

PERFORMANCE EVALUATION OF ENERGY-EFFICIENT ROUTING  
TECHNIQUE IN WIRELESS SENSOR NETWORK

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## **DECLARATION**

This is hereby declared that all materials in this project report are the result of my own work and all the materials, which are not the result of my own work, have been clearly acknowledged in this project report

## ABSTRACT

This paper presents the performance evaluation of energy-efficient routing technique in WSN. In wireless sensor network, sensor data need to be propagated from source to destination node through a wireless sensor network. This is called data routing. Along the path from source to destination, all intermediate nodes must be active. An active node consumes its battery power. Therefore, it cannot be put in active state all the time. At times, it must be in sleep mode to conserve energy. Otherwise, the node will be dead in short time and sensor data cannot be propagated through it anymore. If a number of sensor nodes are dead, the network could fail since the link from source to destination has been cut. Therefore, the network must be managed efficiently so that the network lifetime is maximized. A routing technique is used to improve energy efficiency and extend the network lifetime of wireless sensor networks. In order to send data packets from source to destination, the source node must first find a suitable path according to the maximum available power routing policy. There are 2 cases on which this routing policy can operate; Case 1: After knowing the best path, the source node transmits *one data packet* to the destination node through that path. Then, search another new best path. Case 2: After knowing the best path, the source node transmits *several data packets* to the destination node through that path. Then, search another new best path. The simulation is performed using OMNeT++ as an open source discrete event simulation tool. The result comparisons of the total average remaining battery capacity and the average data packet delay by simulation are discussed.

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