

ENERGY OPTIMIZATION FOR WIRELESS SENSOR NETWORK THROUGH PRIORITY

J.Sridhar¹, Gita kumari²

¹Asst. Professor, Dept. of Computer Science & Engg
Bharath University, Chennai.

²BIHER, BIST, Bharath university, Chennai

¹sridhar.cse@bharathuniv.ac.in, ²lovelynikita555@gmail.com

Abstract: Watchdog technique acts as the basic building block to several trust systems that are especially aimed at securing Wireless Sensor Networks (WSNs). Regrettably, the lifespan of WSN is largely limited as such kind of technique consumes more energy. Due to this deficiency of the technique, studies understood the importance of the efficiency of trust systems in the field of WSNs and introduced several other solutions overlooking the optimization of the watchdog technique. In this paper, we reveal a proposal for several optimization methods that keeps the integral security of the system using the same Watchdog technique. The current inefficiency of the technique in the existing trust systems is revealed and many theoretical analysis and practical algorithms have been shown in this paper including the sensor locations and the target nodes' reliability to provide an improvised Watchdog technique. All algorithms have been assessed by running several experiments on top of a WSNET simulation platform and indoor WSN test in our collaborative lab.

1. Introduction

Mining software repositories is an interdisciplinary domain, which deals with software engineering problems using data mining. Software repositories are large-scale database that stores the software development output such as bugs[1-8], e-mails, source code and specifications. Large scale and complex data in software repositories is not suited to traditional software analysis and hence the Data Mining techniques has emerged as a promising way to unfold mysterious data in software repositories and thereby solving the real world software issues.

A bug repository helps essentially in managing the software bugs. The inevitable software bugs become an expensive issue when it comes to fix them. Over 45 percent of cost invested by software companies is spent over bug fixing. The bug tracking system or the so called Bug repositories are deployed by large software projects to collect support data and assist the developers to handle bugs. The textual input

3. System architecture

of reproduction of bugs and fixing them is maintained by the bug repository in the form of bug reports (bug data). Several tasks such as fault prediction[9-12], bug localization and reopened bug analysis, is supported by the data platforms given by the bug repository.

2. System analysis

Existing system

Sensor nodes are known for their adaptation to harsh environments that includes desert and ocean abyss but has a limited battery which proves to be expensive when it comes to its recharging or replacement[13-15]. Thus, it is made sure that the modern design of WSNs has efficient energy saving plans. However, there exists no such WSNTSs that provide appropriate energy saving schemes to the best of our knowledge that reduces the energy consumed by the Watchdog technique. Since some WSNTSs do not implicate the scheduling of watchdogs in their proposal plans, some bound to let flooding the neighbour watchdog in order to monitor the neighbour watchdog activities by launching the sensor nodes without having the knowledge of the effective frequency.

Proposed system

The goal of this paper is to maintain the robust and accuracy of the trust system efficiently while reducing the energy cost produced by the watchdog tasks. Enhancement of the watchdog technique is done in two levels in order to achieve this goal. First being, improving the watchdog locations and bringing the sensor nodes closer that makes the communication distance less hence providing efficient result while consuming less energy[16-19]. In order to minimize the overall risk whether it is consumption or security, an ideal watchdog location is set. Second, the optimization of watchdog frequency and reducing the redundancy is done to maintain efficient integration.

wireless sensor network all the nodes are connected and

formed as a cluster. A cluster head will be selected through the higher residual energy. If a process is going to start it will call the watchdog timer only if the process is a new one. The idle nodes in the cluster will be in the sleep mode and it will awake when the process is finished.

Module description

Instance selection

One of the oldest and widely used techniques in data processing is the Instance and Feature selection. Instance selection acquires a subset of relevant instances (i.e., bug reports) while feature selection on the other hand aims at achieving subset of relevant features (i.e., words in bug data), for a given set of data in a particular application. A combination of both Instance and Feature selection is used in this work.

Data reduction

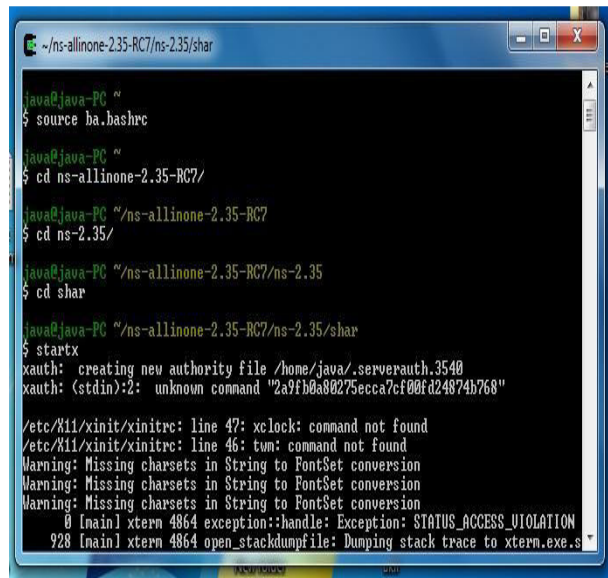
In our work, the data reduction for bug data aims to reduce the labor costs of developers[20-21].

- 1) Minimizing the data scale.
- 2) Enhancing the bug triage accuracy.

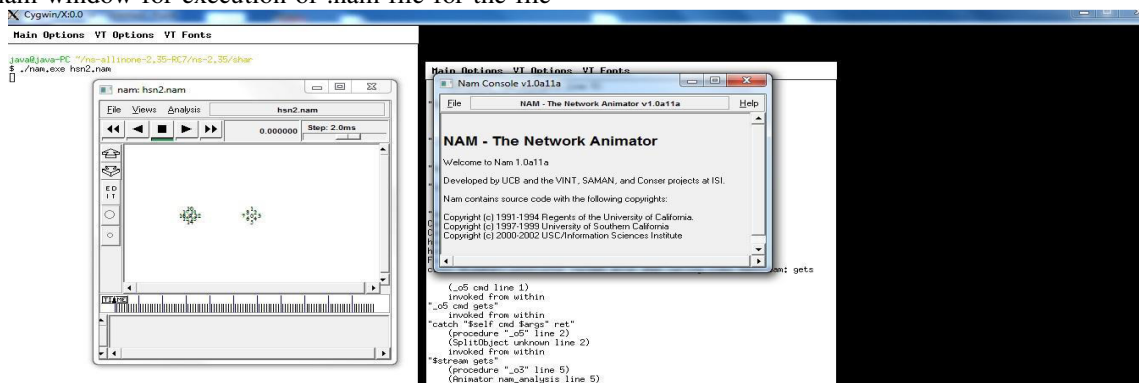
Implementation in action

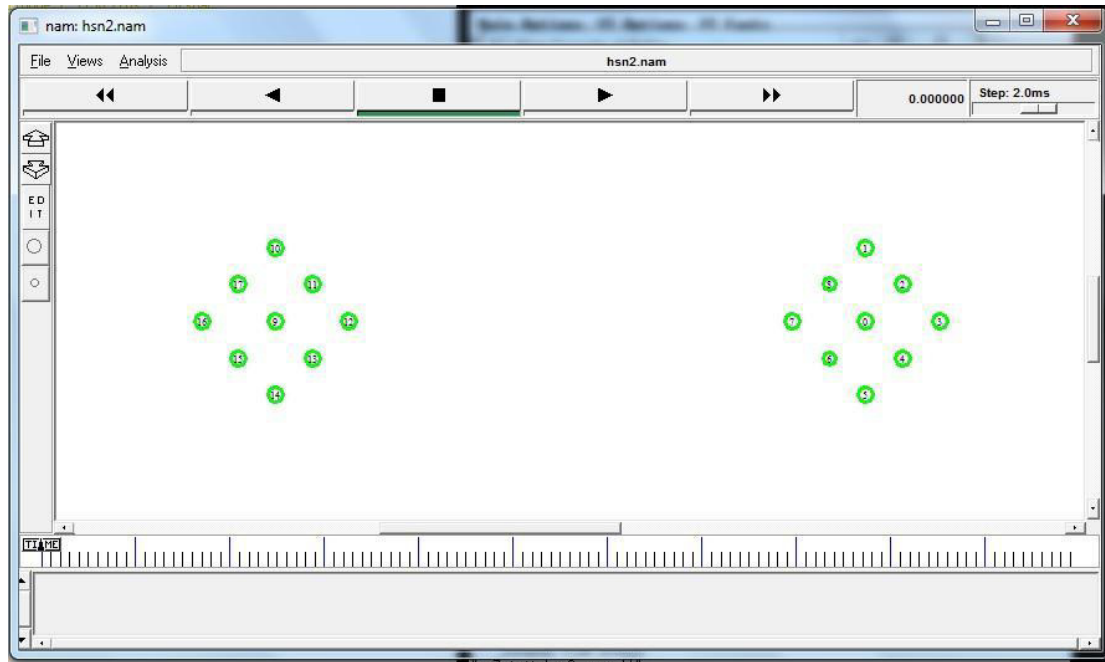
This file indicate that to open the wireless sensor network file and to get the wireless sensor network for that we need to open the laptop or computer then go to start and search the Cygwin software and open this then we will get one black colour screen there type source ba.bashrc. command to give a ns run path directly cd-command to open the tool. when we can type the source ba.bashrc the we will get next sthere we need to type cd ns tab enter then we will get next step in there we need to type cd shar enter then we will get next step and there we will type startx enter then we will get one new file which is shown below. Startx is a window for executing .tcl file and for compiling it his file indicates the nam window for execution of .nam file for the file

- An augmentation of the data set in order to build a preprocessing approach is aimed rather than modifying the textual content of the existing works' bug reports. Hence, the two important goals of data reduction is explained below.

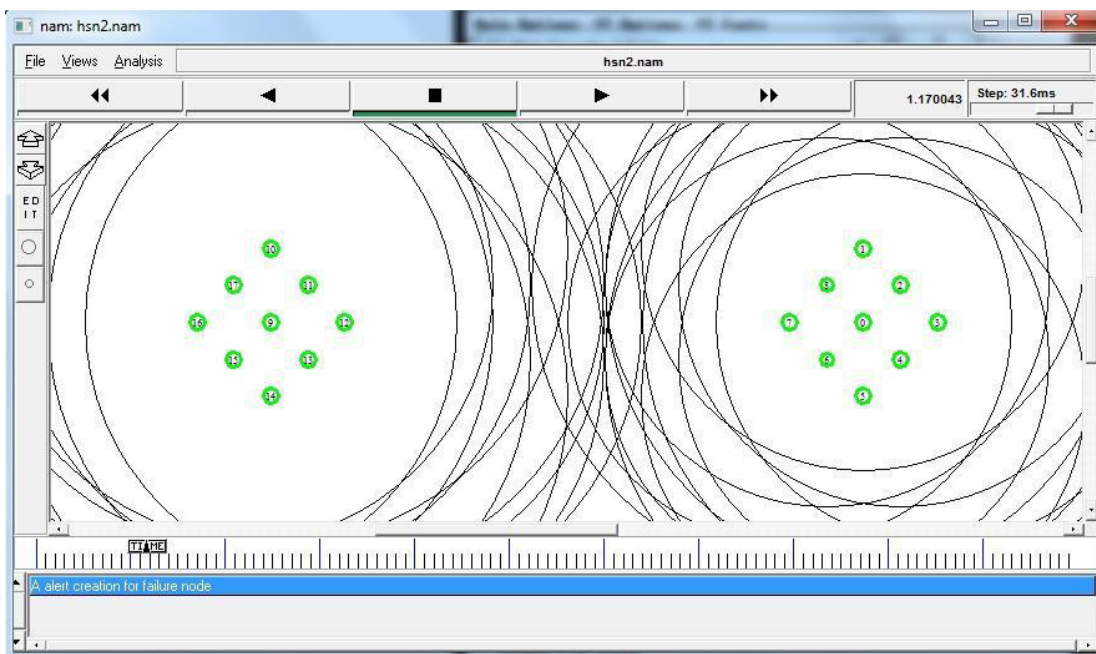


the simulation. Here we will get two cluster formations with a head selection. After that we need to open the cluster file which is shown below. After that file we came here and here we need to type ./nam.exe hsn2.nam enter then we will get one new file which is shown below.

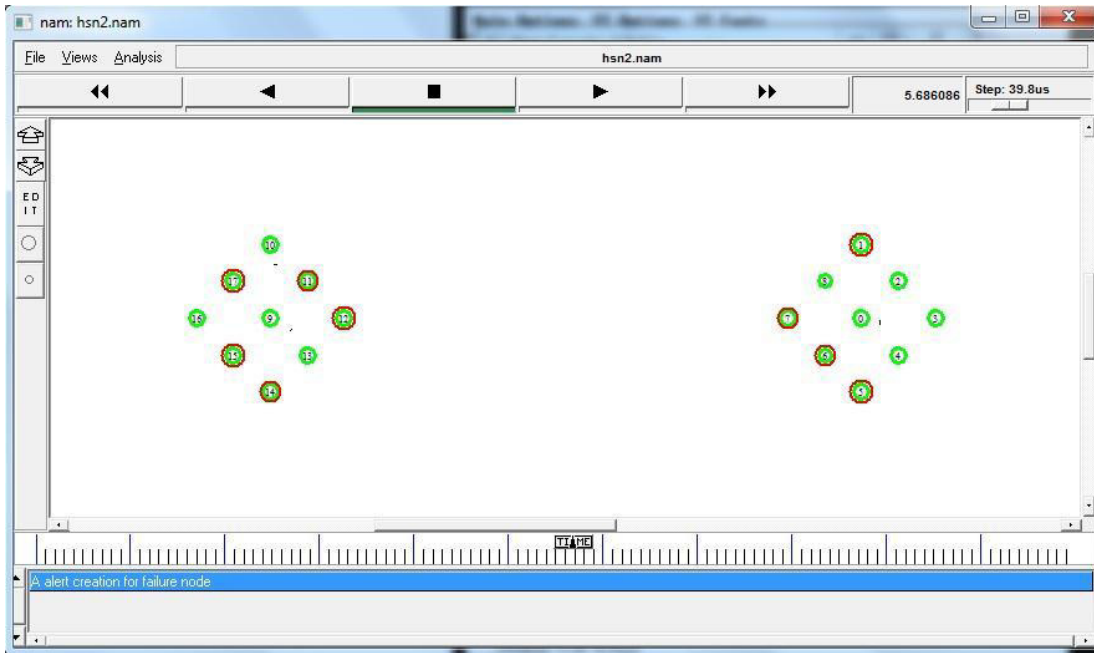




In this file we will see two clusters with so many nodes which indicate the wireless network. Then we start the micro speed the we get the diagram like below.



This diagram indicates that the communication area of the node is intimated through the circle



The nodes which are in ideal node will be switched into sleep node and other node will communicate. And awake node.

4. Conclusion

In this paper, questions on WSNTS's efficiency against maintaining enough security even when the trust's basic foundation is minimized, is initiated. After going through rigorous experiments and analysis, we provide a very positive result that directs to the energy-efficient WSNTS by improving the collection procedure of the trust system.

References

- [1] Udayakumar R., Kaliyamurthie K.P., Khanaa, Thooyamani K.P., Data mining a boon: Predictive system for university topper women in academia, *World Applied Sciences Journal*, v-29, i-14, pp-86-90, 2014.
- [2] Kaliyamurthie K.P., Parameswari D., Udayakumar R., QOS aware privacy preserving location monitoring in wireless sensor network, *Indian Journal of Science and Technology*, v-6, i-SUPPL5, pp-4648-4652, 2013.
- [3] BrinthaRajakumari S., Nalini C., An efficient cost model for data storage with horizontal layout in the cloud, *Indian Journal of Science and Technology*, v-7, i-, pp-45-46, 2014.
- [4] BrinthaRajakumari S., Nalini C., An efficient data mining dataset preparation using aggregation in relational database, *Indian Journal of Science and Technology*, v-7, i-, pp-44-46, 2014.
- [5] Khanna V., Mohanta K., Saravanan T., Recovery of link quality degradation in wireless mesh networks, *Indian Journal of Science and Technology*, v-6, i-SUPPL.6, pp-4837-4843, 2013.
- [6] Khanaa V., Thooyamani K.P., Udayakumar R., A secure and efficient authentication system for distributed wireless sensor network, *World Applied Sciences Journal*, v-29, i-14, pp-304-308, 2014.
- [7] Udayakumar R., Khanaa V., Saravanan T., Saritha G., Retinal image analysis using curvelet transform and multistructure elements morphology by reconstruction, *Middle - East Journal of Scientific Research*, v-16, i-12, pp-1781-1785, 2013.
- [8] Khanaa V., Mohanta K., Saravanan. T., Performance analysis of FTTH using GEAPON in direct and external modulation, *Indian Journal of Science and Technology*, v-6, i-SUPPL.6, pp-4848-4852, 2013.
- [9] Kaliyamurthie K.P., Udayakumar R., Parameswari D., Mugunthan S.N., Highly secured online voting system over network, *Indian Journal of Science and Technology*, v-6, i-SUPPL.6, pp-4831-4836, 2013.
- [10] Thooyamani K.P., Khanaa V., Udayakumar R., Efficiently measuring denial of service attacks using appropriate metrics, *Middle - East Journal of Scientific Research*, v-20, i-12, pp-2464-2470, 2014.
- [11] R.Kalaiprasath, R.Elankavi, Dr.R.Udayakumar, Cloud Information Accountability (Cia) Framework Ensuring Accountability Of Data In Cloud And Security In End To End Process In Cloud Terminology, *International Journal Of Civil Engineering And Technology (Ijciet)* Volume 8, Issue 4, Pp. 376-385, April 2017.
- [12] R.Elankavi, R.Kalaiprasath, Dr.R.Udayakumar, A fast clustering algorithm for high-dimensional data, *International Journal Of Civil Engineering And Technology (Ijciet)*, Volume 8, Issue 5, Pp. 1220-1227, May 2017.

- [13] R. Kalaiprasath, R. Elankavi and Dr. R. Udayakumar. Cloud. Security and Compliance - A Semantic Approach in End to End Security, International Journal Of Mechanical Engineering And Technology (Ijmet), Volume 8, Issue 5, pp-987-994, May 2017.
- [14] Thooyamani K.P., Khanaa V., Udayakumar R., Virtual instrumentation based process of agriculture by automation, Middle - East Journal of Scientific Research, v-20, i-12, pp-2604-2612, 2014.
- [15] Udayakumar R., Thooyamani K.P., Khanaa, Random projection based data perturbation using geometric transformation, World Applied Sciences Journal, v-29, i-14, pp-19-24, 2014.
- [16] Udayakumar R., Thooyamani K.P., Khanaa, Deploying site-to-site VPN connectivity: MPLS VsIPSec, World Applied Sciences Journal, v-29, i-14, pp-6-10, 2014.

