

# MOBILE TARGET DETECTING IN WIRELESS SENSOR NETWORKS WITH ADJUSTABLE SENSING FREQUENCY

K. SIVAGURUNATHAN

*Department of Electronics and Communication Engineering,  
Christ Institute of Technology, Puducherry-605 502, India  
msg2sivaguru@gmail.com*

S. LATHA MAHESWARI

*Department of Electronics and Communication Engineering,  
Christ Institute of Technology, Puducherry-605 502, India  
lathamaheswari1997@gmail.com*

N. PAVITHRA

*Department of Electronics and Communication Engineering,  
Christ Institute of Technology, Puducherry-605 502, India  
Pavinatarajan97@gmail.com*

M.VIJAYALAKSHMI

*Department of Electronics and Communication Engineering,  
Christ Institute of Technology, Puducherry-605 502, India  
m.vijayalakshmigenius@gmail.com*

## ABSTRACT

The network use to sense the information through the nodes for communication without any wired is the network of WSN. The WSN is the basics IOT which helps the object to communicate and exchange the data. The target tracking is being achieved by sensing frequency thus the device which receives and responds to a signal is a sensor through the frequency this paper which deals with find out of target in random manner. The proposed scheme to detect the moving target is Two –Level concentric EBND method. Thus the scheme result shows that the increase of weighted node increased by 7.5% and to reduction of undetected target by more than 16m.

**KEY WORDS:** Delay, undetected, weight (lifetime), WSN, acoustic sensor.

## INTRODUCTION

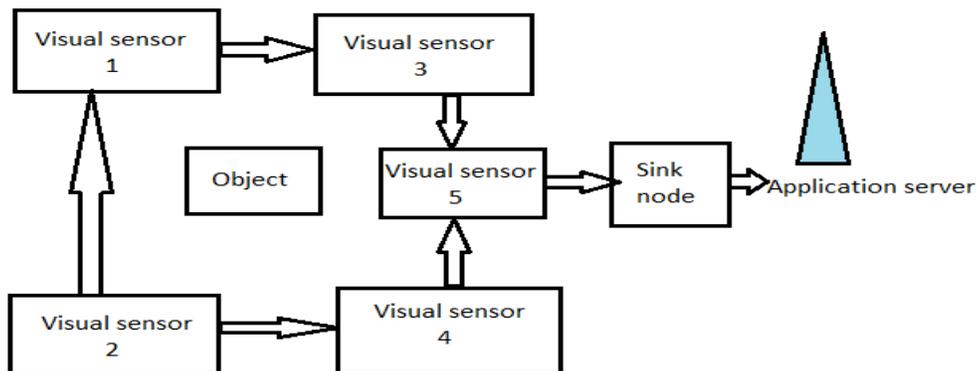
Monitoring shows a foremost part in the world. Thus the monitoring would be done by WSN method through the method of IOTs concept is the WSN is the foundation of IOT. The IOT is the system which the connection between object and the internet is the main concept in means of transportation, home-based purposes and other articles fixed with electronics software, sensors, and actuators and connectivity. It helps the substances to fix one another through the internet for much purpose. Monitoring is unique part of networking.

In WSN is to share the statistics through the monitoring purpose. Monitoring is the term which to capture the statistics about the object in the particular area which to most helpful in forest areas and military areas etc. in WSN monitoring is done by the sensible nodes. The nodes which to find out the objective in the particular area. Detection of objective in the monitoring areas is the major part in networking. In networking of WSN is the direct relation between object or person in a system with the communication link through one another.

## WIRELESS SENSOR NETWORK

WSN is collections of huge amount of cheaper node which could distribute in random manner. The node which

has pre-planned deployment in particular areas and it monitor through the monitor. The node which would gather information and it sent through the sink node to select the objective in the area.



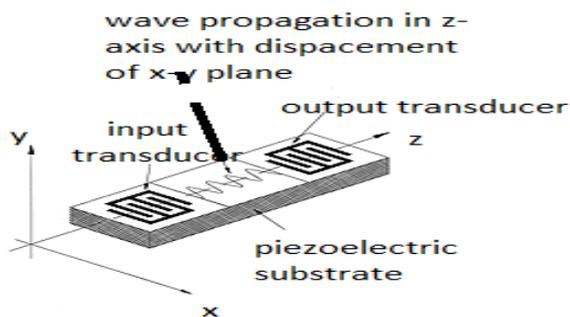
**Fig.1.1 wireless sensor network architecture**

A sensor which to sense the object in a specific coverage area. The nodes which to send a beacon message one to another nodes thus the node which trace the signal in the particular coverage area in that the sensor could select the destination of objective in the area. Application server. A group of sensors node co- ordinate with neighboring node perform a much bigger application effectively and efficiently. In a characteristic WSN, the network traffic all are gather to the converges at the sink node in addition to amplify there is a significant amount of data sent through the sink Visual sensor 1 Visual sensor 2 Visual sensor 3 Visual sensor 4 Optical sensor 5 Sink node object node.

The duty cycle of nodes depends on the nodes active state to sleep state for the particular time. Which measure for better exposure and connectivity usually for compact collection of nodes. The sensing of nodes in the range of 3D range. The sensor which to sense in the circle manner in that the coverage of object to be mark in the particular area.

The sensing of node which could shelter the ranges in the circular and diagonal manner in that we could detect the target at that time without any missing of target(animals). In addition to possible hardware or software malfunctions sensors may flop because of several weather conditions or other harsh environmental conditions in the sensor field through the acoustic Sensor.

## ACOUSTIC SENSOR



**Fig.1.2 Acoustic Sensor**

Acoustic sensor is a sensor which to measure the environmental and to measure the objects to tract in the area. The sensor which to deployed with the density to monitor the activities and location of the animals in a natural habitat continuously. The sensor which mostly used in forest areas to protect animals from the hunting purpose. In that sensor we could capture the target end and another at the receiving end where the wave is converted into electrical energy to mechanical energy and mechanical energy to electrical energy. The sensor which is most used in the slow speed in all over the survive lance area. The sensor which generally has geo transducer at each end. One at the transmitting of propagation in same frequency.

**DELAY**

To improve the quality of network the sensor could detect the target without any delay. The delay is the network based on packet switching and transmission delay is the amount of time required to push all the packets bits into the wire. The delay is proportional to the packets.

**WEIGHT(LIFETIME)**

The life time of node (or) energy of the node. Due to default of power consumption in the node will loss the data information and the process of transmitting information is to be cutoff. The node which has normally minimum lifetime in that we could transfer the data. In active period the sense of duty cycle of node it would loss higher energy than the sleep state.

**UNDETECTED**

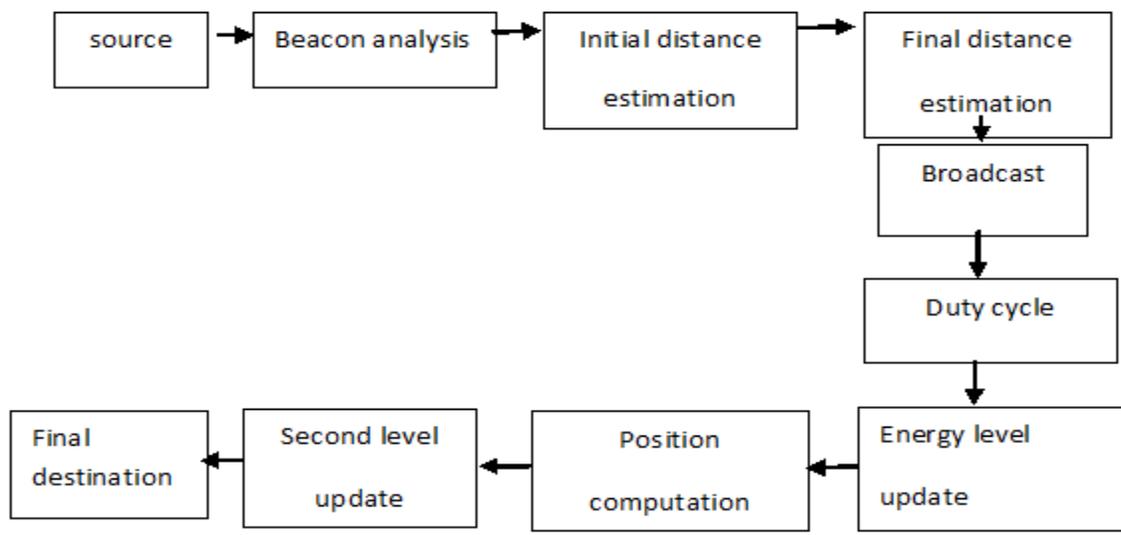
The undetected is the term of missing of target is the coverage area. The node which sense the target in a certain place of node which is in sleep sate select the person is directed to be missed. Which does not identify at the particular coverage at a distance is measured as undetected. The credentials of target is the main aim of network.

The movement of object in the particular area the node to be sensed and capture the information about the object.

**ENLIGHTED LEVEL-II OF CONCENTRIC ENERGY BASIC BALANCING NODE DISTRIBUTION**

In this algorithm we are implementing the distribution of nodes depends on the working level. In our project the sensor nodes are in dynamic motion that is the sensor nodes which have high energy and fastest speed for the nodes compared to other nodes.

The Enlighted level II of concentric energy is the sensor nodes which cover the area in circular motion like concentric waves in that we are implementing the system are change based on the surroundings. The brief explain of the algorithm is the various nodes are scattered in random manner thus the sensor nodes are transfer the message to the central monitor like many to one process of MUX method.



**Fig.1.3 Block diagram of node distribution**

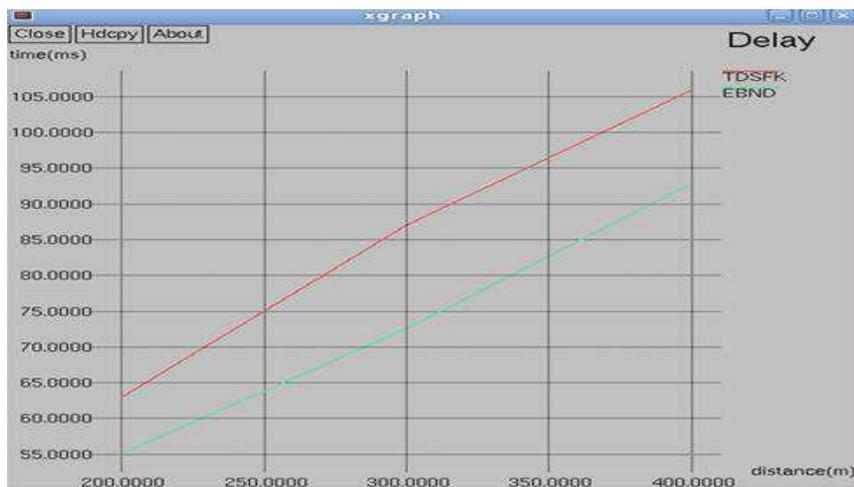
This type of method will delayed the information to the centralized(survive lance) monitor because the nodes to be distributed in random manner in-case of the sensor nodes are not accept any information(target) that the node will be unused so that we are proposed algorithm of enlightened level-II of concentric energy basic balancing node distribution algorithm in that the source Beacon analysis Initial distance estimation Final distance estimation

Broadcast Duty cycle Energy level update Position computation Second level update Final target node will be Replaced from place to another place that is node to be distribution depends on the energy of nodes in concentric waves.

The concentric wave is the circular continuous wave if there is no information in the node, the node will change the place in one region of circular region to another region in that process we would gather information quickly without any delay, the life time of node also increase and the reduce the weighted deduction delay to the node. Distribution reconfiguration considering succeeding minimum loss in structure and energy not supplied is a complex process.

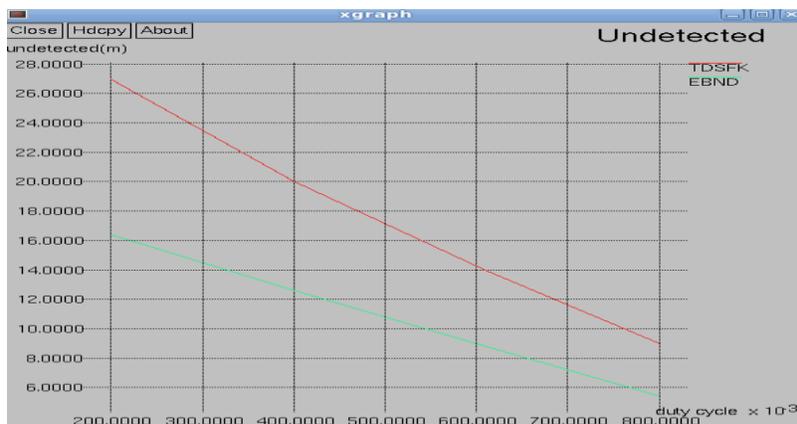
Various factors including the location and types of switch equipment, the capacity of lines and network structure are effective in reducing the damage cost of power interruption of consumer.

### SIMULATED OUTPUT DELAY



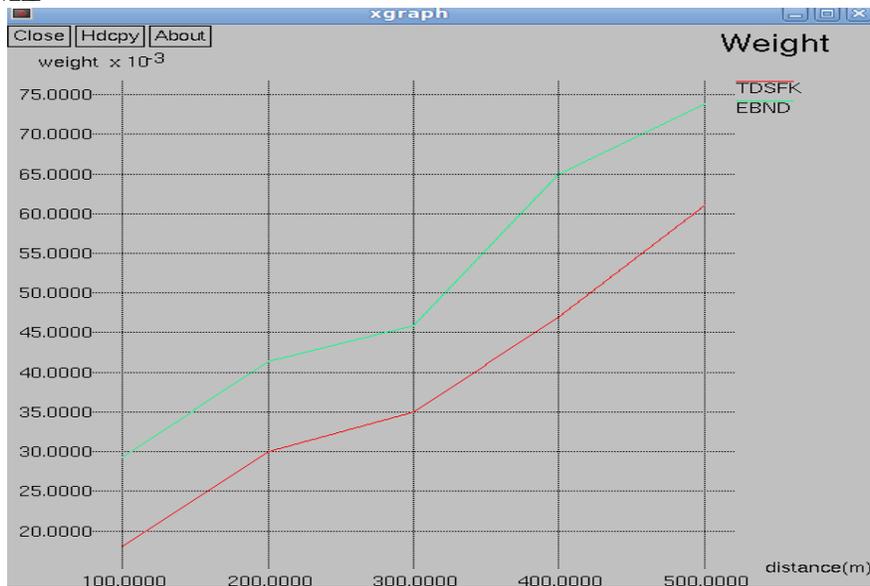
The comparison between delay for detection in TDSFK(Target detection in sensing frequency constant K) and EBND(Energy balanced node distribution). In EBND the delay is decreased when compared to TDSFK method. The simulation of Ns2 tool the X-axis time(m/s) and Y-axis distance(m).

### UNDETECTED



The comparison of EBND (Energy balanced node distribution) and TDSFK(target detection sensing frequency constant k).In EBND the undetected target to be reduced when compared to TDSFK . The simulation of Ns2 tool the X-axis is duty cycle and Y-axis is distance(m).

## WEIGHT (LIFETIME)



In comparison of EBND and TDSFK. The EBND method weight of the 30 and TDSFK method weight 20. So the EBND method to be increased.

## CONCLUSION

We have enlightened level-II of concentric energy basic balancing node distribution. In this scheme the target to be covered as a concentric circle in random nodes to choose the target with minimum power consumption with high transmission of data. In thus the we could decrease the undetected target to be increased by 16 m, increase of weight(lifetime) increased by 7.5%.

## REFERENCE

- I. P. Medagliani, J. Leguay, G. Ferrari, V. Gay, and M. Lopez-Ramosc, "Energy-efficient mobile target detection in wireless sensor networks with random node deployment and partial coverage," *Pervasive Mobile Comput.*, vol. 8, no. 3, pp. 429–447.
- II. D. Zhang, Z. Yang, V. Raychoudhury, Z. Chen, and J. Lloret, "An energy efficient routing protocol using movement trend in vehicular ad-hoc networks," *Comput. J.*, vol. 56, no. 8, pp. 938–946.
- III. B. Wang, H. B. Lim, and D. Ma, "Broadcast based on layered diffusion in wireless ad hoc and sensor networks," *Wireless Commun. Mobile Comput.*, vol. 12, no. 1, pp. 99–115.
- IV. P. Medagliani, G. Ferrari, V. Gay, and J. Leguay, "Cross-layer design and analysis of WSN-based mobile target detection systems," *Ad Hoc New. Vol.* 11, no. 2, pp. 712–732.
- V. C. F. Huang, Y. C. Tseng, and L. C. Lo, "The coverage problem in three dimensional wireless sensor networks," *J. Intercon. Netw.*, vol. 8, no. 3, pp. 209–227.