International Journal of Advanced Technology in Engineering and Science
Vol. No.5, Issue No. 03, March 2017
www.ijates.com
ijates
ISSN 2348 - 7550

WIRELESS SENSOR INTERNETWORKING REDEEMED MODE SELECTION MODEL FOR THE OPPORTUNITY ROUTING PROTOCOL

Madhavi Komatireddy[1] , Mysolla Shireesha[2] , T.Madhu[3]

[1]*Department of Science and Technology,JNTU Hyderabad,*
[2]*Department of Science & Technology, JNTU Hyderabad,*
[3]*Swami RamanandaTirtha Institute of Science and technology, Nalgonda,*

ABSTRACT

Energy savings due to optimization of sensor nodes are equipped with non-rechargeable battery power limited, the fact that wireless sensor networks design (WSN) routing protocol is a major concern. In this paper, we have one-dimensional (1-D) to the network lifeline network data relay, reduce energy consumption and maximize approach. Principle of opportunistic routing, sensor nodes is based on the difference between the network to optimize energy efficiency principle decision after multihop relay, distance to both the sink and the other in terms of residual energy. In particular, opportunistic routing (ENS_OR) through an energy-saving algorithm to transmit data to ensure the lowest power cost and relatively low residual energy is designed to protect the nodes. Extensive simulations and actual results of the test bench ENS_OR other existing WSN routing schemes proposed solution com-pared to energy saving and wireless connectivity that can improve network performance in the show.

However, exploitation of these routing protocols to treat or reduce the power consumption for selection from the list of forwarding appropriate, and not to optimize the design of energy efficient protocols for wireless networks. In this project, we have 1-D line up efficient routing algorithm proposed energy to the network, ie, opportunistic routing through energy savings (Ensor). Indeed, energy saving and maximize the lifetime of the network to achieve optimal transmission distance Ensor, opportunistic routing based on the principle of the selection of relay nodes that the equivalent power node (EEN), a new concept adopted. A selected set ENS_OR forwarder and virtual optimum transmission distance and the level of residual energy, the priority nodes. Eens are close and higher than the residual energy that took the lead promoter of nodes can be selected as a candidate.

Keywords: EAX, ETX, ExOR, GeRaF, HARBINGER, MORE, OAPF, opportunistic routing, wireless sensor networks

I. INTRODUCTION

The front frame (MFR) approach so far via neighbor next sponsor node network opts for 1-D line has been considered, and ultimately less delay multihop, results in low power consumption. Another approach, based on the total energy consumption for the two goals of optimization, ie the selection of the route and aims to reduce the bit al-location. Geographic random forwarding (AfRSG), and efficient QoS-aware geographic opportunistic routing (EQGOR), they take advantage of the broadcast nature of the wireless medium, and to participate in the transmis-sion of packet transmission could hear that allow many residents.

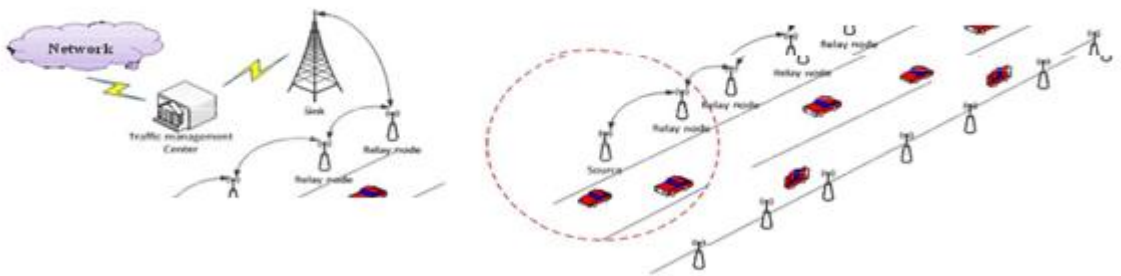


FIG 1: System Architecture

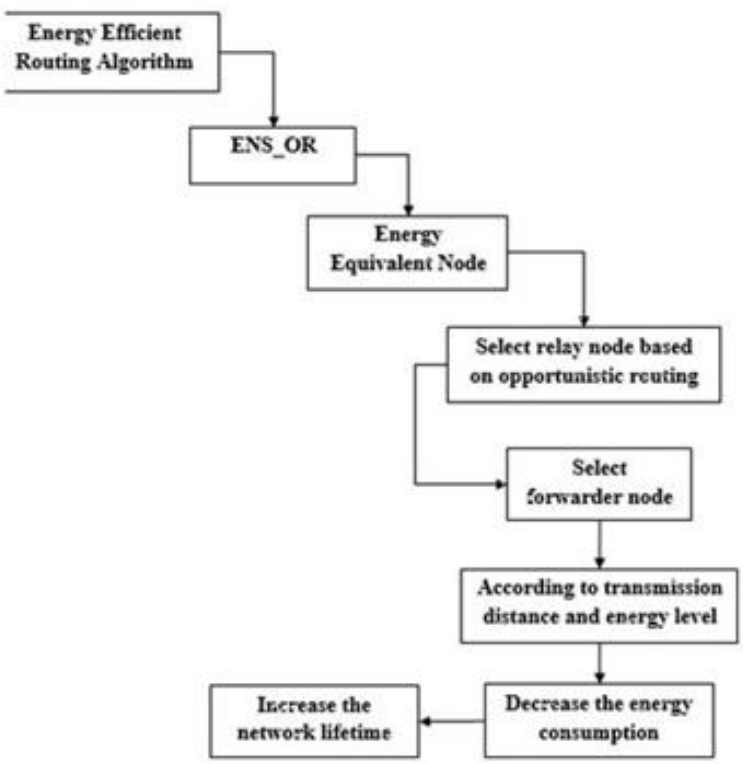


Fig 2: Block Diagram

II.OPPORTUNISTICROUTINGMECHANI

SM:

WSN is relatively high in a number of sensor nodes, the data transmission starts between different numbers of nodes, while also playing an important role in how they are deployed. It ensures proper coordination between source and destination networks. In many cases, direct communication between the source and the destination is not possible. Before the identification of candidate packets, the source node or the coordinator must choose the best route between origin and destination. Method of Coordination (Zhong et al., 2006), to send packets from one node to another candidate select the best relay node. To select the best node, and airtime costs are considered, the present method of coordinating three main categories, namely, the token, the network is divided into coding (ET Che-Jung al., 2011). In the following section, these three categories are discussed.

A.TIMER BASED:

Timer- based coordination methods (Rust et al., 2011) from the sensor to select the best relay node is used. The first data packet is transmitted.

The node with the highest priority in the first slot re-sponds. If the answer is no, then the next highest priority node responds in the next time slot. Month node priority result of response time slots and all high priority nodes are not responding. Once a node responds when it is selected as the next relay packets to the destination it is the same continuum. Based coordinate system-Timer is easy to implement and require no control package. The main drawback of the candidate nodes, the waiting time is high and also the candidate to be included in the packet header. The reaction of some other overhear lymph nodes can not be transmitted because duplicate.

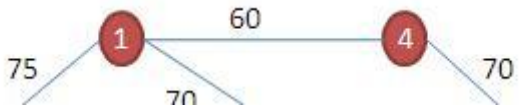
B.TOKEN BASED

In this method (Che-Jung et al., 2011) coordination based on packet repetition time is the main drawback of the method is absent. In the end, it comes down to the source, in this method, the tokens are generated in the destination node (near fountain) low priority nodes (destination near) high priority nodes are passed. The only candidate who can transmit symbol node packages. About which pack-ages have been received and have not been received, the details (acknowledgment) tokens are included. The main advantage of this method is that no duplicate transmissions. However, a large number of control packets to be exchanged. The source and destination are close together when such coordination method can not be used in this way.

C.NETWORK CODING

Network coding is introduced (in 2011 by Jung et al.) Among nodes without overloading coordination oppor-tunistically to avoid duplicate transmission. Here Intra-coding is integrated with the flow. What are sent by the sender to encode and decode the packet is divided into lots. A lot packages called native packages are original without programming. The sender of this by generating a linear combination encodes random current batch. The en-coded packet is transmitted to the sender of the candidate nodes and finally reaches the destination. The target for the current batch receives adequate linear combination only when encoded and decoded packets. The main advantages are the elimination of duplicate transmissions and damage are above coding is no overhead

coordination. Wireless devices that has a high computational overhead, and will not be shown on network encryption in real time.



D.PATH BASED FORWARDING

Or select main objectives of the SET forward protocol and how to assign priority for them is also included. Set the path forward based forwarding method can be determined through. In order to find the best source node to all nodes forwarder analyzing the distribution ratio is set. On a path method (Haitao et al., 2009) source node and the next hop based on the average number of hops the probability dis-tribution ratio is calculated. With the help of this analysis, the source node transmits packets of the default path.

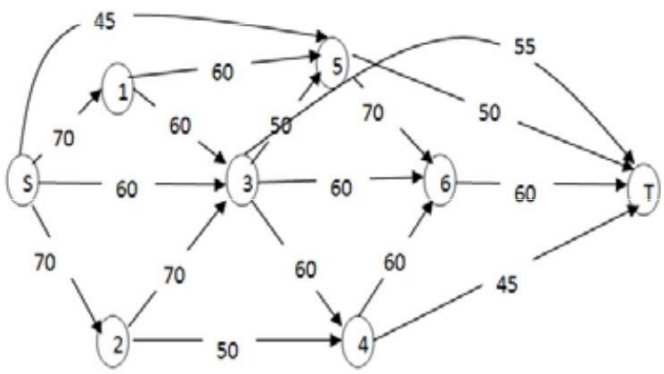


FIG 3: Path based opportunistic packet forwarding

III.OPPORTUNISTIC ROUTING PROTO-COLS

In this section, xor, you opportunists any deviation from the route (DE) (Zhong et al., 2006), Mac-independent Opportunistic Routing (more) different types of protocol opportunistic routing, color (conscious coding opportu-nistic routing), ARQ Intra-Hybrid Based -cluster relay (precursor) is geographically aware discussed. Exor: (. 2009 Haitao et al) Exor is a combination of routing and MAC protocol and multi-hop wireless networks, such as the protocol for transferring large increases unicast per-formance. Once a node has a packet to send transmits to all nodes that are listening.

Exor has received the packet that is closest to the destina-tion among all active nodes determines which node. MAC protocol also guarantees them a package only. Exor (San-jit and Robert, 2004) compared to the normal traditional routing to reduce the number of transmissions to improve performance also takes advantage of the broadcast. Des-tination (D) Schematic view of the method, the message can send it through multiple paths. This protocol reduces the (planned issue number) ETX value is selected as the next node promoter

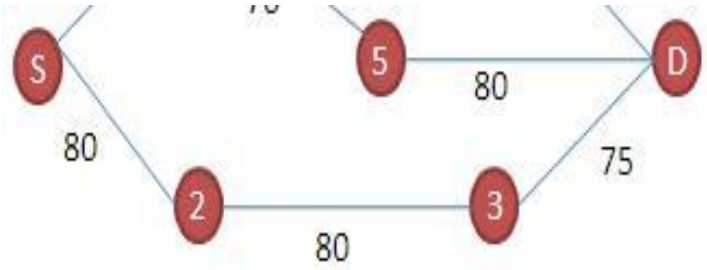


Fig 4: Illustration of opportunistic packet forwarding in ExOR

ETX values are calculated as the inverse of the distribu-tion ratio. 1, 2, 3, 4, 5 are intermediate nodes between the source and destination. The source S wants to transmit packets to the destination node D ETX value shown in Table 5, as a promoter of the next node 1 or node 2 can choose. 2 ETX value less than 1 (ie, the ratio of superior delivery), but since it was selected as the destination for the next promoter. The transmission order of S> node2-> node3-> D will be. Set, a promoter can be selected, from which the next hop for a particular sender in forwarding candidates set. Next: A candidate next hop. The next al-bum will be determined by the carrier package. Foreign ETX = 1 / ETX delivering value. Recognizing issue that will have the difficult task ahead of them, they must send the packet nodes agree that it is guaranteed. MAC proto-col based on time intervals priority node reserves gaps. A node hears a packet and if it is to carry forward the list to see if the checks. If so, then the node assumes the sender is in the order of priority.

IV.OPPORTUNISTIC ANY PATH FOR-WARDING (OAPF)

OSPF (Zhang et al., 2006) instead of broadcast transmis-sions on the side to reduce the number of hops to select some good hops. A metric used to determine the next hop candidate instead of ETX (any count expected path) is EAX. In this protocol, a node in the calculation of the value of EAX, any possible link is considered to be de-livering the next-hop paths. EAX also a candidate for delivery of packets between nodes to help determine the contribution. Unlike the performance without affecting negatively Exor set forward to reduce the number of can-didates because OAPF mainly used. EAX value packages for the distribution of aid to determine the contribution of a candidate.

As illustrated in Figure consider a network with five nodes. 5. A source (s) of the many paths through the des-tination (D) wants to send a message. The network node protocol in at least the value of EAX is selected as the next promoter. EAX values are calculated using the fol-lowing relationship:

$$\mathrm{EAX}(s,d) = \frac{1 + \sum_i \mathrm{EAX}(C_i^{s,d}, d) p_i \prod_{j=1}^{i-1}(1-p_j)}{1 - \prod_i (1-p_i)}$$

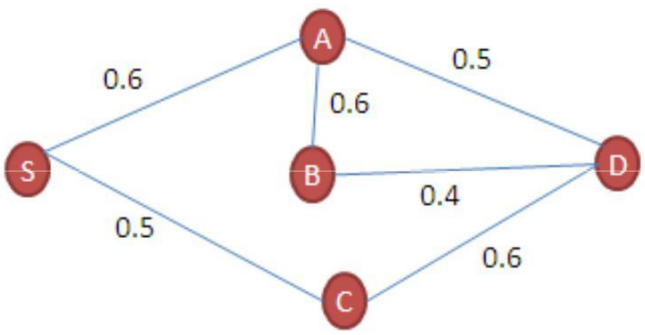


Fig 5: Illustration of opportunistic packet forwarding in OAPF

The delivery ratios between various nodes are mentioned in the Fig. 5 and the value shows in Source (S) wants to transmit the data to the destination. It has two next hop possibilities are A and C.S selects the next hop which has the least EAX value and transmits the packet to C. Then C in turn transmits to D. Path: S->C->D. The data packet is then transmitted to the node having the lower EAX value. This process continues till the data packet reaches the des-tination. Thus during the data transmission using OAPF is more optimistic than EXOR or traditional routing because while calculating the EAX value the probability of all the individual paths from a particular sender to the destina-tion are considered. But the major drawback is that net-work state information has to be maintained.

V.IMAC-INDEPENDENT OPPORTUNISTIC ROUTING (MORE)

Opportunistic routing uses the broadcast nature of wire-less networks is the best. A packet is sent to the trans-mission destination via different paths to reach the des-tination is expected to double packages. This eliminates most of encoding packets. Therefore the selection of the next hop node, a node does not need coordination. As the name suggests, this protocol does not depend on the char-acteristics of the MAC layer. Schematic of this method are shown in Fig. 6.

“A” two-component “D” has been sent. “A ‘B’ B ‘and’ C ‘for these packets. That is, one of the two packages, the node P2 cause” C “. Node” B “has received two packages. If B and C both approach uses more than coding, code Package node B to D occur if P1 send packages and had already received from C to D sent as P1 + P2 may have to eliminate duplication of packets encoded packet (P + 1 P2-P1) GET decodes the P2. When the user node

in a packet to be sent, the sender of the package in the current batch is a linear combination randomly coded transmis-sions packages.

From the same batch are native AI packages "s node and disturbances is chosen by random coefficients ", where package + C + ... + ANPN A2P2 A1P1 = coded. The code vector which includes sending packets for each data pack-et is a header. The package code vector must be used by the receiver to decode the information. This album closer (metric ETX) are themselves at their destination is a list of nodes it includes a list of freight. The list of nodes with small ETX is such that a node has high priority. Lots of sending packets to the destination are accepted as long as the batch packet transmission is coded.

This is the first batch of the packet received from the node that is independent of linear intermediate node, the in-coming packet is said to be innovative. Innovative and non-innovative shopping package single intermediate node discards the packet. This prevents duplicate packets are sent. The node has heard from the same batch and transmitting coded packet is a random linear combina-tion. CJ C = Σj AJ ", as it is generated. Destination batch after receiving new packet receiver node, using the IP (ie, native packet is received) decoded whole batch =" PI and

CI is a package original, where "Σi Ai Ai -1 CI = vector i1 whose code is a coded packet ..,

AIK. As soon as the lot decoded destination is transferred to the next batch to allow you to send an acknowledgment to the sender .Ex or some disadvantages such as the use of space under the coordination node and more time con-suming. These issues and more are addressed. A multicast packet, the same package to be sent too many nodes or even the Ex, have some problems with phase coordination node. This is overcome

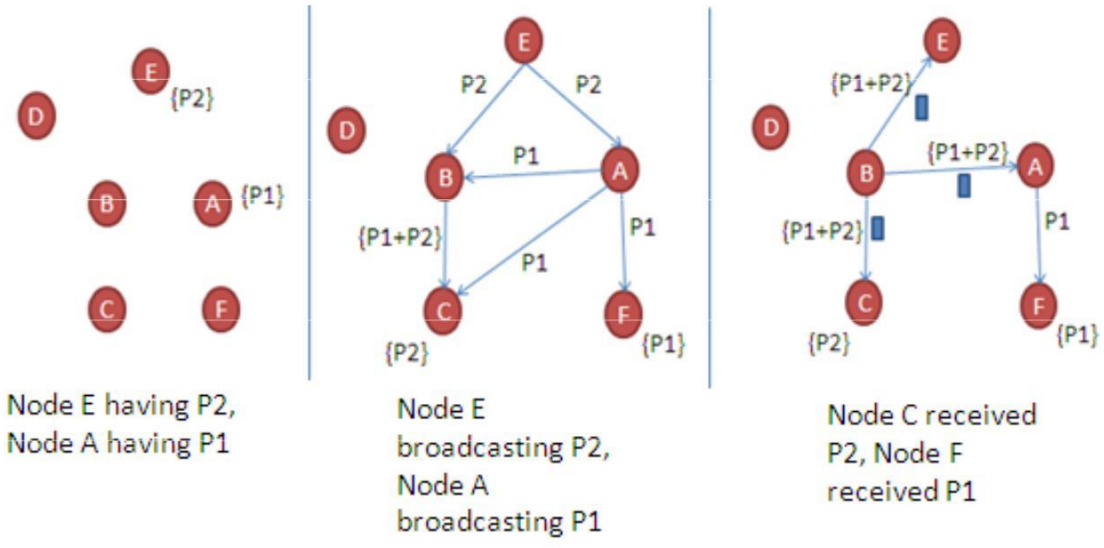


FIG 7: Illustration of opportunistic packet forwarding in CAOR

in MORE and it also reduces the number of re- transmis-sions by encoding the packets. MORE has less computa-tion compared to the other protocols. It consumes more memory at nodes and it requires more information (code vector) carried in the header of the packet finally leads to high system complexity. CAOR (Coding Aware Oppor-tunistic Routing): CAOR (Yan et al., 2008) takes advan-tage of coding; the number of transmissions and duplicate transmissions are further reduced than other techniques. In this routing both network coding and opportunistic routing techniques are done. Forwarder set includes all the possible next hop candidates. The conditions that need to be satisfied for forward set selections are, it should be a direct neighboring node to the sender and it should be closer to the destination which may be calculated in terms of the ETX and then all the nodes in the forwarder set should be able to hear each other. While sending a packet the sender also includes the list of nodes in forwarder sets which are ranked based on their distances to the desti-nation. In best forwarder selection, the main problem in CAOR (Lin et al., 2008) is in deciding which forwarder has the maximum coding opportunities. A node is said to have more coding opportunities by the number of packets it can send in a single transmission.

VI.CONCLUSION

I WSN consists mainly applied to route selection tech-nique used is based on the architecture and system re-sources.WSN communications nodes or group between nodes, either communication patterns node.

And node communication group communication nodes may play an important role in the way. (. Zhong et al, 2006) uses the broadcast nature of opportunistic routing communication; Established selection optimistic and have had good coordination between the other relay nodes. The optimistic path for data communication use. Nodes based sensor system resources and increases the lifetime of the network that supports both distributed and hierarchical WSN. For dynamic routing for WSN, flexible, reliable and provides an optimistic solution.

REFERENCES

1.Agnius, L., V. Arunas and K. Egidijus, 2010. A Survey of Wireless Sensor Network Interconnection to External Networks. Springer Science, Business Media B.V., DOI: 10.1007/978-90-481-3662-9_7.

2.Chachulski, S., M. Jennings, S. Katti and D. Katabi, 2007. Trading structure for randomness in wireless op-portunistic routing. Proceedings of the Conference on Ap-plications, Technologies, Architectures and Protocols for Computer Communications, pp: 169-80.

3.Che-Jung, H., L. Huey-Ing and K.G. Winston, 2011. Opportunistic routing-A review and the challenges ahead. Comp. Netw., 55(15): 3592-3603.

4.Haitao, L., Z. Baoxian, T. Hussein, S. Xiaojun and M. Jian, 2009. Opportunistic routing for wireless ad hoc and sensor networks: Present and future directions. IEEE Commun. Mag., 47(12): 103-109.

5.Lin, Y., B. Li and B. Liang, 2008. Code OR: Opportu-nistic routing in wireless mesh networks with segmented network coding. Proceedings of the IEEE International Conference on Network Protocols (ICNP). Orlando, FL, USA, pp: 13-22.

6.Luk, C.P., W.C. Lau and O.C. Yue, 2008. An analysis of opportunistic routing in wireless mesh network. Proceed-ings of the IEEE International Conference on Communi-cations (ICC).

7.Beijing, China. Sanjit, B. and M. Robert, 2004. Op-portunistic routing in multi-hop wireless networks. SIG-COMM Comput. Commun. Rev., 34(1): 69-74.

8.Yan, Y., Z. Baoxian, H.T. Mouftah and M. Jian, 2008. Practical coding-aware opportunistic routing mechanism for wireless mesh networks. Proceeding of IEEE Interna-tional Conference on Communications, pp: 2871-2876.

9.Zhao, B., R.I. Seshadri and M.C. Valenti, 2004. Geo-graphic Random Forwarding with Hybrid-ARQ for ad hoc networks with rapid sleep cycles. Proceeding of IEEE Military Communication Conference (GLOBECOM '04), pp: 3047-3052.

10.Zhong, Z., J. Wang, S. Nelakuditi and L. Guor-Huar, 2006. On selection of candidates for opportunistic any-path forwarding. ACM SIGMOBILE Mob. Comp. Com-mun. Rev., 10(4): 1-2.

11.Zorzi, M. and R.R. Rao, 2003. Geographic random forwarding (GeRaF) for ad hoc and sensor networks: Multihop performance. IEEE T. Mobile Comput., 2(4): 337-348.

Madhavi Komatireddy M.Tech(CSE) from Swami Ramananda Tirtha Institute of Science and Technology, JNTUH and B. Tech CSE from Swami Ramananda Tirtha Institute of Science and Technology, JNTUH. She has more than 8 years of experience and guided UG & PG students, currently she is working as Asst Prof at SRTIST Engineering College. Her research areas include, Computer Networks, Cloud computing, Network Security, Software Engineering.

Mysolla Shireesha M.Tech(CSE) from Swami Ramananda Tirtha Institute of Science and Technology, JNTU B.Tech IT from Sri vishveshwaraiah institute Of Technology And Science Engineering College. She has more than 8 years of experience has guided UG & PG students, currently she is working as Asst Prof at SRTIST Engineering College. Her research areas include Software Engineering, Computer Networks, Cloud computing, Design Analysis of Algorithms, .

T.Madhu is working as a Associate Professor in Swami RamanandaTirtha Institute of Science and technology, Nalgonda,Telangana, India