A NOVEL APPROACH USED BY ROUTING PROTOCOL IN WSN

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Abstract— the vital role is played by Routing concept in wireless Sensor Networks (WSNs) for management of data packet transmission. During the transmission of packets, researcher/implementer mainly focuses on this management like monitoring of load, section of path. Here the author wants to present a novel approach with the exploration of many existing protocols. This paper achieved with deep study of many recent research papers. These papers have explained the functioning of routing protocol with suitable examples. The life of a network depends on the energy consumption by a node. If a node consumes high energy then it pushes the network towards dead stage. So this is necessary for a network to adopt best routing algorithm for protocol that consume less energy for finding a best route for transmission of data packets. The base of this paper is to propose an approach for routing protocol that performs well. Routing is a broad field with many unsolved matters.

Key words: WSN, routing protocol, energy consumption, best route.

I. INTRODUCTION

A wireless sensor network (WSN) is a gathering of wireless nodes which dynamically generate a wireless network without a static infrastructure or a wired support network, as shown in Figure 1. A wireless sensor network is a multi-layer network in which no any prefixed type of topology or central handling, so routing a crucial design issue for this type of networks. The most popular area to examine in wireless communication is to assign a channel for packet transmission.
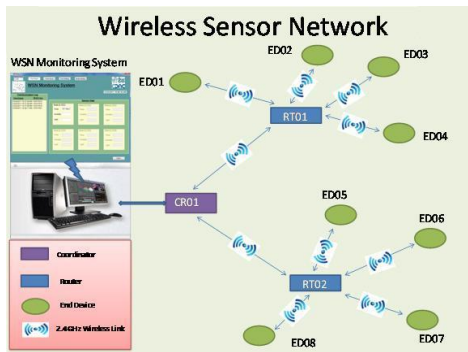
There is necessity of advance bandwidth allocation for smooth transmission without any delay [1]. In recent years many number of channel assign algorithm and coverage of topology was developed. The papers [2, 3] have already discussed many algorithm and protocol that control the topology and provide smooth communication. But the issue of reliable communication was presented and discussed in papers [4, 5, 6]. A best example of WSN is recently discussed which known as green mobile network [7]. There is high complexity for selecting the best route that took less time and less energy consumption. The functional concern belonged to the complexity of transmission has been reported, but till now some bottlenecks are not answerable. The major issue is discussed due to which the delay in path selection occurred [8, 9]. When a data packet is transmitted over network then many factors affect the whole processing of transmission. The performance of a network is totally dependent on these factors. Main motive for any researcher is to work on these factors that the performance of a network could improve. How much delay has taken by packet is depends on the mechanism followed by routing protocol and traffic in that channel. The integrity is also play an impotent role. If the packet received at destination is forged by any hacker then what the benefit of transmission. It is totally risky as wrong information misguides that who related to the destination node. So in short it can be said that transmission of data packet over network is depends on many factors.
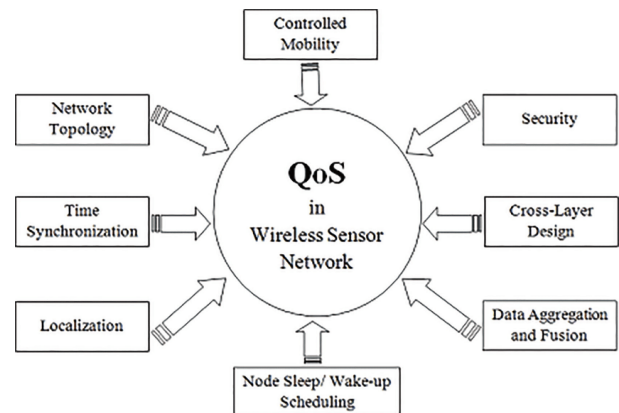

Figure 1: Basic structure of wireless sensor network

Figure 2: Factors affecting Wireless Sensor Network

II. MOTIVATION

In our routine life we have come to contact in any device or instrument that use the concept of wireless sensor network like mobile, Bluetooth, Tab etc. So there were many factors that have motivated the author to work on the concept of routing protocol. As we use internet in our mobile or laptop and face the problem of buffering in uploading and downloading process. If the connectivity is proper then what affect this process. There is also a matter of congestion in channels used by data packet from travel from one point to another point. So this selection of bandwidth is depends on the mechanism of routing protocol.

III. BASIC FUNCTIONING OF ROUTING PROTOCOL

In this paragraph author describe some general steps for the head of a packet. A packet is transmitted with addition to some important information so that the receiving node can manage the packets and arrange them in a sequence.
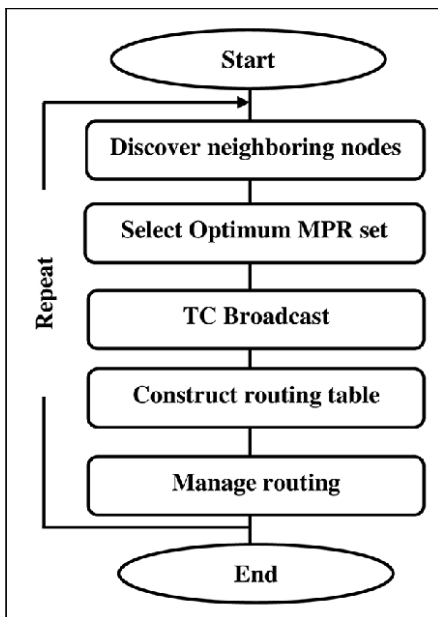

Figure 3: functioning of routing protocol

The above figure is showing the basic steps followed by routing protocol for transmission of data packets from one point to destination point over network. There are some necessary steps and information that work for a data as like engine of a train. Like an engine pushes the many bogies of train and show the path to travel, the functioning of head in data packet is same.

The necessary information has stored in the head of the packet as like time of sending, cryptography, size of data etc. in the general functioning the protocol has to discover the neighboring nodes then select optimum MPR set. Then the routing table will generate that contains the detail of each packet transmission. According to routing table the selection of channel is decided.

IV. PROPOSED WORK

The author proposed an idea after study the various papers. It has come to notice that each data packet has a head portion in which detailed information have stored. There is also a column of sending time in head and the receiving node can capture the time of receiving. The sending and receiving time is stored in a table with the channel or bandwidth identification. The comparison is performed in this table and the node should transmit data packet through that channel which has the less difference in sending time and receiving time. The table must be dynamic by nature. When each packet reached at destination node the table automatically updates the sequence of time in ascending form that is taken by packet.

Table 1: General format of table for comparison

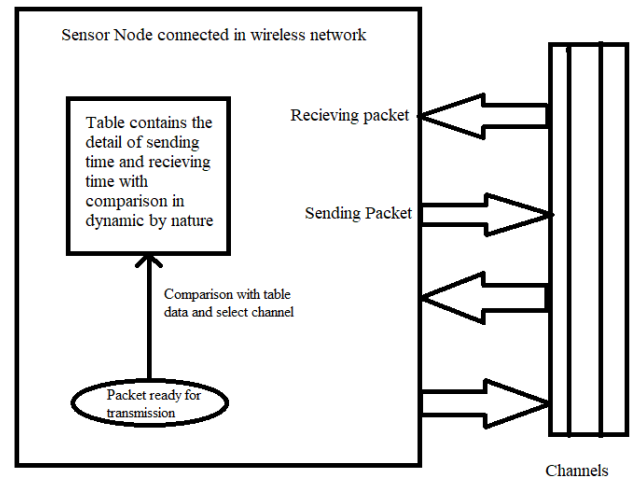| Sr. no	Sending Time	Receiving Time	Total time taken by packet	Sequence no in Ascending order

V. FLOWCHART

Figure 4: Flowchart used to achieve results

VI. LIMITATION

This is universal truth that everything develops with some advantage and drawback. So the author has discussed the

advantage of proposed idea but here in this paragraph some limitation of this approach is going to discuss. As we all know that wireless sensor network has no wired connectivity that's why each node has battery to perform its function like transmitting data, receiving data, selecting route for transmission, use cryptography for making integrity.

So the author increases the one number step for sensor node before transmission. This step check the sequence of bandwidth/channel identification which take less time for transmitted packet, it means that there is low traffic in channel and our packet will cover the distance without any delay and interpretation.

But this proposed scheme arise a limitation that will affect the life of network. This is common that the life of a network depends on the consumption of battery if consumption is low then life of network increase this is directly proportional relation. So it is limitation of this proposed scheme that the increase in step will affect the life of battery.

VII. CONCLUSION

This is a challenge for each routing protocol to select best route in the vast area of wireless sensor network. The selection of channel depends on the many parameters. Some of them are discussed in this paper and some proposal is also assumed to achieve good performance. Survey clears that the most of work on WSN has done in year 2014-15 that is 39% of total work. The motivation and functioning of routing protocol will help the reader and improve the basic knowledge in field of WSN. The proposed mechanism will help the routing protocol in selection channel that is less congested in comparison to other. The method of comparison table will consume less energy and provide best result in comparison to existing mechanism. So finally we can said that this idea will boom the researcher field in wireless sensor network.

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