**Abstract**

In WSN, Quality of Service (QOS) plays a significant role as networks performance is dependent on QOS only. Wireless Sensor Network (WSN) is very popular as it has wide application range. WSN is more cost effective for monitoring the different aspects of environment and industries. WSN has inadequate resources such as computational power and energy constraint. Congestion is one critical subject which has drawn attention of many researchers. Congestion results into reduced network performance and also drains the battery of the node, which is a limited resource in WSN. So congestion must be reduced to improve Quality of Service (QoS) and lifespan of a network.In this paper, we present an effective approach for improving congestion in wireless sensor networks. This proposed algorithm may reduce the congestion and gives an effective solution. It establishes multiple paths from each sensor node to the cluster head and pass it to a ‘traffic node’ that manages the congestion and then send it to sink node.

**Introduction**

Data-centric network topologies are not suitable for large-scale sensor networks. Covering a large area without performance degradation is not possible with data-centric architecture. Moreover, in data-centric architectures, the reporting latency increases with the size of the network. The data-centric approach also causes significant power inefficiencies as the network grows. The network scalability issue is addressed in hierarchical routing. The hierarchical routing’s main goal is to efficiently maintain network power consumption even in large-scale networks. In other words, hierarchical routing allows the network to scale in a number of sensor nodes. Most hierarchical architectures consist of sensor nodes grouped into cluster heads. Cluster heads build intra-cluster communication with other nodes within the same cluster, but they also build inter-cluster communicate with other cluster heads. Cluster heads aggregate data obtained individual sensors and then transfer the same information mostly in a multi-hop approach to the base.

For the nodes generated, their positions are randomly assigned and displayed. Once the nodes are deployed, every node uses the neighbor discovery algorithm to discover its neighbor nodes. Using the cluster head selection algorithm cluster heads are selected among the nodes. These cluster heads broadcasts the advertisement message to all its neighboring nodes and thus clusters are formed with a fixed bound size. Each node in the cluster maintains routing table in which routing information of the nodes are updated. Likewise, traffic node will broadcasts the advertisement message to all cluster heads are informed in a timely manner.[ TDMA will assign each cluster head to send the data as time assigned/DRAND (distributed randomized time slot assignment algorithm) method is used, it allows several nodes to share the same frequency channel by dividing the signal into different time slots. ]

**Cluster Formation and Node selection**

In the WSN, (1) two nodes can be randomly selected as sink node and traffic node.

(2) Rest of the other nodes follows the clustering algorithm to form multiple clusters.

(3) After formation of cluster the cluster heads will be defined as whichever member of the cluster is nearer to traffic node.

(4) Traffic node broadcast the message to cluster heads to send the packets in a timely manner(TDMA/DRAND)(Timestamp Delivery).

(5) Each cluster head aggregate the data and send it to the traffic node.

(6) The traffic node manages the packets and arranges it in a sequential manner.

(7) Traffic node send the received packets to sink node and it will be received as serial input.

Cluster Formation:

Cluster Head Selection: