

Wireless Sensor Networks Is A Multi-Hop Network - Device-To-Device (D2d) Communications

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Abstract:

Traffics in Wireless Sensor Networks is a multi-hop network by transmitting data among themselves, which is composed of large number of nodes. The routing in wireless sensor networks is a process to select suitable path for the data to travel from source to destination. The data sensed by the sensor nodes in a wireless sensor network is typically forwarded to the base station that connects the sensor network with the other networks where the data is collected, analysed and action is taken accordingly. This study aims to develop a system of device-to-device (D2D) communications for information collection, distribution and sharing among local communities. It establishes a D2D tested with low power consumption and solar power supply to evaluate the performance of the proposed system. Devices in the system can communicate with each other autonomously without a centralized control device when they are within a certain distance.

Keywords: D2D, Routing, Wireless Sensor.

1. INTRODUCTION

A Wireless Sensor Network (WSN) is a distributed network and it comprises a large number of distributed, self-directed, tiny, low powered devices called sensor nodes that monitor physical or environmental conditions, such as temperature, sound, pressure, etc. and to co-operatively pass their data through the network to a main location. Recent modern networks are bi-directional, & also enabling control of sensor activity. In many real time applications the sensor nodes are performing different tasks like neighbor node discovery, smart sensing, data storage and processing, data aggregation, target tracking, control and monitoring, node localization, synchronization and efficient routing between nodes and base station. In the proposed system, DIVERT Routing algorithm is compared with existing Bellman ford algorithm with additional two metrics such as packet delivery ratio and congestion level in network. By adding these two metrics shortest path could be easily found and it is much efficient and also energy level gets reduced. Because of the minimization of energy level, network lifetime gets increased and reliable solutions could be achieved

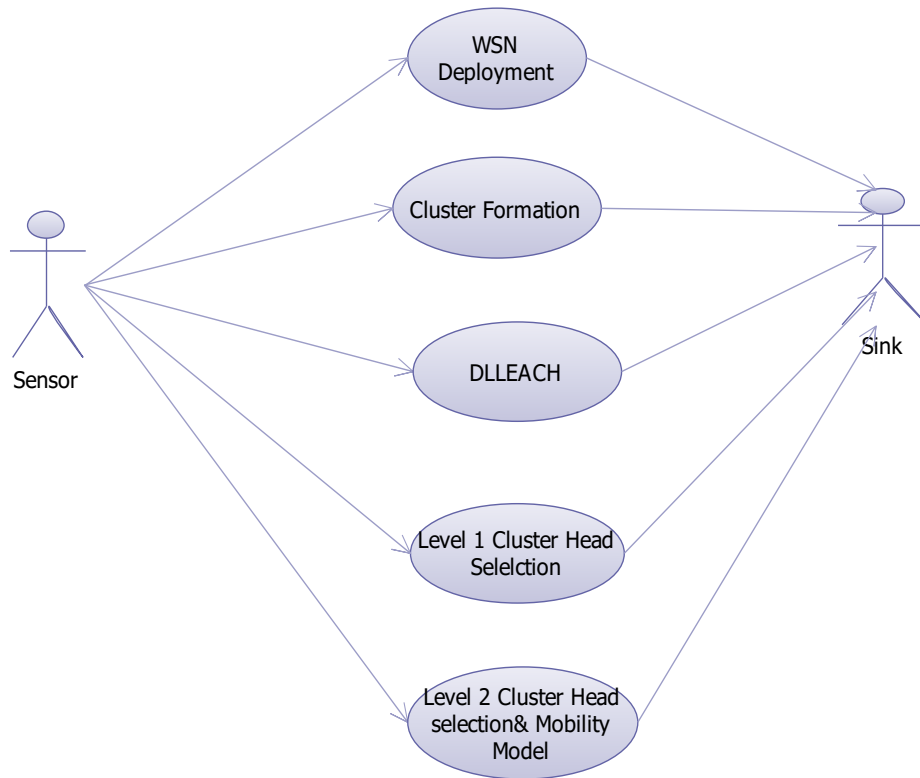
2. LITERATURE SURVEY

Improves the LEACH to an energy efficient multi-hop routing algorithm. LEACH in the cluster creation, data transmission, the update phase of the cluster was modified in proposed algorithm. The algorithm updates the cluster head reasonably and adjusts the structure of the cluster to reduce the energy consumption in cluster establishment phase. In data transmission, it lowers energy consumption by inter-cluster and intra-cluster multi-hop transmission

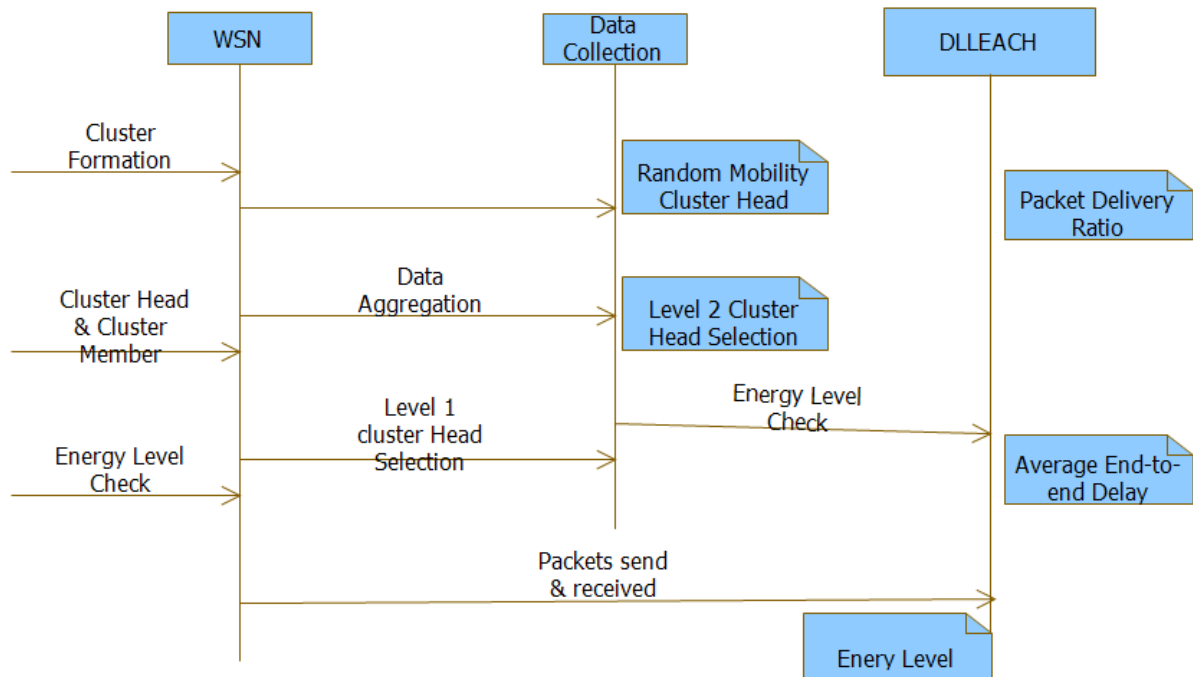
Many researches on these lifetime extension are motivated by LEACH scheme, which by allowing rotation of cluster head role among the sensor nodes tries to distribute the energy consumption over all nodes in the network. Selection of clusterhead for such rotation greatly affects the energy efficiency of the network. Different communication protocols and algorithms are investigated to find ways to reduce power consumption. In this paper brief survey is taken from many proposals, which suggests different clusterhead selection strategies and a global view is presented.

3. PROPOSED SYSTEM

New hybrid routing protocol called secure trust olsr STOLSR protocol has been discussed. This protocol aids in prolonging the network lifetime by using double cluster head node for data transmission that reduces the energy of the individual nodes. Each cluster head directly transmit data to the Sink node, which correspondingly increases the cluster nodes energy consumption especially in large networks. To solve this problem, this paper puts forward a kind of hierarchical double routing algorithm. It chose level-one cluster head from all members of the node, who is responsible for receiving data send from member nodes and sorting data fusion to level-two cluster heads. Then level-two cluster heads is selected in all non-head nodes, who is responsible for forward the packet to the Sink node. Such as cluster head responsibilities assigned to the two levels of cluster heads to complete can greatly reduce the cluster heads energy consumption and improve the network survival time.



A sequence diagram in Unified Modeling Language (UML) is a kind of interaction diagram that shows how processes operate with one another and in what order. It is a construct of a Message Sequence Chart. Sequence diagrams are sometimes called event diagrams, event scenarios, and timing diagrams. Data transmission phase, nodes sent collected information to the level-one cluster head according to the allocated time slot, and level-one cluster head fuse after data and sent data to the nearest level-two cluster heads. Level-two cluster heads forward the information to the Sink node.



Elects level-two cluster heads in all non-head cluster node, which is responsible for forward packets to the Sink node. Thirdly, it solves the optimal number of cluster heads based on the network minimum energy consumption. Finally, it formed a cluster head clear responsibilities and energy consumption balanced WSN network. The two hierarchies are closely related to each other; from the user perspective, there is a one-to-one correspondence between a class in the interpreted hierarchy and one in the compiled hierarchy. NS2 uses two languages because it has two different kinds of things it needs to do: Detailed simulations of protocols require a

systems programming language which can efficiently manipulate bytes, packet headers, and implement algorithms that run over large data sets. For these tasks run-time is important and turn-around.

4. SYSTEM DESIGN

Input design is the process of converting the user-originated data into a computer-based format. Inaccurate input data are the most common cause of error in data processing.

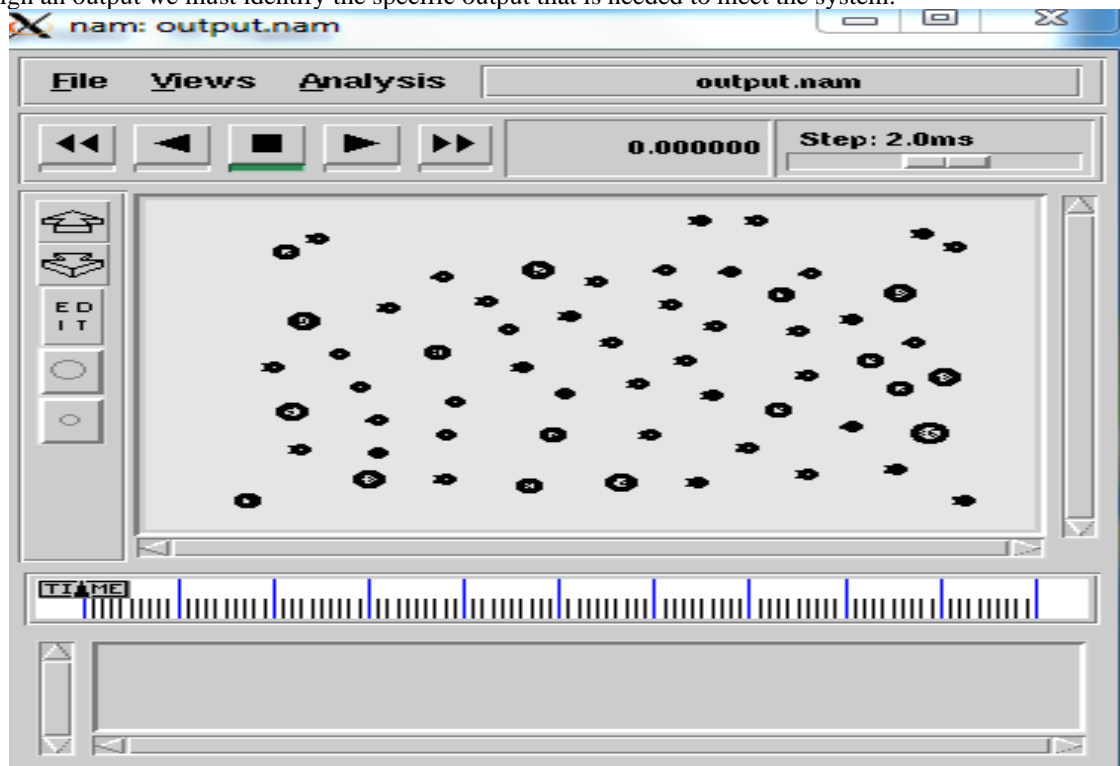
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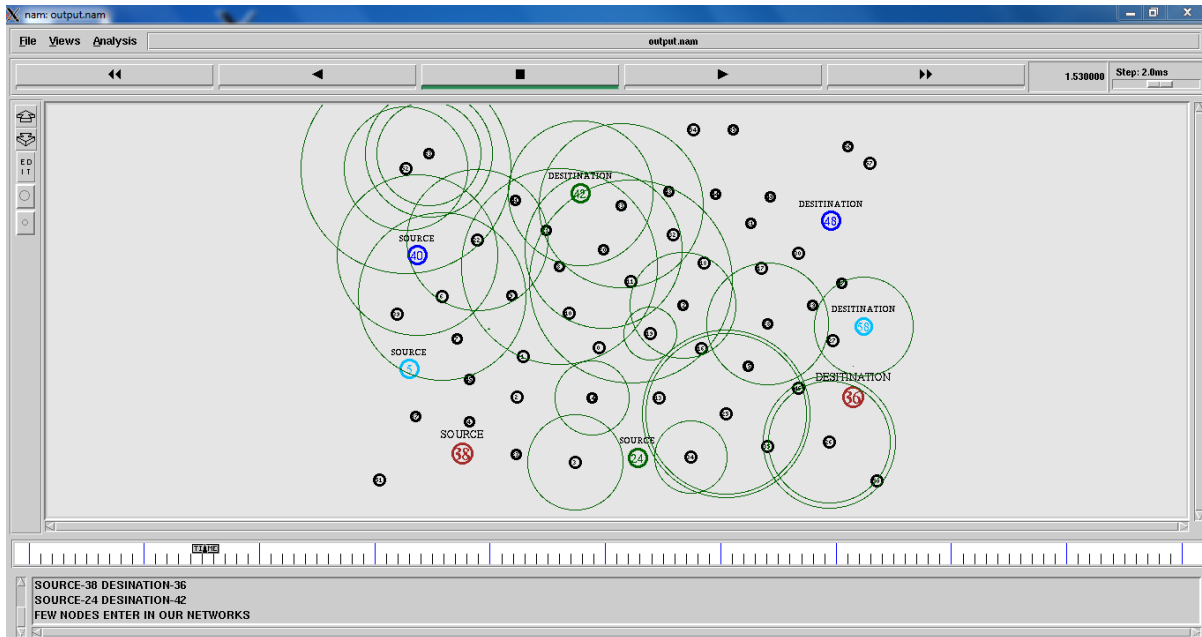
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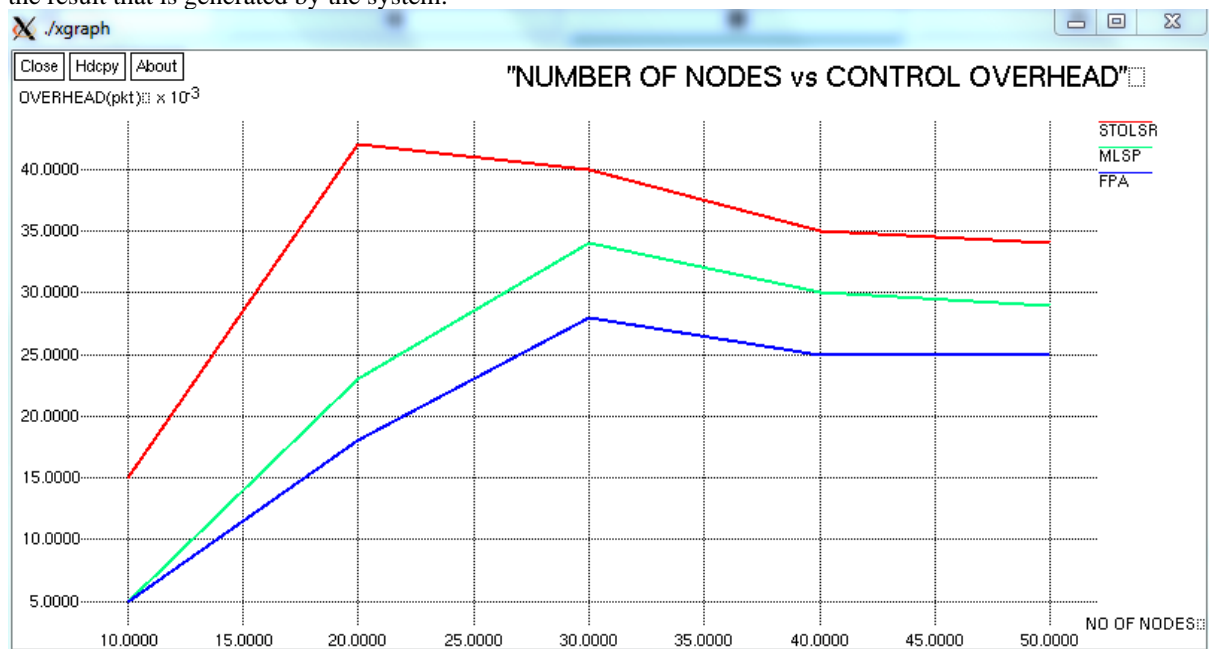
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The goal of an input data are collected and organized into a group and error free. Input data are collected and organized into a group of similar data. Once identified, appropriated input media are selected for processing. Designing computer output should proceed in an organized, well throughout manner; the right output must be developed while ensuring that each output element is designed so that candidates will find the system easy to use effectively. The term output refers to any effect produced by a system whether displayed or executed. When we design an output we must identify the specific output that is needed to meet the system.





The usefulness of the new system is evaluated on the basis of their output. The output from the computer systems is required primarily to communicate the results of processing to users. An output generally refers to the result that is generated by the system.



An application is successful only when it can produce efficient and effective reports. The reports generated must be useful for the management and for the future reference.

CONCLUSION

New hybrid routing protocol called STOLSR protocol has been discussed. This protocol aids in prolonging the network lifetime by using double cluster head node for data transmission that reduces the energy of the individual nodes. DIVERT ROUTING selected double hierarchical cluster heads from network, respectively responsible for collecting data and forwarding packets, which greatly reduce the burden of cluster heads. At the same time, it introduced the factors that influence the cluster head election and revised the cluster head threshold, and the number of cluster heads under control.

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