

A
Dissertation Report
on
Efficient Routing Algorithm for MWSN
submitted in fulfilment of the requirement for the degree
Of
MASTER OF TECHNOLOGY
(Information Technology)



Submitted by

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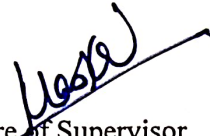
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CERTIFICATE

This is to certify that the dissertation entitled “Efficient Routing Algorithm For Mobile Wireless Sensor Network” being submitted by Nazneen Khan for the award of Degree Masters of Technology in Information Technology. Guru Ghasidas Vishwavidyalaya, Bilaspur (Central University) is an authentic work carried out by her under our supervision and guidance.

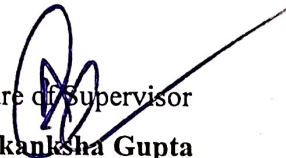
To the best of my knowledge, the matter embodied in the report has not been submitted to any other college/university for the award of any Degree or Diploma.



Signature of Supervisor

Dr. Amit Kumar Khaskalam

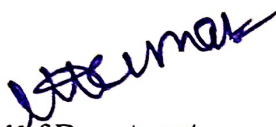
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Abstract

Mobile Wireless Sensor Networks (MWSNs) represent an essential subset of wireless sensor systems, where sensor nodes possess mobility capabilities to enhance network coverage, flexibility, and real-time data acquisition. Routing in such dynamic environments is challenging due to frequent topology changes, energy limitations, and data delivery delays. This thesis proposes a novel routing approach titled Mobility-Aware Energy Efficient Routing (MAEER), designed to address these issues by integrating node mobility patterns with energy-aware decision-making.

The MAEER algorithm dynamically selects forwarding nodes based on residual energy and predicted mobility trajectories to minimize route breaks and reduce energy consumption. Simulations are conducted using NS-3, comparing MAEER against conventional protocols such as AODV. Evaluation metrics include Packet Delivery Ratio (PDR), End-to-End Delay, and Network Lifetime. The results demonstrate that MAEER outperforms baseline protocols in terms of energy efficiency and route stability. This research contributes to the development of intelligent and robust routing mechanisms for mobile sensor-based applications.

In this thesis, we have developed and analyzed Mobility-Aware Energy Efficient Routing (MAEER) to be implemented in Mobile Wireless Sensor Networks (MWSNs) and compared it with the traditional AODV. The proposed algorithm has shown improved performance in two key simulation metrics.

Keywords: Mobile Wireless Sensor Network (MWSN), Energy Efficient Routing (EER), Node Mobility, Mobility Aware Energy Efficient Routing (MAEER), Network Simulator (NS-3) Simulation, Packet Delivery Ratio (PDR), End-to-End Delay, Network Lifetime, Adhoc -On Demand Distance Vector (AODV)