A
Major Project
On

AN ENERGY AND TIME DELAY EFFICIENT ROUTING ALGORITHM FOR WIRELESS SENSOR NETWORK

Submitted in Partial fulfillment of the requirement
for the award of the degree of

MASTER OF ENGINEERING
(Electronics and Communication)

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CERTIFICATE

This is certified that the major project report entitled "**An Energy and Time Delay Efficient Routing algorithm for Wireless Sensor Network**" is the work of **Rakesh Kumar** (University Roll No. 10280) a student of Delhi College of Engineering. This work was completed under my supervision and guidance and forms a part of the Master of Engineering (Electronics and Communication) course and curriculum. He has completed his work with utmost sincerity and diligence.

The work embodied in this major project has not been submitted for the award of any other degree to the best of my knowledge.

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ABSTRACT

Wireless sensor network is a collection of sensor nodes. A sensor node collects and delivers necessary data in response to the user's request. Wireless sensor networks have various applications such as military, environment, home, security etc.

A major issue in wireless sensor networks is limited battery power of sensor nodes. Therefore it is required to use the battery power in an efficient manner, to operate the sensor network for a long period of time. If the sensors transmit its data directly to the base station, then it will deplete its energy quickly. There are various routing algorithm to overcome these constraints.

If the goal is to minimize the energy then Power Efficient-GAthering in Sensor Information System (PEGASIS) reduces the amount of energy spend per round, but it is also important to consider the delay occurs in data gathering. A Chain Based Binary Scheme is suggested to reduce the delay [14], but it increases the energy consumption.

We have suggested a Fibonacci Series Based Energy Aware Algorithm to optimize the energy × delay cost by intelligently combining the data from individual nodes. We compared the performance of PEGASIS, Chain Based Binary Scheme and Fibonacci Series Based Energy Aware Algorithm.

Simulation results show that, the delay occurred in Fibonacci Series Based Energy Aware Algorithm is nearly equal to the Chain Based Binary Scheme i.e. ($\log_2 N$) and energy consumption is comparable to PEGASIS.

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