Our Heritage

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Estimation of QoS in Wireless Sensor Network

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Abstract:*The growing demand for wireless sensor applications in many ways has made QoS one of the most important issues in wireless sensor applications. Ensuring quality of service in wireless sensor networks (WSNs) is very difficult because the available resources of the sensors and the different applications running on these networks have different limits in terms of their nature and requirements. Traditionally, quality of service has been concentrated at the network level, paying attention to measures such as latency, productivity, and instability. In this document, we provide the appropriate WSN standards, including services, responsibilities, and availability, and ultimately facilitate the submission of qualified services. We discussed QoS comparisons and then proposed three important quality factors that should be considered when developing WSN service quality services: availability, reliability, and retention. We are experimenting with its three phenomena (reliability, availability, and maintainability-RAS) to demonstrate how to effectively access quality of service (QoS) to improve the reliability of WSN. There are some basic requirements for the decentralized and dynamic topology of wireless sensor networks, including reducing energy consumption and extending the life of the network. In this article, we focus on layered protocols. In this protocol, nodes are grouped. To synchronize operations and route data, select a cluster head. We introduce a new method between wireless sensor networks that uses artificial neural networks to mimic selected cluster heads to extend the life of the network. The radial basis function network model is used to solve the cluster head selection problem. The simulation results are mainly based on many factors and the types of dead nodes, total power consumption, cluster head configuration, number of node deaths or number of nodes, and provide overall network performance. The data packets are transmitted to the base station and the cluster head.*

Keywords-QoS, Wireless Sensor Networks, Used Residual Energy, Cluster Head, Collision Detection

1. Introduction.

Wireless sensor systems are composed of different nodes, and these nodes can communicate with nature through the detection or control of physical parameters. The work of this node needs to work together. The nodes are connected and use wireless connectivity, and the remote sensors (WSN) in each center are arranged to collect sensors with mineral assets that can work together to achieve a comprehensive goal. Sensor nodes can operate in threat environments, such as fighter jets and maintenance zones. Due to its operational nature, WSN attacks and many new types of attacks are often introduced. Wireless sensor networks are widely used in military and then civilian applications, and have recently attracted a lot of attention.

1.1 Sensor Nodes

The sensor nodes are a network problem, and the number is sufficient to detect and connect to the data. Depending on the algorithm used, the sensor initiates motion operations and / or problems based on transactions of related nodes. Depending on the needs of the system, this node can perform several calculations. After the calculation, this can transfer to the following data as a job manager. The sensor can be used as a source or sink / actuator in the field of node sensors.

1.2 Gateways

The gateway allows scientists / system administrators to connect the engine to a personal computer (PC), personal digital support (PDS), Internet and existing networks and protocols. In other words, the gateway acts as a proxy for sensor networks on the Internet. According to Gateway, this can mix enabled, enabled and disabled. Allow active door sensor nodes to actively activate their data on the gateway server.

1.3 Task Managers

The job manager has linked the media to a gateway task manager (such as an Internet or satellite link), such as data services and customer data browsing and processing. These work organizers can be seen as information processing and retrieval platforms. All information from the sensor nodes is stored in the job manager for data analysis (unprocessed, filtered and processed). Users can use any display interface (e.g. PDA, computer) to search / analyze local or remote information.

2. Characteristics about WSN

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To compare traditional WSN configuration systems (such as MANET (Mobile Ad Hoc Network) and simple cellular systems) with the following functions and limitations.

- **Battery Enabled (Dependent) Sensor Nodes**

The sensor nodes basically run on batteries and remain in a difficult environment to replace and charge.

- **Self-Organized**

The location of the nodes is randomly configured and automatically configured as a communication network.

- **Malicious Sensor Nodes**

Suspicious nodes in the sensor nodes have been released due to physical defects or hostile environments or hostile environments.

- **Storage Constraints, Delivered Energy and Computation**

The sensor nodes have a limited library, responsibility and capabilities. The sensor nodes have a lot of energy, and their computing and storage capabilities are very limited.

- **Redundancy in data**

To manage applications on larger sensors, the sensor center is firmly located in the area and collaborates to perform routine detection tasks.

3. Background

Xu, Q. Etc. (2018) Depending on two neurons based on digital analysis and hardware experience, the non-autonomous jump field has two expectations in a neural jump field network (HNN). The stability of the competitive point of view of DC is analyzed and found in an area centered on parameters that focuses on instability. Animated maps are used instead of intermediate maps and two-dimensional parameters to discover dynamic behavioral data that stimulate links. Dynamic parameter data can have a variety of attractive twin growth attitudes and various link connection parameters. In addition, the experience of the experimental board was investigated, which effectively validated the judicial simulation.

Rebentrost,P. (2018) In terms of speed and the capabilities of widely used machine learning technologies, quantum computing has significant development capabilities. Here, the command line is applicable to hop count field networks and can be used for pattern recognition, construction and optimization as a memory system for diagnostic systems. It has shown that a network can be stored as a large network with a certain number of exchange bits. After introducing the classic technology of running live hop count networks, the logical algorithm realized quantitative engraving on the data dimension. They also provide procedures to determine our genetic design.

Bao, B. et.al (2017) has three neurons, an easy-to-use connection topology, a neural field-jumping network (HNN) and provides a non-linear NHN-based system. Integrated adjustment parameters are considered dynamic behaviors, with various adjustment parameters that use weight loss and traditional methods of dynamic analysis as parameters, and multiple attraction behaviors in various states. Verify the initial value. The results show that the HNN-based system shows the point of view, duration and abnormal behavior, as well as duplication of traffic and transmission traffic.

Yang, J. Etc. (2017) This article is part of the construction of a new neural network circuit of memory jump field. On the one hand, a better memory bridge is used to implement the operation of the circuit controller, zero, positive and negative without switches and bills, and the PP circuit process is also simplified to simplify the network structure and slow down the conversion between the current and voltage signals. In addition, in binary and color images, associative memory is displayed based on the recommended memory network. A series of numerical simulations have been developed to verify associative memory, and the experimental results show that the effectiveness of neural networks is analyzed through the associative memory of the parts and the multimedia associative memory.

Patel (2017) used to monitor physical or environmental conditions. Wireless sensor networks are mainly used in military or civil fields. Since wireless sensor networks are often distributed in unsafe areas, they are of a vulnerable type. One of the harmful attacks is a cyber-attack, in which a node claims to have an illegal identity. In this case, the legal node will share data between the large nodes and the data will be lost. Therefore, this attack is necessary to protect the network. This article should study, discuss and analyze various techniques to detect network attacks in wireless attack networks. Several protocols affected by cyber-attacks are also studied and analyzed.

R.T. Head et al. (2016) Neural most models of artificial neural networks are now trained with important information.

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For application errors in industrial systems such as information, data recovery, the information may be inconvenient or may be confirmed due to several factors. For this reason, the Hopfield neural network diagnostic system has been proposed to solve this problem.

Párrafo, S (2016) This document systematically designs current associations of neural networks, including the role of the biological world and recent historical relics in traditional neural networks of the jump field, especially the jump number file network fully connected initially. The overall impact of the priority (i.e. weight reduction) of the connection. The built-in network association has few connections for balanced performance. In addition, commercial adaptive manufacturers (equipment) used synapse-based circuits to analyze the hardware plans of small-world jump field networks. Finally, the performance of the multivariate neural network was verified by an example of the number of identities.

Singh et al. (2016) developed for wireless sensor networks. Most of them have similar functions, such as the network, each node has the same power output, storage, energy and function. In practice, the nodes change the processing time, storage and energy values. In this way, the screen will be recognized as a routing protocol for the wireless sensor network (H-WSN). There are two methods for the advanced node of the WSN (high energy) node and the public node. Do not use node connectors unless there is a recommended network. Also, when the battery point is in a hostile environment, it is difficult to fill the battery node. In this document, three widely accepted, flexible, fair and SEP routing protocols WSN have been proposed for different power modes in different scenarios. Initially, the initial characteristics of weapons based on random energy were introduced in the central area. All virtual responsibilities have been completed. Several parameters are used to use the H-WSN routing protocol utility. The simulation results show that not all problems are won, but in most cases, SEP results can be compared, such as reducing the number of round dead nodes and the transmission speed of 20 packets and increasing the spindle of the cluster.

Zhang, S. Etc. (2015) demonstrate the reliability of the information, it is necessary to analyze the stability of these systems. Here they did their mathematical research. To this end, they expanded the second technical approach in the case of partial orders and established a useful non-quality that could be used for this analysis. Importantly, these common results can help build laptop jobs that are used to analyze the multilayer stability of low-jump neural networks. Therefore, a considerable number of combinations of conditions are obtained to ensure stability.

4. Proposed Algorithm

Create a node network set in circular fashion.
Select the source and destination and node sensor node.
(While the data is not received by the destination) while
reprise
If(sensor node detect collision)
Then
Identify the neural network to identify the pattern of node in which the collision can be detected. And start transmission from source node again.
Else
Transmit the data from one node to another.
End if
End while
Exit

5. Result and Discussion

This compares the performance of each classifier with the transmission speed, queue and performance. We introduced these standards to better understand the results.

Packet delivery ratio- The absolute number of messages distributed on behalf of each audience center, including the full number of messages created by the opportunity distribution center. It can be established using well compatible equations.

PDR=((total packets-loss)/total packets)*100

End2End Delay- The system has a specified time of packet when the parcel takes the source and achieve the goal.
When the package obtains its origin and reaches its destination, the system has a specified package time.
Throughput –The fixed billing time is the number of packages that pass through the aisle. This performance indicator shows that the amount of money was successfully moved from the origin node to the destination node, and can be increased by increasing the density of the node. In response to a given question, the sample size generated by the network is equal to the current sensor and is currently active when the question is received. This table contains packet drop, PDR, E2EDelay and performance.

6. Conclusion and Future Work

The use of wireless sensor networks (WSN) is anonymous, free, low-power, labor and device saver, which are generally assigned to remote systems to collect large amounts of data through remote systems. In the military field, for example in

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the theater of war, sensors are provided to improve remote sensor systems. However, remote sensor systems are now used for dedicated remote applications, such as environmental and area testing, social security applications, home robotics, traffic control and more. Security is a key task in many remote sensors. Due to the unusual difficulties that the sensors exhibit, according to their novelty, the use of security policies in traditional systems cannot be directly connected to remote sensor systems. First, because the sensor networks are made up of large sensor nodes, the sensors are very sensitive to the cost of headland manufacturers.

After that, the highest sensor buttons have the ability to store, store, and register and publish. The sensor nodes often have powerful battery capacities and in many cases they cannot charge the battery. In larger sensor network protocols, maximum power consumption is an important consideration. Second, the sensor key can be sent to an unusually open area, which makes it powerful and resistant to physical intruder attacks. In general, it is assumed that an attacker can control a sensor node out of control and eliminate all secret data on that node. In addition, the sensor network is large enough to completely solve the problem that the sensor nodes cannot be eliminated due to delays or failures, and then the network topology can be dynamically adjusted, and the noodles remain the preferred function. This can join the network. Finally, the sensor system uses an incredible remote compatibility channel and requires a framework. Therefore, existing security procedures are insufficient and new procedures are required. Large nodes may be very close to each other, because the number of sensor nodes is in the center, so the multi-hop terminal in the sensor system requires less energy than normal calculations. In addition, the transmission power level can be minimized, which is highly desirable in covert operation.

Thus, when designing traditional networks to achieve high-quality service regulations (Q), the sensor network protocols must first focus on energy savings. End users need closed business mechanisms to implement the network life cycle, which increases low performance costs and transmission costs. Many researchers are currently working on solutions to these problems. The important features are unique in their flexibility in the WSN network format and sensor movement. This study describes the network, latency and packet transmission speeds. The neural network H-F (frequency hopping) is used to perform the hopping transmission. The recoil results are compared with the neural jump field networks. It was shown in the game that the results of the jump field were better than the previous extension. Here, packet transmission speed and performance increase, and the final delay ends. This article also describes how to effectively restore the balance of wireless sensor networks. In the future, applications based on neural and diffuse can be used to avoid data conflicts when using these parameters.

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