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A Study of Constrains During Implementation at Root Level of Performance Evaluation Techniques for Wireless Sensor Networks

Nageshwari
Vijaya College, R.V.Road, Basavanagudi, Bangalore-560004, India

Abstract: Wireless Sensor Network (WSN) usage is seen in multiple disciplines like healthcare, Biological, Medical, Academics, Military and other social and commercial applications. These spectrum of applications built, using wireless sensor networks poses a new challenge to the researchers to address the performance issues. The key intension of this research is to analyze various algorithms devised to implement performance evaluation techniques for improving the efficiency of the network.

Keywords: *Sensors, WSN, Deployed, Scheduling, SPARK System, Scalability, Cost, Topology*

I. INTRODUCTION

The advent of WSN as one of the dominant technologies is proven to be an effective and efficient way of handling various Network issues. WSN's ability has stepped in to various disciplines like Home Automation, Bio-Medical applications, Transport system, Military and other Social and Commercial applications. Many researches are working and devised lot many algorithms for different WSN Application.

It poses a new challenge to address the issues of performance evaluation of these new systems built. Our research work focus on devising an efficient algorithms to implement performance evaluation techniques.

Feasibility of Basic Security Schemes in WSNs

Novel ideas in industrial, home and automation in transportation represent smart environments. The data for smart environments are obtained through Wireless Sensor Networks (WSN), where thousands of sensors are deployed at different locations operating in different modes [1].

A sensor network is capable of sensing, processing and communicating which helps the base station or command node to observe and react according to the condition in a particular environment (physical, battle field, biological) [2].

Sensor network protocols have a unique self-organizing capability. Another interesting feature of WSNs is that the sensor nodes cooperate with each other. Sensor nodes have an in-built processor, using which raw data are processed before transmission. These features facilitate wide range of applications of WSNs ranging from biomedical, environmental, military, event detection and vehicular telematics [3].

This paper presents a detailed overview of the research issues in the applications of Wireless Sensor Networks. Fig.1 depicts the overview of WSN applications[4].

(i) Biological Applications have tremendous impact for biological problems. These includes task mapping, scheduling, bio-medical signal monitoring, etc., [5]. This work focus on developing modern equipments for monitoring patients in remote places using wireless technologies, network topologies, sensor specific topologies, sensor specific signal reception and analysis. Commercial Applications helps to manage day-to-day needs.

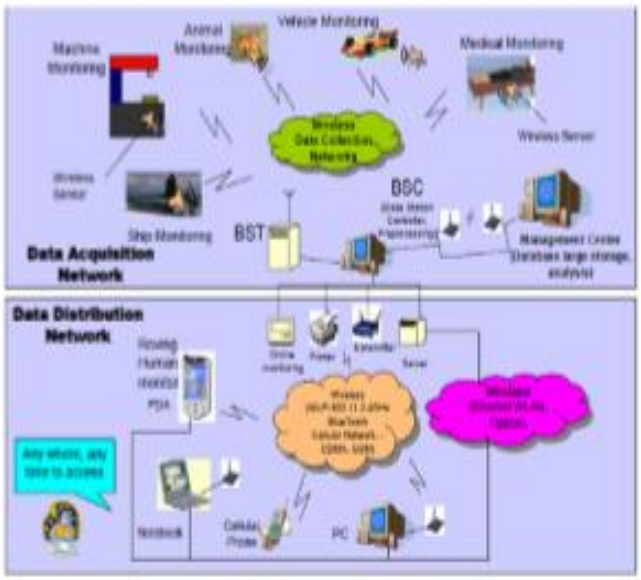

Fig. 1. Overview of WSN applications

Smart parking which proves to be intelligent parking for the purpose of effective usage of existing parking lot [6]. SPARK, wireless sensor network based smart PARKing (SPARK) system[7]. The vehicular telematics for heterogeneous WSN is also addressed [8]

Security of intra-car have been addressed in paper [9]. Event detection tracking is a typical characteristics of WSN for instant tracking of events.[10].

Structural Health Monitoring Detection of damage of civil, Aerospace and other engineering systems.[11].

Environmental applications include monitoring of atmospheric parameters, tracking of the movements of birds and animals, forest fire detection, habitat surveillance etc., Green House Monitoring, Health care applications, Industrial applications, Military Applications etc.,[12]

To ensure that the automation system in a greenhouse works properly, it is necessary to measure the local climate parameters at various points of observation in different parts of the big greenhouse. This work if done using a wired network will make the entire system clumsy and costly. However, a WSN based application for the same purpose using several small size sensor nodes equipped with radio would be a cost effective solution. Such an application has been developed in [14].

The overview of these WSN applications are compiled and reviewed the need and necessity of constrained based WSN applications in paper [13] . Hence the literature review and motivation.

II. METHODOLOGY

Performance Evaluation Technique algorithms need to be designed for each of the Wireless Sensor Network applications chosen for evaluation and further the implementation of these algorithms are necessary to come out with optimized results., Which can then be compared with the other algorithms using the Network Simulators.

CONCLUSION

The popular and novel applications of WSN are interesting and smart. They are constrained by scalability, cost, topology changes and power consumption. The review on these various research issues has marked the essentiality and necessity of the new algorithms which are to be devised may result to measure the performance of constrained based WSN applications.

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