

## DYNAMIC CLUSTER HEAD SELECTION ALGORITHM FOR MAXIMIZING IOT NETWORK LIFETIME

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### **ABSTRACT**

*Internet of Things (IoT) consists of heterogeneous nodes which are randomly deployed and are intended to sense data. It suffers failure due to large amount of data to be sensed in the sensor network hence, similar data collected by nodes leads to redundancy and network lifetime is foreshorten. To enhance network lifetime, dynamic cluster head selection algorithm (DCHSA) is propounded in this work. This algorithm combines both tree and cluster based data aggregation that classifies cluster head (CH) into primary cluster head (PCH) and secondary cluster head (SCH) to improve energy efficiency and network lifetime. Proposed DCHSA consists of two phases as cluster setup phase and cluster steady phase. Cluster set-up phase corresponds to the cluster head selection, cluster formation and tree formation. Cluster steady phase corresponds to the data transmission and aggregation. The proposed work provides fault tolerance whenever primary cluster head fails and secondary cluster head takes over the task of primary cluster head. The data sent from individual node in the cluster is collected and aggregated by the cluster head. Further tree based data aggregation scheme is proposed to send the data from PCH to base station. The results obtained through simulation outperforms with respect to energy efficiency, lifetime of the network and energy dissipation in comparison with existing works.*

**KEYWORDS:** *Clustering, Data Aggregation, Internet of Things, Network Lifetime, Power Consumption*