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To analysis of coverage-preserving CH selection Algorithm (CPCHSA) to improve the system lifetime and latency in the wireless sensor network

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Abstract

Wireless sensor networks (WSNs) have a many applications in a various research areas. Now days Internet of Things is very important application in the world that is interconnected the various objects or devices through the internet. Limited battery power is major problem in wireless sensor network than the mobile ad-hoc network, to improve this problem there are many protocol or algorithms are developed due to which minimize the energy consumption in the network. Leach protocol and selection of cluster heads algorithm is very best. Using converge Preserving Cluster heads selection algorithm has very important role to improve the latency and system life time of the network.

Index terms: Latency, efficient energy,

Introduction

Anything that can be controlled and monitored by the internet is known as Internet of the Things. Wireless network is the most preferred medium to achieve the wide range of connectivity with the network. Wireless sensor networks (WSN) is the collection of many sensor nodes deployed over a large area in the network to sense and collect the different types of data from the nodes or environment and used in different areas as animal tracking, weather monitoring disaster management, bio-medical applications and also in the field of Internet of Things IoT [1, 2]. Coverage-preserving CH selection Algorithm (CPCHSA) has the very important role in the wireless sensor network. This algorithm is improved the latency and system lifetime of the network. Number of packets are transmitted and received in systematic manner due to which power limitation is also improved in the system.

The Micro-Electro-Mechanical System sensor technology is used for the developing the smart sensors for the Internet of things.

This algorithm improves the following thing in the network:

System Lifetime: Number of packets are transmitted and received in the network very systematic manner due to this improved the quality of the network.

Latency: Latency is based on the packets means how to packets are received at the receiver. Using this algorithm the numbers of packets are received in systematic manner because this algorithm coverage the cluster head mechanism.

Result

There are following results found when we apply this algorithm, here we see that how improved the system life-time and latency in the network. Due to which the problem of power limitation is also resolved. To analysis this algorithm we have used the MATLAB software.

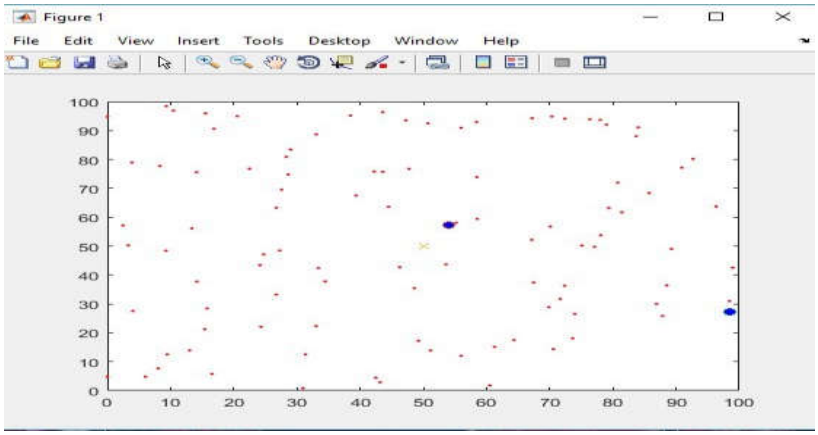

Fig. 1 No of nodes in specified area

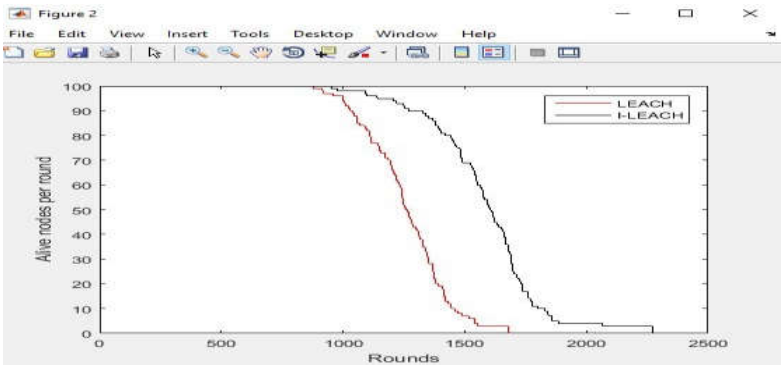

Fig. 2 Alive nodes per round in the network

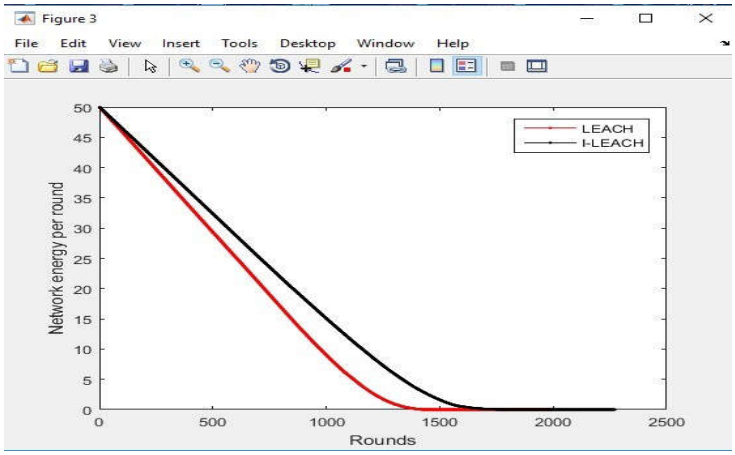

Fig. 3 Network Energy per round in the network

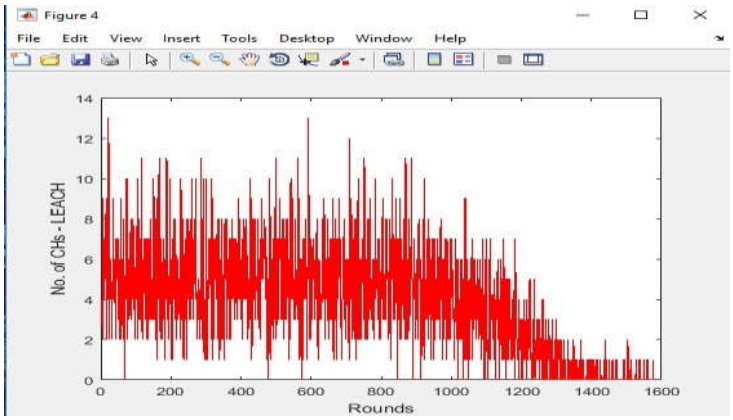

Fig. 4 No of Cluster Heads in the network

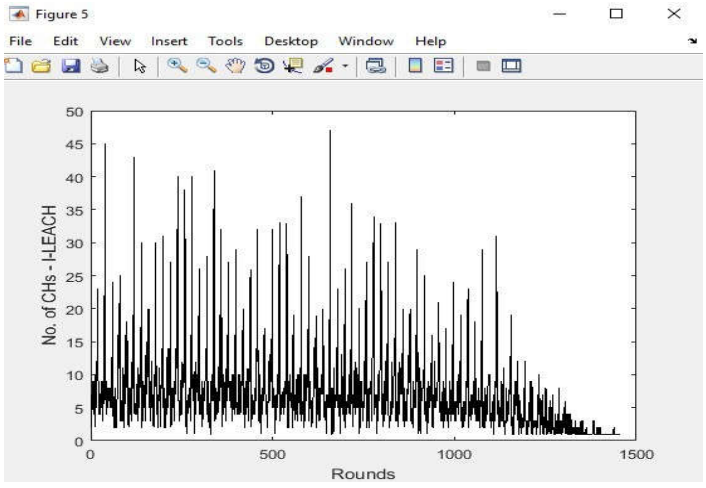

Fig. 5 No of Cluster Heads in the network

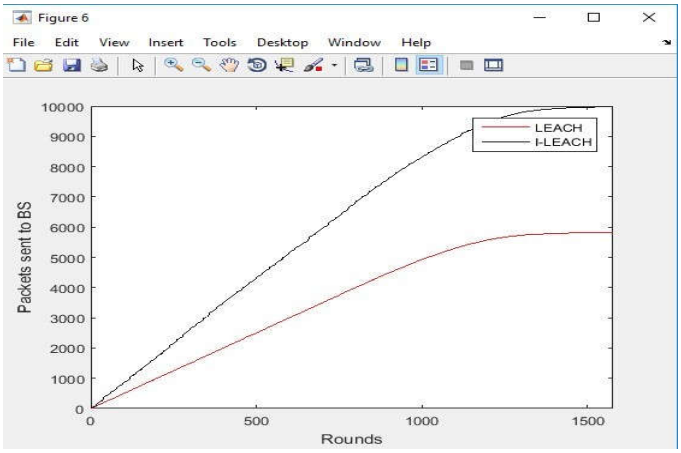

Fig. 6 Packets send to Base station in the network

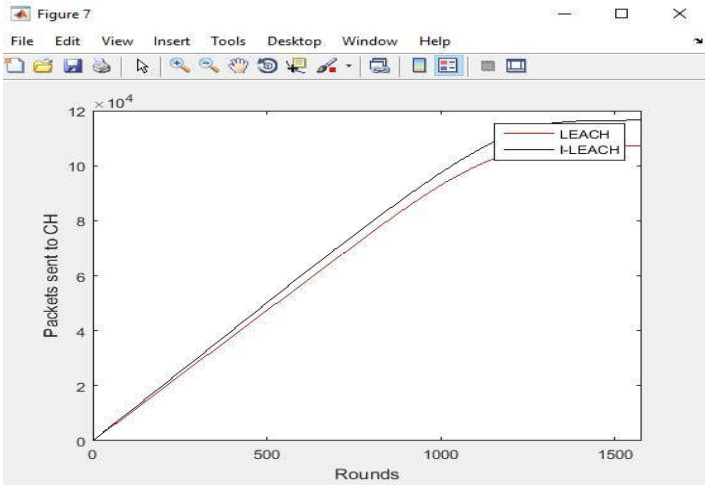

Fig. 7 No of packets send to Cluster Head in the network

Conclusion

The wireless sensor network has the very important role in the world in which their protocol as LEACH protocol and their algorithm as Preserve CH selection algorithms prove an importance itself. In this paper we have studied Closter Head selection algorithm to improve the system life-time of the network. This algorithm is also useful to improve the latency and reduced the energy consumption in distributed manner. In the future we can extend this research for the heterogeneous routing protocol.

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