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### RESEARCH ARTICLE

# EFFICIENT DYNAMIC MULTILEVEL PRIORITY TASK SCHEDULING FOR WIRELESS SENSOR NETWORKS

**Mrs. K.Indumathi<sup>#1</sup>, Mrs. M. Santhi<sup>\*2</sup>**

<sup>#</sup>M.E II year, Department of Computer Science and Engineering,  
<sup>1</sup> mail2indumathi@gmail.com

<sup>\*</sup>Assistant Professor, Department of Computer Science and Engineering,  
Sri Subramanya College Of Engineering and Technology,  
Palani, Dindigul, TamilNadu, India-624615  
<sup>2</sup> santhivinodhan@gmail.com

#### *Abstract*

*Most of the existing packet-scheduling mechanism of WSN use First Come First Served (FCFS), non-preemptive priority and preemptive priority scheduling algorithms. These algorithms incur a high processing overhead and long end-to-end data transmission delay due to improper allocation of data packets to queues in multilevel queue scheduling algorithms. Moreover, these algorithms are not dynamic to the changing requirements of WSN applications since their scheduling policies are predetermined. This paper proposes a Dynamic Multilevel Priority (DMP) packet scheduling scheme, deal with the circular wait and preemptive conditions. In proposed scheme, WSN has three levels of priority queues. Real-time packets are placed into the highest-priority queue and can preempt data packets in other queues. Non-real-time packets are placed into two other queues based on a certain threshold of their estimated processing time. Leaf nodes have two queues for real-time and non-real-time data packets since they do not receive data from other nodes and thus, reduce end-to-end. Improve the performance of task scheduling schemes in terms of end to end delay and deadlock prevention.*

*Keywords—WSN; packet scheduling; preemptive priority scheduling; non-preemptive priority scheduling; real-time; non-real-time; data waiting time; FCFS*

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