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REVIEW ARTICLE

Energy Efficient RFID Technique for Wireless Sensor Network- A Review

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Abstract: ***A wireless sensor network is a technology that provides monitoring. Wireless sensor play an important role in the processing of structural response data. This network also has some design issues. These issues become benchmark during deployment of the network. Energy consumption is also a design issue which we will discussed in this paper. GPS master will be deployed to overcome this problem.***

Keywords: ***RFID, WSN, Battery, Consumption***

1. INTRODUCTION

A wireless sensor network is collections of sensing device that can be wirelessly communicate. Each device is capable of talk to its peer, sense, process. It is centralized system. It is inexpensive to install and no wiring is required for data transfer. A wireless sensor network is a technology that provides monitoring. Wireless sensor play an important role in the processing of structural response data. In a wireless sensor networks nodes are organized in a cooperative manner [1]. Wireless sensor offers impressive computational resources for processing data. Wireless Sensor networks are self-organizer and are deployed in adhoc systems. Each node in wireless sensor is consist of multiple types of memory and processing elements ,RF transceiver ,a power source, sensors and actuators. Wireless Sensor Network is a distributed real time systems. Wireless Sensor Network is a latest technology that has an ability to coordinate a large network into a single network. It is also consist of large number of low cost devices. Wireless Sensor Network is a Light weighted

distributed system. There is no need of external infrastructures in wireless sensor network to communicate with other devices. The sensor in wireless sensor networks deployed are self organized and multi hop in nature. The wireless sensor networks consume a lots of energy while transfer data from one device to other. There is need to adjust transfer and sensing rate to avoid energy consumption in wireless sensor networks [2].The traffic in wireless sensor networks is depends upon the generated queries per mean time. The sensors nodes respond queries. When sink or base station injects query then nodes either respond it or further flood it to the downstream nodes. Then sensor nodes result with the using of routing protocols. The network should be self adjusting to provide reliable services. It should also require adjustable properties time to time for better performance. Through a wireless medium all the nodes communicate with each others. The nodes are deployed in a wireless sensor network in a random fashion. It consists of larger number of nodes which are spread over large specific areas. Wireless sensor network works in a co-operative manner to provide best results. Wireless sensors networks consist of wireless interconnect devices that can interact environment by physically controlling it and sensing it. Wireless sensor network use broadcast communication whereas adhoc uses point-to-point communications. Sensors are large in number then sensors don't have global identification. Sensor nodes only send useful data not send any raw data during transmission of data. In an adhoc manner all wireless sensor networks are communicate with each other's without the help of external infrastructure. Security, Qos, real time system, distributed system, battery consumption, network lifetime, random deployment are design challenges which are faced by wireless sensor networks[2].Wireless sensor network has a fundamental task of data gathering. At pre-defined sinks, sensory nodes collect sensor readings. Sinks analyze and process the data. Sensors which are gathering data are called sources. For the processing and analyzing of the data, it sends from one sink to other sinks [3]. In WSN two ways are there through which data transmission takes place either pull mode or push mode. In push mode data sends from source to sink actively. In pull it will send only on sink's request. Multi-hop communication is followed by sink to source communication [2].Sensor nodes require lower power and support multi-hop communication. It can be reprogramming over networks and has smaller in physical size. To collect information in an energy efficient manner is difficult in wireless sensor networks. Many optimization techniques are used in wireless sensor network to get optimal solutions. Wireless sensor networks provide an economic approach to control devices.

2. LITERATURE SURVEY

S. Swapna Kumar *et.al* (2012) discussed about the fundamental issues of wireless sensor network that is power management and makes it more efficient. Their main concern was to make energy efficient system [2]. The hierarchal clustering with sleep scheduling is also defined in this paper. They also explained the novel architecture of the layers. A performance analysis model with DV-Hop, APIT, ROCRSS and amorphous techniques are mentioned.. Individual research has been carried out for routing path optimization, clustering, routing and sleep scheduling towards meeting the goals of QoS. The challenge remains unsolved for optimal cluster building because of pros and cons of two distinguished methods of cluster building namely centralized and distributed. The ideal listening consumes more energy. Based on all the above novel approach the new architecture for cross-layer protocol is formed that have great deal of optimizing energy consumptions and provide a better QoS. The proposed architecture is ready be made available in the Firmware for the new design of sensor hardware. **Amir Akhavan Kharazian *et.al*** has discussed in this paper how to increase network life time with low energy nodes. This paper presents an algorithm, first it has consider to the nodes with low energy and these nodes determines which nodes become cluster-head, The cluster head selection based on the weighting of the neighboring nodes that the weights were calculated based on the energy residual and distance between nodes [4]. Then it shows Simulation for 100 nodes had showed better performance than two well-known protocols, LEACH and LEACH-C. In all cases, the proposed algorithm show better performance than LEACH and it has result almost like LEACH-C. LEACH-C is a centralized algorithm and the proposed algorithm is distributed algorithm without need any global information. **Kiran Maraiya *et.al*** has described overview of wireless sensor network and how it is different from traditional network and advantage over it [5]. How wireless sensor network works and its silent features all are discussed in it. They also discussed about the design challenges and key features of the protocol used in this network. What is the different network topologies used in the network, what are the different types of its applications, types of its constrain and protocol stack architecture all are studied in this paper. Wireless sensor networking has a bright future in the field of computer networking because we can solve the

monitoring problems at an advanced level in the future with the help of such technology of networking. **L. Daiz *et.al*** presented about the sensing task in wireless sensor networks and analyzed it. On the basis of load divisible theory thy proposed optimal task scheduling algorithm in clustered wireless sensor networks [6]. It removing performance degradation caused by communication interference and reduced finish time and improved network resource utilization can be achieved. The optimal number of rounds and the most reasonable load allocation ratio on each node could be derived. In this paper, we present a multi-round task scheduling algorithm (OTSA-WSN) in clustered wireless sensor networks. The goal of this algorithm is to minimize the make span and fully utilize network resources, by finding an optimal strategy of splitting the original load received by SINK into a number of chunks as well as distributing these chunks to the clusters in the right order.

3. RFID Protocol

Radio Frequency Identification is a contactless automatic identification skill that is based on radiofrequency. There are usually two types of RFID according to the power source: active RFID and passive RFID. Active RFID is less advantageous than passive RFID in terms of its tag cost, size, and battery management, but more advantages in term of sensing nature, its nature, sensing rate ad sensing distance. RFID is developed so that physical information can be stored and sensed for a long time to improve quality of the system [7].Active RFID/WSN will be performing the availability of tag-to-tag communication. Active RFID is less advantage than passive due to its tags size, cost, battery management but less advantage in the form of sensing rate, stability, and sensing distance. Active RFID save the energy of tag operate on the tag ID period and data collection period. The active RFID tag uses the radio module to deliver the stored physical information to the reader [8]. RFID provides the point-to-multipoint (P2MP) Communication structure where the reader controls the tags. To reduce the energy consumption of the tag, the reader controls the energy that the radio module consumes by making the tag operate in the active and sleep periods. The reader transmits a collection command to multiple tags, which deliver the ID to the reader via contention. Data collection period, the reader collects the data on the tags that are sensed from the tag ID collection period using their IDs, via the point-to-point(P2P) method. The active period is divided into the tag identification period and data collection period. The id period is called contention period.

4. Problem Formulation

In the present work the whole network is distributed in clusters. The cluster heads can communicate to each other by using the Destination Sequenced Distance Vector (DSDV) routing algorithm. All the members of the cluster give their data to the cluster head and cluster head forward it to the other cluster head until the data do not reach its destination. In the whole network the path between cluster heads is fixed. The path cannot be changed until all the sensor nodes do not die means their battery goes to down. In this case some intermediate nodes will die earlier than other nodes. Then the path is break down between source and destination. Here due to path breakage the packet loss increases, the packet do not reach at the destination. Packet retransmission is also increases the whole network becomes useless. A new network is configured for complete the communication. To configure the new network again become the clusters and cluster heads it takes too much time and consume energy may be the network do not complete the communication. It is totally wastage of network resources like bandwidth, time and battery. To overcome this problem a clock should be deployed to synchronized the network. The path is established between source and destination. AODV routing protocol discover the virtual paths means dynamic paths. After the path discovered the transmission take place. All the sensor nodes should be synchronized to avoid the packet collision. A master node is deployed within sensor network that is synchronized with GPS. Master node gives the timing information to all sensor nodes so they all are synchronized to each other.

5. Conclusion

The cluster head should have to be rotated for the balancing of energy and then there will be equal load on every node. The energy consumption can be reduced. In this paper, it is concluded that, all the That sensor nodes should be synchronized to avoid the packet collision. A master node is deployed within sensor network that is synchronized with GPS. Master node gives the timing information to all sensor nodes so they all are synchronized to each other.

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