

encryption-decryption of RREQ packets and route updates. In fig 6, the graph shows that the latency for the proposed algorithm is lower as compared to the present system. The present system does not fragment the query into smaller parts.

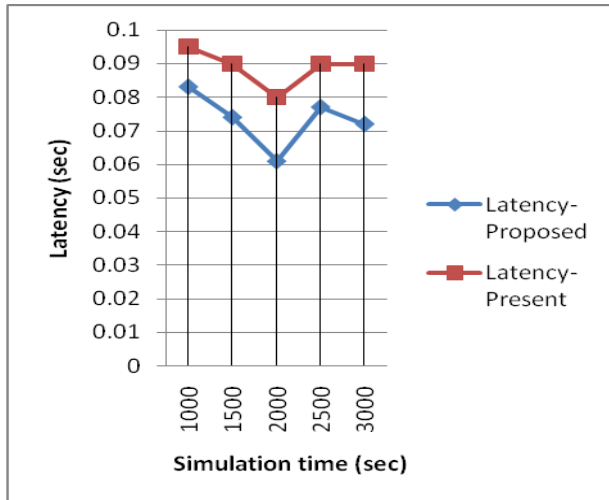


Figure 7: Latency Vs Simulation Time

6. Conclusion

VANET now has become a popular architecture in urban traffic management and information mitigation. Vehicles loaded with GPS sensors now utilize navigation queries more than ever to find out the best route for a destination, route alert as well as to obtain traffic information. Due to increasing number of vehicles and low security capability of such dynamic nature network, such communication system presents great security threat. In this paper, a unique navigation system for VANET with strong authentication and encryption options are presented. The proposed model extends the conventional VANET with multi layer key based solution with the use of both symmetric keys and public key cryptography. The techniques like source node hiding and header encryption beside data encryption have been adopted. The routes are updated frequently in order to keep intruders at bay. Therefore the proposed system not only provides better security than the conventional VANET, it also improves the communication performance. The result also shows that the proposed system helps the vehicle traverse longer distance over time due to ideal navigational alert.

In future, the system can be extended by implementing multicast groups and extending peer based security techniques to group authentication schemes which will further reduce the communication overhead. The system can be extended suitably to deal with other types of attacks in the network.

References

- [1] Rekha Patil., Pooja Aspalli, "Adaptive Probabilistic Broadcasting in VANET", International Journal of Emerging Science and Engineering (IJESE), Volume-1, Issue-11, September 2013, ISSN: 2319-6378, pp 1- 5.
- [2] Ram Shringar, Raw Manish Kumar, Nanhay Singh, "Security Challenges, Issues and Their Solutions for VANET", International Journal of Network Security & Its Applications (IJNSA), Vol.5, Issue.5, September 2013, pp 95- 105.
- [3] Mostofa Kamal Nasir, A.S.M. Delowar Hossain, Md. Sazzad Hossain, Md. Mosaddik Hasan, Md. Belayet Ali, " Security Challenges And Implementation Mechanism For Vehicular Ad Hoc Network", International Journal Of Scientific & Technology Research Volume 2, Issue 4, April 2013, ISSN: 2277-8616, pp 156-161.
- [4] Brijesh Kumar Chaurasia, Shekhar Verma, "Infrastructure Based Authentication In VANETs", International Journal of Multimedia and Ubiquitous Engineering, Vol. 6, No. 2, April, 2011, pp 41-53.
- [5] Surabhi Mahajan Prof. Alka Jindal, "Security and Privacy in VANET to reduce Authentication Overhead for Rapid Roaming Networks", International Journal of Computer Applications (0975 – 8887) Volume 1– No.20, February 2010, pp 17-21.
- [6] Mina Rahbari and Mohammad Ali Jabreil Jamali, "Efficient Detection of Sybil Attack Based On Cryptography in VANET", International Journal of Network Security & Its Applications (IJNSA), Vol.3, No.6, November 2011, pp 185-195.
- [7] Halabi Hasbullah, Irshad Ahmed Soomro, Jamalul-lail Ab Manan, "Denial of Service (DOS) Attack and Its Possible Solutions in VANET", International Scholarly and Scientific Research & Innovation 4(5) 2010, pp 348-352.
- [8] Aswathy M C and Tripti C, "A Cluster Based Enhancement to AODV for Inter-Vehicular Communication in VANET", International Journal of Grid Computing & Applications (IJGCA) Vol.3, No.3, September 2012, pp 41-50.
- [9] Vinh Hoa LA, Ana Cavalli, " Security Attacks And Solutions In vehicular Ad hoc Networks: A Survey ", International Journal on Ad Hoc Networking Systems (IJANS) Vol. 4, No. 2, April 2014, pp 1-20.
- [10] Namita Chandel, Mr. Vishal Gupta,"Comparative Analysis of AODV, DSR and DSDV Routing Protocols for VANET City Scenario", International Journal on Recent and Innovation Trends in Computing and Communication, Volume: 2, Issue: 6, June 2014, ISSN: 2321-8169, pp 1380–1384.
- [11] Vishal Sharma, Harsukhpeet Singh, Shashi Kant, "Challenging Issues in VANET Network and its Routing Algorithms- An Analysis", Proc. of Int. Conf. on Advances in Communication, Network, and Computing 2013, pp 48-51.
- [12] D.Sujeetha, R. Saranya, "Key Revocation for Secure Vehicular Ad Hoc Network", International Journal of Engineering Science and Innovative Technology (IJESIT)", Volume 3, Issue 1, January 2014, ISSN: 2319-5967, pp 360-367.
- [13] Ayonija Pathre, Chetan Agrawal, Anurag Jain, "Identification of Malicious Vehicle in VANET Environment from DDOS Attack", Journal of Global Research in Computer Science", Volume 4, Issue 6, June 2013, ISSN: 2229- 371X, pp 30-34.

- [14] Su-Hyun Kim, Im-Yeong Lee, “ A Secure and Efficient Vehicle-to-Vehicle Communication scheme using Bloom Filter in VANETs”, International Journal of Security and its Applications, Volume 8, Issue 2, 2014, ISSN: 1738-9976, pp 9-24.
- [15] Chenxi Zhang, Xiaodong Lin, Rongxing Lu, Pin-Han Ho, Xuemin (Sherman) Shen, “An Efficient Message Authentication Scheme for Vehicular Communications”, IEEE Transactions on VEHICULAR Technology, Vol. 57, No. 6, November 2008, pp 3357-3368.
- [16] Shruti Bandak, Rekha Patil, “ Public Key Cryptography based Secured Dynamic Routing in VANET Time Stamp Based Key Management System”, International Journal of Science and Research(IJSR), Volume 3, Issue 6, June 2014, ISSN: 2319-7064, pp 2213-2217.

