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Simulcast of Packets on Location Based Shortest Routing over Wireless Sensor Network

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Abstract
Wireless Network is one of the widely used communication system now a days and therefore this is the most favorite topic for the researches. In this paper we are focus on how to move data on wireless network using minimal time. In this paper we are working on shortest path routing problem using Graph techniques. There are many networks wireless medium which provide wireless services based on the type of WSN, ZigBee, MANET, Bluetooth, Cognitive etc. Wireless sensor network (WSN) is one of the technique of the ad-hoc networks which is used to establish communication and transferring the data on networks form source to destination. But the data transfer from source to sink must be optimized with some useful techniques which gives you fast and accurate result. The existing techniques based upon shortest path which route the data from source to sink via shortest route but this is not sufficient always when we work on dynamic routing. When multiple user transfer data on same route and route is busy on some other process then it must be handle by some technique to balance the route data. Thus, during the packet transmission the routed nodes must be monitored. To monitor the nodes we are using algorithm with indexing for minimal time to find out the sink node based shortest optimal path for wireless network to resolve the above issue. At the key level of my research this method is showing its robust existence than existing ones.

Keywords
WSN, Load Balancing, SNODE, SPATH, NS.

I. Introduction

Today there are many new technology developed foe WSN, the small and low cost network sensors has become more widespread. These sensors nodes work on various environmental parameters like light, temperature, sound, radio waves and converts them into an electric signal or data vice versa. A Wireless Sensor Network (WSN) contains many sensor nodes in hundreds and thousands of capacity. These sensors node have the capability to interconnect one or the other or directly to the main base station. A larger number of sensors permits for sensing over greater geographical areas with more accuracy. Mostly, each sensor node involves transmission, processing sensing, power units, range, position and mobility. Sensor nodes synchronize between themselves to yield with good quality information about the network environment. All sensor node take its own decisions and have its own mission, to communicate with another node and each of these distributed sensor nodes has the ability to gather and route data and transmit it to the other sensor node or to the base station. A base-station or main node may be a standalone node or a mobile node have an ability to connecting with other sensor networking area or some existing network area.

In many applications network broadcasting of a data transmission is required within all the nodes. So all node in the network is liable and its importance of location also becomes essential. The above quoted theory redirects a vital constraint for sensor networks to ensure that the mandatory data is distributed properly to end users through a best shortest path.

The work which proposed in this paper represent that Wireless networks can be easily control and organized for particular use if the routing path is shortest. Sensors can program their role more exactly and soon enough if the connecting path is shortest. The shortest path length also increases the efficiency of network and consume less power in transmission of data in networks

II. Related Work

[1].In today's world of communication extensive use of wireless devices boons a new challenge for network operators because they have to provide the communication services to their wireless devices user without dealing with the Quality of the given services.

In this research paper we discuss a new distributing routing algorithms which helps networks to manage dynamic load balancing for [11]wireless admittance systems. This algorithms helps systems to construct a load balanced back bone tree. This helps to simplify routing per-destination state for routing. After the process we appraise the performance of algorithm to mobility, degree of load-balance,

Bandwidth blocking rate, and convergence speed.

As we know the wireless network is widest area for research with the expected high growth rate of wireless users, managing the load and utilization for egress links of wireless access

Networks will be of great concern. We propose a simple method of balancing the nodes uses a method of node defection. [2] In this research the developed and algorithm to simulate a network and find shortest paths pretentious by a sensor failure and find another shortest path. [7]When any sensor or node is not work then all the shortest paths in the network is checked and find another shortest path. Alternative shortest path is calculated for those paths affected by sensor failures.[3][9]. With advancement in the technology of communication everybody want to connect with each other with the fastest way of communication so everywhere we see there is a chain of mobile towers is situated but with the growth in wireless users the is problem occurred while sending or receiving the data and it is great problem for the network operator's.

In this research paper we investigates the fastest data packet transportation in light loaded wireless networks. The main problem of delay in packets mainly depends on the locations of relay nodes that are responsible for forwarding the data packets.

To overcome this problem we have to find fastest path, we have first determined the desired locations of the relay nodes from a mathematical model after that we propose a routing algorithms to locate a fast relay path in actual networks to achieve the nearest shortest path packets.

[4] In this world of communication a new problem occurred day by

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day i.e. wireless trafficking it means when there is a congestions while receiving or sending the information in the form of data packets but when these data packets reach the destination above the limited time period comes under the wireless trafficking.
In this paper to overcome this process we use Congestion Diversity Protocol (CDP) with the help of this it collects the important aspects of shortest route and backpressure routing to improved end to end delay performance. The CDP process is the combination of some hardware and software implementation in an indoor wifi networks.
In most of the topologies we consider CDP provides the improvement for UDP traffic with respect to end to end delay data transfer.
According to the paper the CDP protocol works fine on a Real test-bed of 12 nodes with end to end delay and delivery ratio as central metrics of comparison. For bigger projects it would be the milestone for problem related to wireless traffic.
[5][10] With the huge advancements in wireless networks but there is a problem always occurred we call it delay in data package forwarding. In this paper we discuss a term name Routing which is massively related to the wireless networks.
[9]In routing we usually said that the data packets trekked a less distance between sources and destinations in routing protocol. Let us take an example the wireless nodes in the center of the network will receive heavier traffic load at most of the shortest routes.
In this paper we discuss a good routing method we called it Circular Sailing Routing (CSR). The CSR method distribute the traffic nodes more evenly in the network due to this the data delivering is fast and easy.
This types of CSR protocol basically preferred for 3d networks where nodes are distributed in 3d space instead of 2D plane .The CSR can reduce the hot spots space in the networks and increase the energy lifetime of the networks.
The main advantage of this protocol it can be easily implemented using any existing position-based routing protocols without any major changes or additional overhead.

III. Proposed Work

This is the approach where node decide the transmission of data based on the position of neighbors, the source node compare the coordinates of the neighbor and chooses those node which is closest to the destination node. . The process is continual till the packet touches the anticipated destination. In this application the untrustworthy neighbors are not taken into account for the network data transmissions.
In this paper we present the modified algorithm which work better than the previous algorithm both in terms of performance and energy efficiency. We are using the shortest path algorithm with priority queue and it is use to find out the shortest path between two node of any graph. We are working on two types of conditions first we are working on visited node and none visited node.
D for current distance
SNODE (v) Represent the start node
SPATH (v) Represent shortest path
NS represent the Node status
PQueue represent Priority queue
Work on Two type of condition one is none visited and labeled visited Now here we decide the start node (SNODE) which transmit the data and find out the shortest path (SPATH) now we find out the interconnected node which have minimum weight and also check whether the node is idle or not if node is trustworthy the we store it into the priority queue with their Node Status (NS) otherwise chooses the other node which is closest to the destination node. Here we use PQueue where the vertex with the shortest distance from the starting vertex (SNODE) will get the highest priority. Initially, all vertex will have the shortest distance (D) of infinity and the starting (SNODE) vertex will have the shortest distance 0.Start by inserting of all vertex with its edges from the graph inside thePQueue with node status (NS). Remove vertex from thePQueueand explore all its edges. Search and compare the shortest distances with all adjacent vertices and if any distance is less than the shortest distance on the current vertex, update adjacent vertex shortest distance inside the PQueue with NS. Continue until PQueue is not empty. Vertices which got no edges will finish with the shortest distance of infinity because it is not possible 'get to them' from the starting vertex. However, they will be still removed from thePQueue.

[Member function which find and compare path] public static void findPaths(Vertex source)

```
 {
source.minimumDistance = 0.;
PQueue<Vertex>listQueue = new PQueue<Vertex>();
listQueue.add(source);

while (!listQueue.isEmpty())
     {
     Vertex u = listQueue.poll();

        // Visit each edge exiting u
for (Edge e : u.adjacencies)
        {
           Vertex v = e.target;
double weight = e.weight;
      double distanceThroughUminimum- =
Distance + weight;

           if (distanceThroughU <

v.minimumDistance)
           {
listQueue.remove(v);
v.minimumDistance = distanceThroughU ;
v.previous = u;  listQueue.add(v);
           }  }  }  }
```

[Function to get the shortest path]

```
public static List<Vertex>
getShortestPathTo(Vertex target)
  {
 List<Vertex> path = new
ArrayList<Vertex>();
for (Vertex vertex = target; vertex != null; vertex = vertex.
previous)
path.add(vertex);
Collections.reverse(path);
return path;
  }
```

Result:

```
Node Two,400.0,400.0
Node Three,510.0,510.0
Node Four,220.0,220.0
Node Five,120.0,120.0
Node One,120.0,240.0
Node Five,180.0,400.0
Node Three,300.0,700.0
Node Four,280.0,790.0
Distance to Node One: 0.0
Path: [Node One]
Distance to Node Two: 400.0
Path: [Node One, Node Two]
Distance to Node Three: 510.0
Path: [Node One, Node Three]
Distance to Node Four: 220.0
Path: [Node One, Node Four]
Distance to Node Five: 120.0
Path: [Node One, Node Five]
8
Total Time Elapsed:20 ms
```

IV. Conclusion

This paper represent the algorithm mechanism for ideal shortest path recognition using certain entry based node selection. The method is proficient of decreasing the energy necessities for the nodes and find effective measurement. The methodology applies the energy gathering phenomenon on shortest path dimension and serves the minimal needs based on the node closest adjacent to the entry node and is used most of the time in the shortest path. Give directions to the transmission form such node will efficiently decrease the energy demands and provides the strong routing. This algorithm comprises least number of nodes during data transmission and retains one node lively for route optimization process. Thus at the preliminary level of assessment with existing technique handling shortest path in network routing approach is proving its existence strongly and will be used in the applications in near future.

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