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Optimal Enhancement of Network Lifetime by Using Energy Efficient Communication in Wireless Sensor Network

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Abstract: **-- Wireless Sensor Network (WSN) comprises of large number of sensor nodes by random process. It has become one of the most interesting areas of the modern communication systems. It distributes its function in terms of three categories such as recongnization of nodes, perfroming the task and transmission and reception. As WSNs are mostly deployed in hostile areas, energy conservation and security aspect are vital design parameters for a routing protocol in WSNs. Cluster based protocols are proved to perform better compared to flat routing. Existing routing algorithms can be modified appropriately so that energy metric has to be considered for the route computation. Also some applications of WSNs like military and medical applications need the highest degree of authenticity assured. Thus many research problems can be developed in these areas. This paper focusses on to explore the research gaps in the fields of secure and energy aware data communication in wireless networks with respect to devise algroithm for routing computation, public key cryptography and network efficiency.**

Keywords: **- Wireless Sensor Network, Hostile Areas, Energy Conservation, Route Computation, Military and Medical, Data Commuication, Public Key Cryptograpy and Network Efficinecy.**

I. INTRODUCTION

Wireless Sensor Networks are globally distributed system, perorms the tranmission and reception of energy conscious wireless sensors in an independent manner. Proactive computation represents the efficincy of productivity by energy metric at a large scale. Routing protocols are framed in WSN such as it effectively organises the predominant issues inorder to enhance the lifetime of the network.

A WSN acts as a radio transceiver represents dual antenna which interfaces with the sensors and an energy source. The main distinctions determines energy consumption , resilience, mobility and scalability and environmental conditions. Wireless Sensor Network architecture consists of the components, base devices are placed in the predefined process and capable of routing packets interms of other devices.

A router is a special type of base device that does not interfere with the process itself. A gateway represents the communication etween host application and base devices. The network event manager represents the management of the routng procedures. The security manager is responsibe the organizational processes of different WSN management. The sensor node is an element of the wireless sensor network betweeen basestation to sink and it provides unique ID and buffer acts an an input queue as shown in the Fig. 1 and Fig.2 respectively.

The wired network such as coaxail cable, fiberoptics determines the progragation time and transmission time regaring the node(s) transmission and reception and where as wireless networks determies the mobility. Security alerts against the wired and wireless envoronment proceses different parameters such as energy management and efficinet bandwidth. It represents the numberoof sensor nodes dimension as NXN, compacted together,disposed to failures, broadcast communication abd large amount of overhead applications.

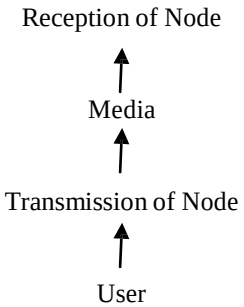

Fig.1 Wireless Sensor Network Flowchart

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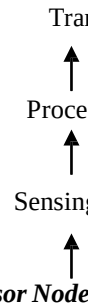

Fig. 2 Sensor Node architecture Fowchart

II.ENERGY EFFICIENCY OF COMUNICATION:

Communication energy contributes to data transmission and reception range increases by its diffeent states such as gaining the position to store the data, transmission of data using by different coding techniques, amplification i.e prior to node transfer and after, filterization, decoding and random address check, intermediate stage with low noise amplification and exit state as shown in Fig.3.

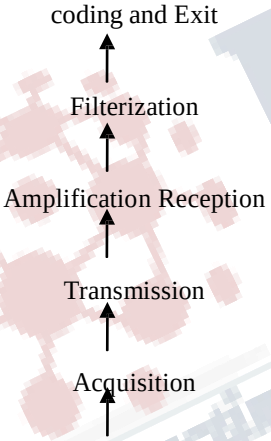

Fig.3 Efficient Energy communication Flowchart

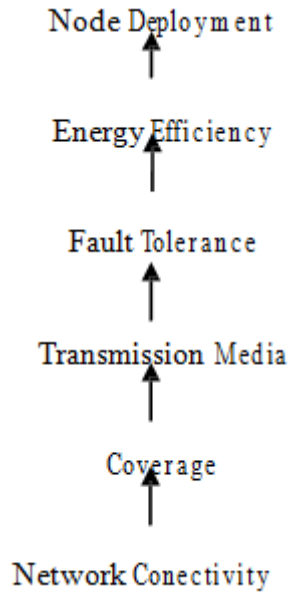

Fig.4 Routing Protocols process in WSNs Flowchart

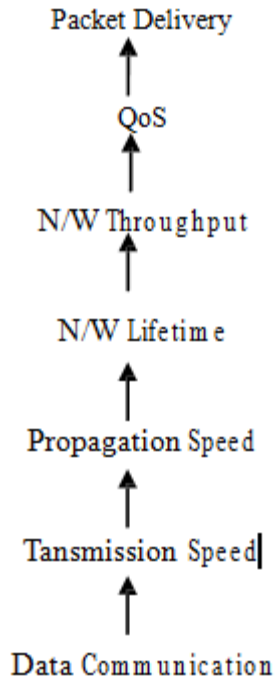

Fig.5 Performance Evaluation of WSNs Flowchart

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III.APPLICATION:

1. Radio Transmission enables WSNs more susceptible to attacks.

2. Security protocols designed for large number of nodes transmission and reception.

3. Efficient symmetric public key cryptography.

4. Memory capacity and centralized keying techniques.

5. Cross connectivity design issues.

IV. CONCLUSION:

A WSN is composed of Multi Input and Multi Output nodes to communicate through energy efficient communication. The energy conservation challenges emphasize the need of optimization energy by using routing protocols to incerease the sensors lifetime. Layer connectivity determines to minimize the sensors threat analysis and further good protocol design is verymuch required. Still further research to be obtained inorder to increase the network efficiency interms of routing computation procedures in Wireless Sensor Networks.

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