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# Survey and Analysis on Advance Technique of Wireless Sensor Network Technology

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***Abstract: Wireless sensor networks have the potential to become significant subsystems of engineering applications. Tracking mobile targets is an important WSN application in both military and civilian fields for applications like tracking objects or humans or guiding robots in hard to reach areas e.g. nuclear power plants etc. Often it may be necessary for sending additional resources to the vicinity of the mobile target. Tracking mobile targets involves detection and localization of the object of interest by processing the information provided by the sensing nodes along with their location. This paper studies the target tracking problem in a MSN, where it is believed that mobility can be exploited to improve the tracking resolution. This problem becomes particularly challenging given the mobility. In which the trajectories of sensors and targets need to be captured. We investigate the correlations and sensitivity from a set of system parameters and the minimum number of mobile sensors that are required to maintain the resolution for target tracking. The Simulation results demonstrate that the tracking performance.***

***Keyword: wireless sensor network, mobile target tracking.***

## I INTRODUCTION

The building of sensor network technology has enabled the possibility of target detection and tracking in a large scale environment. In this we are generally focus on target tacking by considering both moving target and mobile sensor network (MSN). Specifically we are interested in spatial resolution for localizing resolution target's trajectory and also find out optimization problem solution in Mobile sensor networks, by developing heuristic algorithm to construct an efficient object tracking in wireless sensor networks (WSNs). This algorithm will also help to refine the sensor mobility model, the network model, and the communication model among sensors in order to enable effective detection and tracking. The spatial resolution refers to how accurate a target's position can be measured by sensors, and defined as the worst-case deviation between the estimated and the actual paths in wireless sensor networks. Our main objectives are to establish the theoretical framework for target tracking in mobile sensor networks, and quantitatively demonstrate how the mobility can be exploited to improve the tracking performance.

Given an initial sensor deployment over a region and a sensor mobility pattern, targets are assumed to cross from one boundary of the region to another. We define the spatial resolution as the deviation between the estimated and the actual target travelling path, we can also called it as the distance that a target is not covered by any mobile sensors. Furthermore, we are also interested in determining the minimum number of mobile sensors that needs to be deployed in order to provide the spatial resolution and optimizes solution of problem by using LR based method in mobile sensor networks.

Prior works in stationary wireless sensor networks have studied the fundamental limits of tracking performance in term of spatial resolution and optimization of problem. Our focus in this paper is completely different from all prior works.

The plan of remaining section is as follows. Section 2 shows the deep literature survey of existing system related to our topic. Section 3 explains the brief view of proposed system Section 4 concludes the paper.

## II. LITERATURE SURVEY

### 2.1 A composite Cluster-Based Target detection Protocol based system:

In this system, they propose a novel mobility management protocol, also known as hybrid cluster-based target tracking (HCTT), which integrates on-demand dynamic clustering into a cluster-based WSN for target tracking. By constructing on-demand dynamic clusters at boundary regions, nodes from different static clusters that detect the target can temporarily share information, and the tracking task can be handed over smoothly from one static cluster to another.

### 2.2 Real-Time Target detection and solution Using Wireless Sensor Networks:

Target tracking systems have certain real-time constraints for response to transient events, such as fast-moving targets. While the real-time performance is a major concern in these applications, it should be compatible with other important system properties such as energy consumption and accuracy. This work presents the real-time design and analysis of VigilNet, a large-scale sensor network system which tracks, detects and classifies targets in a timely and energy efficient manner. Based on a deadline partition

method and theoretical derivations to guarantee each sub-deadline, they are able to make guided engineering decisions to meet the end-to-end tracking deadline.

**2.3 Prediction and localisation of nodes by method of object monitoring Ant Optimization in Sensor Networks:**

In this paper the problem of object monitoring in Mobile Sensor Networks can be identified. The proposed system consists of estimating the position of nodes and then the estimated positions are used to predict the location of nodes. Once the object is determined, the mobile node moves to cover the particular object. If the Target cannot be defined then the set of new nodes are located and each node is assigned a position to minimize the total travelled distance. The estimation and prediction of nodes are done by Interval Theory and the Relocation of Nodes is done by using Ant Colony Optimization. ACO is the Localization of Sensor Nodes which Tracks the Targets. In this proposed paper the simulation results are compared to object monitoring methods considered for networks with static nodes.

2.3.1 Ant colony optimization:

1) In this project the basic methodology is use is travelling salesman problem and also following the methods such a vehicle routing and quadratic assignment problem.
2) Its take problem into consideration such as network topology which is generally use for particular area, find out the drawback of technology and the area in which sensor unable to track the user location.
3) The static & mobile node system is use for tracking object in the system.

**2.4 Efficient WSN system through binary-detection in sparsely deployed network:**

In this paper, they propose two novel techniques to track targets using binary sensing that does not need overlapping sensing regions. These techniques can track a target, and estimate the distance it has traversed on the basis of the time that target spends in the vicinity of sensors. In the first technique, the path traced by a moving target is approximated by tangent estimations to three circles, each representing range of a sensor. It allows us to convert the original problem into a semi definite program. The other tracking scheme identifies a band of small width where the target is guaranteed to lie. The band is first approximated using the distance travelled after coming out of vicinity of one sensor and before entering the vicinity of second sensor. This band is then reduced using the distance travelled inside the vicinity of the sensors. We simulated the two methods in NS2 and evaluate both the methods.

**2.5 Model Checking of a Target Tracking Protocol based system:**

Dense collection of tiny Sensor Nodes (SNs), equipped with a variety of sensors are able to sense events, compute and communicate the estimations to the end user, form a distributed Wireless Sensor Network (WSN). The advances in WSNs have made it plausible to appraise critical aspects of object tracking WSNs that are continuous monitoring of object track and fault tolerance. This paper presents probabilistic performance evaluation of clustering, redundancy reduction, target tracking and fault tolerance phases of Fault-Tolerant Target Tracking (FTTT) protocol. This type of formal modelling with limited number of SNs helps to plan a scalable network with specific constraints related to the application, for example, object tracking quality, life time of the network, energy consumption, latency, QoS and network throughput.

**2.6 A Protocol for Tracking Mobile Targets using Sensor Networks:**

Now a day's advances in device fabrication technology, economical deployment of large scale sensor networks,
Capable of pervasive monitoring and control of physical systems have become possible. Scalability, low overhead and distributed functionality are some of the key requirements for any protocol designed for such large scale sensor networks. In this paper, they present a protocol, Distributed Predictive Tracking, for one of the most likely applications for sensor networks: tracking moving targets. The protocol uses a clustering based approach for scalability and a prediction based tracking mechanism to provide a distributed and energy efficient solution. The protocol is robust against node or prediction failures which may result in temporary loss of the target and recovers from such scenarios quickly and with very little additional energy use. Using simulations it shows
That the architecture is able to accurately track targets with random movement patterns with accuracy over a wide range of target speeds.

**2.6.1 Target tracking in distributed environment by developing protocol:**
1) Clustering based approach for scalability and predication based tracking mechanism to provide distributive and energy efficient solution.
2) The power conversation is key factor which is taken in to consideration for execution of system.

**2.6.2 The advantages of this system are:**
1) Scalable co-ordination,
2) Tracking accuracy
3) Ad-hoc deploy-ability,
4) Computation and communication costs
5) Power constraint.

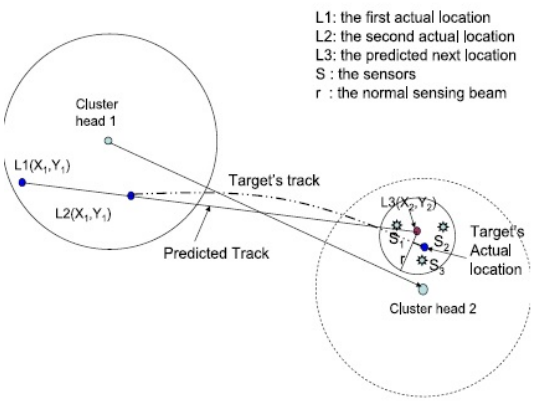


Fig 1.Target tracking in distributed environment

## III PROPOSED SYSTEM

As per the prior system's many system are successfully work on the wireless sensor network, but the problem is create when continues communication between moving object and wireless sensor network is occur, the Disadvantages such as temporary attachment, regional connectivity, overlapping of network connection, deadline of time limit like issues were generate. To overcome these problems we proposed a system called as spatial resolution method and to avoid network traffic we are also proposed solution called as optimizing target tracking system for continues connectivity during unpredictable moment of target in any region. The L-R based heuristics algorithm methodology we are going to execute in the system.

The spatial resolution system for Mobile sensor network [MSN] based on average deviation between estimated and actual target travel path which is average travel distance by object from mobile sensor, in this system we will try to derive solution for dynamic aspect of target tracking that depend on both target and mobile sensor network. We are executing the sensor network system by using kinetic theory of gas molecules. The spatial resolution does not able to solve the optimization problem of in wireless sensor network for that we are also propose optimization system on based of heuristic algorithm for sensor network which takes different network topologies into consideration and by using mechanism tree diagram that is root and node mechanism we try to get optimizes solution for wireless sensor network.

## IV CONCLUSION

In this paper we represented our literature review on wireless sensor network approach on target tracking and how to improve quality of communication and network model. The review of these papers will support our future research on improving wireless sensor network traffic with faster speed and high quality on target tracking in moving environment. We plan to design and develop a unique target tracking mechanism which would return more positive impact in the area of wireless sensor network.

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