Secured Routing in Energy Balanced Wireless Sensor Network

Introduction:

Advancement in wireless communication technology has led to the development of WSNs. WSNs are formed by sets of distributed autonomous devices with several distinct characteristics to sense, process, transmit and receive observed or measured condition.

Due to its smart sensing capability, inexpensive and small size, it is easily deployed in the area of scalable network environment. In simple, sensor nodes are made up of sensor components that will sense the physical surroundings and measure the observed situation while the microprocessor component intelligently compute the sensed information.
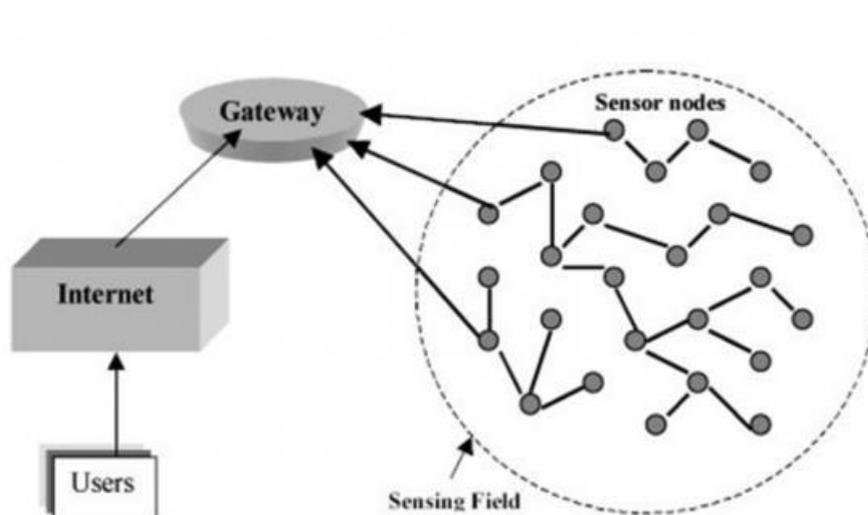

Fig 1: Wireless Sensor Network

Objective:

To provide efficient routing in wireless sensor network that transfers the data confidentially between the sender and receiver in a secured energy balanced environment.

Problem Statement:

The use of wireless sensor network increasing daily because of its intelligent sensor nodes and fast computing capabilities. At the same time, it has its demerits in terms of sensor node's battery lifetime. Every node in the network is the sender that senses, process and sends / forwards the information to the user. For this series of operations / works to take place it needs some amount of energy that has to be distributed evenly.

Proposed Methodology:

The proposed methodology consists of initial network deployment with static as well as mobile rechargeable sensor nodes. The cluster formation will take place in the sensor nodes. The data then get routed efficiently in the network and for sending data securely it uses hashing algorithm.

References:

1. Fengyuan Ren And Jiao Zhang, "Ebrp: Energy-Balanced Routing Protocol for Data Gathering In Wireless Sensor Networks," Ieee Transactions On Parallel And Distributed Systems, Volume: 22, Issue: 12, Dec. 2011.

2. P. Nayak And B. Vathasavai, "Energy Efficient Clustering Algorithm for Multi-Hop Wireless Sensor Network Using Type-2 Fuzzy Logic," Ieee Sensors J., Vol. 17, No. 14, Pp. 4492-4499, 2017.

3. I. S. Alshawi, L. Yan, W. Pan, And B. Luo, "Lifetime Enhancement in Wireless Sensor Networks Using Fuzzy Approach And A-Star Algorithm," Ieee Sensors Journal, Vol. 12, No. 10, Pp. 3010–3018, 2012.