MODLEACH: A Variant of LEACH for WSNs

-Multi hop networks were designed to give more liberty of movement. And then comes

- the era where machine to machine communication was initiated. A processing device acquires information, process it and transfer it to another machine or processing device. That

information is further precised/ aggregated/ fused intelligently so that it can be presented to us “humans”. In wireless sensor networks, that device normally is termed as a sensor, node or mote and has its own limitations i.e. it must be capable of sensing, processing and transmitting/ receiving. Each node hence also require a power source to do all these operations. Considering applications of wireless sensor networks, installing a battery on each sensor node is a better option. However, limiting use of power is one of the key challenges in wireless sensor networks. These batteries must be smart enough to give a node maximum life despite of being tiny sized.

Any technology that is in process of its development, give a lot of challenges. In the same way, wireless sensor networks do. Sensing, computing and transcieving by tiny sized sensors with power constraint is not a simple thing. Hence this is the major concern for scientists and researchers. To optimize node’s life time, we need to focus on such algorithms, protocols and physical circuitries that can make maximum out of limited power source

In any network especially wireless multi hop networks, for efficient performance, its protocols must be very efficient. Numerous protocols are developed that address power problem in sensor networks. Most prominent routing algorithms can be categorized into three types i.e direct transmission algorithms, hop to hop transmission algorithms and cluster based algorithms.

Another problem that persists is to handle bulk of information sensed and passed over by every node of a network. (A WSN may consist of thousands of nodes). For that data aggregation and data fusion algorithms work, however there is always a room for betterment. In an efficient wireless sensor network, we need efficient routing protocol that has low routing overhead and well organized data aggregation mechanisms to increase good put of network and to save limited power of sensor node.

Basically there can be three modes of transmission in a cluster based network.

1) Intra Cluster Transmission

2) Inter Cluster Transmission

3) Cluster Head To Base Station Transmission

Intra Cluster Transmission deals with all the communication within a cluster i.e. cluster members sense data and report sensed data to cluster head. The transmission/ reception between two cluster heads can be termed as inter cluster transmission while a cluster head transmitting its data straight to base station lies under the caption of cluster head to base station transmission.

Minimum amplification energy required for inter cluster or cluster head to BS communication and amplification energy required for intra cluster communication

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