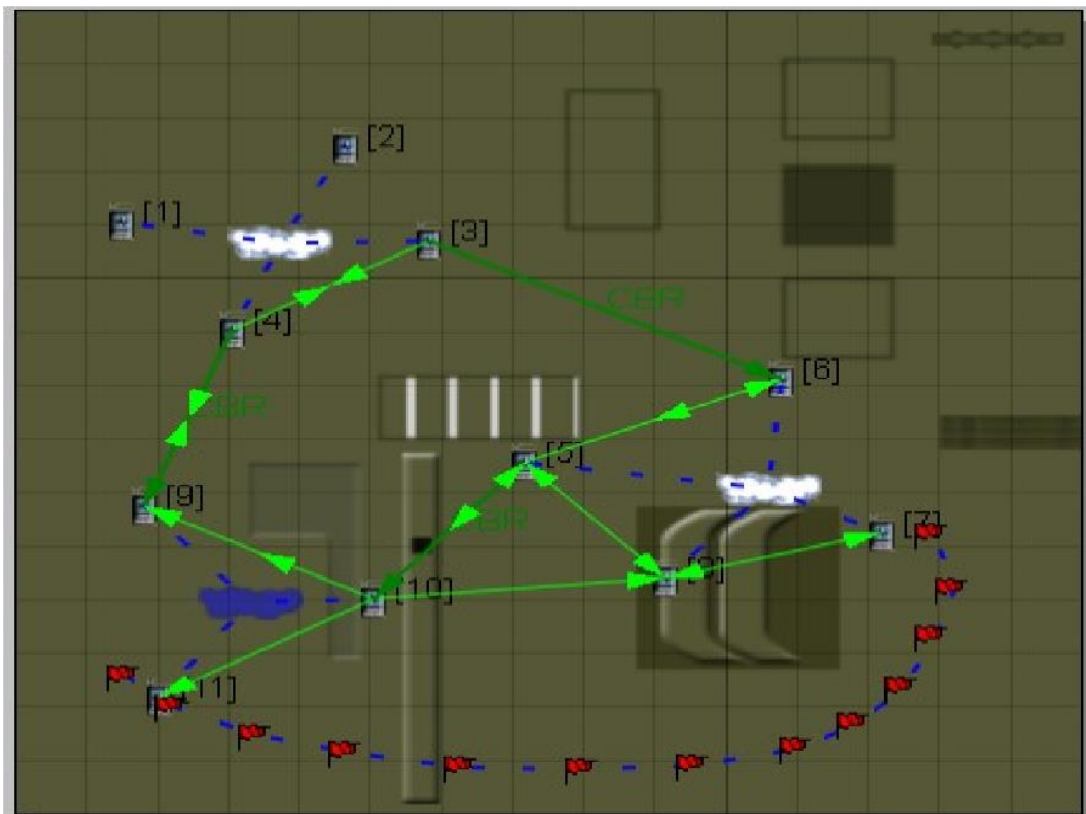
SCENARIO FOR PROTOCOLS

Figure 1: Scenario for Protocol

Here the analysis of protocols is done on exata 5.1 using Anteyf scenario. The results of the parameters are different for the different protocols.in the scenario there are 11 mobile nodes and 3personal area netwoks. The path is from node 11 to node 7. Thus communication is done through the networks and between the nodes.

RESULTS
Unicast finish Message:-
By analyzing these two protocols on Exata 5.1, on basis of graph unicast Finish message is more in Fisheye Routing protocol than DSR Routing protocol.
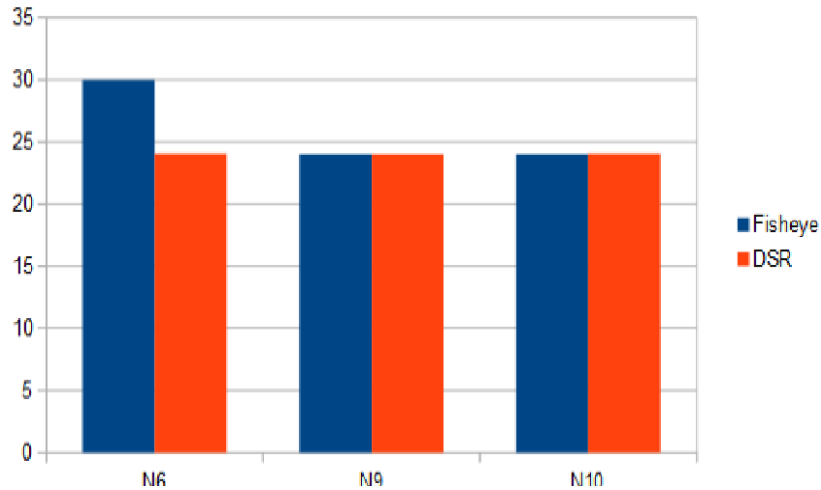
Figure 2: Analysis of unicast finish message

Throughput:-

By analyzing these two protocols on Exata 5.1, on basis of graph, Throughput of these two routing protocols are approximately same to the nodes.
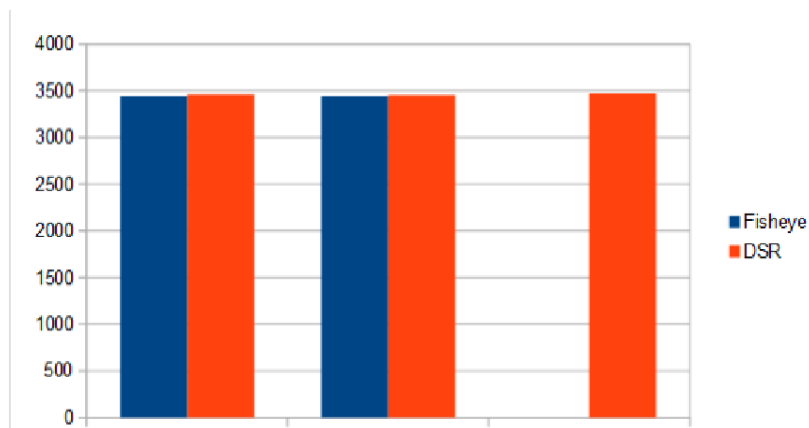

Figure 3: Analysis of Throughput

Average Jitter:-

By analyzing these two protocols on Exata5.1, on basis of graph Average jitter is more in DSR than fisheye routing protocol.
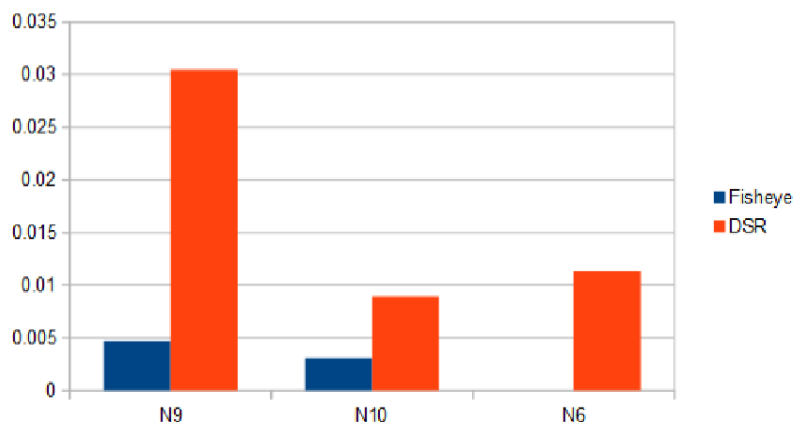

Figure 4: Analysis of Average Jitter

Average Delay
By analyzing these two protocols on Exata5.1, on basis of graph Average Delay of Fisheye Routing protocol is more than DSR Routing protocol at node number nine.
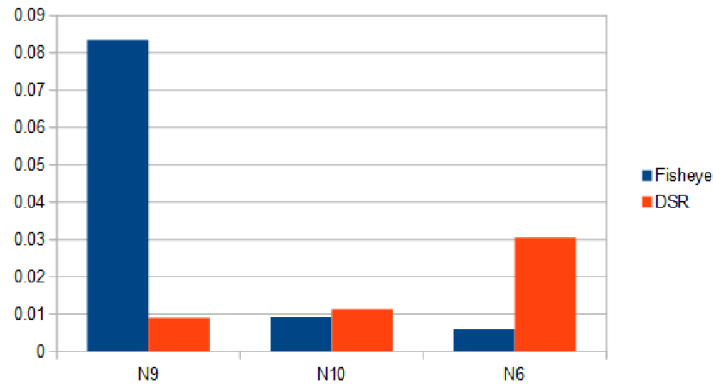

Figure 5: *Analysis of Average Delay*

Table 1: *Comparison Between Fisheye and DSR Routing Protocols*

Parameters	Fisheye	DSR
Unicast session start / Fragment received	1 sec	1 sec
Unicast session finish / last fragment received	24 sec	24 sec
Total fragments received	24	23
Total Data sent	12288	12288
Total data received	12288	11776
Average end to end delay	0.0833909 sec	0.0590212 sec
Throughput	3444 sec	3472.21 sec
Average Jitter	0.00470242sec	0.030469 sec

CONCLUSION
wireless sensor network having different routing protocol for different kind of applications. The paper showed difference between two different protocols i.e DSR routing protocol and Fisheye routing protocol.by using exata simulator for simulation of the protocols results are analized.by results of simulation for given Anteyf scenario different parameters are compared and based on that parameters protocols are studied.

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