Distributed Energy Efficient Clone Detection Protocol In Star Topology

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Abstract - *Wireless sensor network is an insecure to the node replication. we are proposing a system detection of duplicate sensor node. The system detect the clone node attack and remove it. For that we obtain the location information of sensor nodes and select same node to verify the legality of sensor node and to report duplicate node attack in the WSN.*

In existing system they used ring topology, the main drawback of ring system was if one node is failed whole system get collapse. To overcome this drawback we propose star topology. We also try to obtain long network lifetime by effectively distributing the network traveling load. We also work on different mobility structure under different network system. We reduce use of space and energy as well as time.

Key Words: **Wireless Sensor Network**, **node replication, clone**, **star topology , mobility etc** .

1.INTRODUCTION

In our proposed system, we are using the star topology. The below figure shows the example where there are to duplicate nodes and rest other nodes are witnesses. Witness nodes will witness/observe other nodes for clone detection and it found that information it will send to user. User is find out the clone node and remove the clone node from topology by the location awareness.
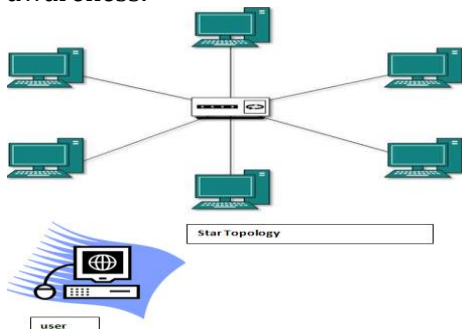

Fig .Star topology

1.1 MOTIVATION OF THE PAPER

We propose a system in which detecting the copied node and this node are removed by the location aware in star topology. In our system we are use a star topology is the remove the drawbacks of the previous system.

1.2 PROBLEM STATEMENT

The challenge in wireless sensor network protocol design is to provide energy efficient communication, as most of the nodes in sensor networks have limited battery power and it is not feasible to recharge or replace the batteries.

Clone attack is the big problem in wireless sensor network for reducing the space and energy by detecting duplicate node in wireless sensor network

2. RELEVANT MATHEMATICS ASSOCIATED WITH THE PAPER

System Description:

Input: configuration of network and transmission.

Output: Transmission path, attacker node, number of packet send, number of received, loss of packets, Number of duplicate node.

Mathematical Formulation:

$Cn = fN ,Ps,Emin,Emax,Tp,Trg$

Where,

Cn = con_guration of network,

Tn =Transmission of network,

N = Number of packets,

Ps = Packets size,

$Emin$ = Minimum Energy,

$Emax$ = Maximum Energy,

Tp = Transmission power,

Tr = Transmission range,
Tn =S,D,M
S = Source,
D = Destination,
M = Message.
Output-
O = fTpath, An, NPs, NPr, Lp, Dng
Where,
Tpath = Transmission path,
An = Attacker Node,
NPs = Number of packets send,
Lp = Packets Loss,
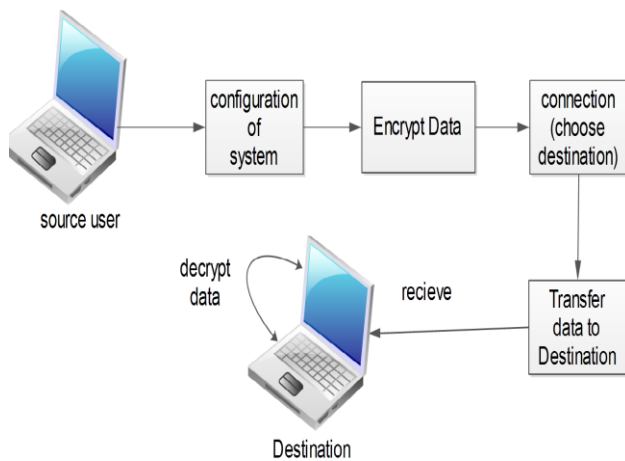Dn = Duplicate Node.

3. ARCHITECTURE REVIEW

Fig. Data transmission

Figure shows the overall description of the data transmission from source to destination. For the transmission of data configuration of system is necessary. For the only security purpose we are using the encryption and decryption. After encryption of data choose the connection and transfer the data. At the same time it will check if any clone node is present in the network then it will detect and remove and continue to data transmission from which energy, memory and time can be consume. By using that connection data transfer to the destination. When it will reach to the destination. It is in decrypted form.

4. OUTCOME

It increases the speed of finding the duplicate node in the given network .The experiment results show that in the problem domain of location of duplicate node, the proposed method only detecting the copied node and

accuracy of finding that node in which increase the efficiency of the memory also consumes the power and one advantage of that process is taking the star topology.

5. APPLICATIONS

Banking application.

6. CONCLUSIONS

We also try to obtain long network lifetime by effectively distributing the network traveling load. We also work on different mobility structure under different network system. We reduce use of space and energy as
well as time.

REFERENCES

[1] Z. Zheng, A. Liu, L. X. Cai, Z. Chen, and X. Shen, RCD: An energy-efficient clone detection protocol in wsns, fiin Proc. IEEE INFOCOM, Turin,IT, Apr. 14-19 2013, pp. 24362444.

[2] R. Lu, X. Li, X. Liang, X. Shen, and X. Lin, RS: The green,

reliability, and security of emerging machine to machine communications, IEEE Communications Magazine, vol. 49, no. 4, pp. 285, Apr. 2011.

[3] A. Liu, J. Ren, X. Li, Z. Chen, and X. Shen, esign principles and improvement of cost function based energy aware routing algorithms for wireless sensor networks, Computer Networks, vol. 56, no. 7, pp. 1951967, May. 2012.

[4] T. Shu, M. Krunz, and S. Liu, secure data collection in wireless sensor networks using randomized dispersive routes, IEEE Transactions on Mobile Computing, vol. 9, no. 7, pp. 94154, Jul. 2010.

[5] J. Li, J. Chen, and T. H. Lai, energy-efficient intrusion detection with a barrier of probabilistic sensors, in Proc. IEEE INFOCOM, Orlando, FL, USA, Mar. 25-30 2012, pp. 11826.

[6] J W. Naruephiphat, Y. Ji, and C. Charnsripinyo, n area-based approach for node replica detection in wireless sensor networks,in Proc. IEEE TrustCom, Liverpool, UK, Jun. 25-27 2012, pp. 74550.

[7] T. Bonaci, P. Lee, L. Bushnell, and R. Poovendran, istributed clone detection in wireless sensor networks: An optimization approach, in Proc. IEEE WoWMoM, Lucca, IT, Jun. 20-23 2011, pp. 1.

[8] M. Zhang, V. Khanapure, S. Chen, and X. Xiao, emory efficient protocols for detecting node replication attacks in wireless networks,nProc.IEEEICNP,Princeton,162009, pp. 28493.

[9] I. F. Akyildiz, W. Su, Y. Sankarasubramaniam, and
     E.Cayirci,"Wireless sensor networks: a survey,"
     Computer   Networks, vol. 38, no. 4, pp. 393–422,
     Mar. 2002.

[10] A. Liu, J. Ren, X. Li, Z. Chen, and X. Shen, "Design
      principles and improvement of cost function
based
      energy aware routing algorithms for wireless
sensor
      networks," Computer Networks, vol. 56, no. 7, pp.
      1951–1967, May. 2012.