IOSR Journal of Electronics and Communication Engineering (IOSR-JECE)
e-ISSN: 2278-2834,p- ISSN: 2278-8735.Volume 11, Issue 2, Ver. II (Mar-Apr .2016), PP 70-72
www.iosrjournals.org

Dynamic Profile Management of WSN to Improve Network Traffic Parameters

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Abstract: *Due to the presence of various applications complexities in WSN increase. Thus, dynamic profiling provides exact behavior of application runtime behavior, which is adaptable with changing environment and reduces runtime overheads. Thus, designers required to design the appropriate method. The designer have to select the method which based on different application behavior, it could reduce network traffic overheads, power and codes of every method with minimum energy consumption. Our result fullfil all this. By application specific profiling methodology which includes code, generator and overhead estimation module by using this method designer can find out accurate methodology which could be suitable for that application at designing timing.*

Keywords: *Adaptive algorithm, dynamic profiling and optimization (DPOP), dynamic profiling, embedded software, wireless sensor networks (WSN).*

I. Introduction

The rapid multiplication of WSN with monolithic number of constituent nodes has enabled spacious new application possibilities. Designers have different sets of application requirements and constraints with various applications, throughput, etc that must be stick to. To reach different requirements of different application designers able to tune node level parameters voltage level operating frequency etc. The complicated [difficult] part to design WSN design matrix which should be highly application specific this thus [DPOP] Dynamic Profiling and Optimization is design not only to reduce designer effect but also increase availability of platform users and platform designers are mostly engineers with knowledge of hardware and software required to develop WSN platform. Thus, this designer tool can be use by any end users. DPOP gives elastic methodology include of five modules where each has many alternatives and user can easily make methodology according gathering sensor status and application behavior data during runtime. DPOP help user to examine and optimize the sensor network. It also used to obtain profiling overheads, DPOP already having pre information about challenging and lengthy effort to develop exact simulation and it able to monitor the response of changing application and environmental conditions. It monitors the failed nodes, newly introduced nodes in network. In prior work we evaluate the ranges of networks traffic overheads, energy consumption and code impact of all these methods. . As compared to these prior works, in this paper we present novel contributions in capacity of handling network traffic by system and minimize the time overheads.

II. literature review

Dr. Shu Yinbiao, Dr. Kang Lee [1] A wireless sensor network (WSN) in this large no of nodes formed a network every node having sensor which can detect light, temperature etc. wireless sensor network is use to collect the method for develop new information. Due to this communication system is use to improve greatly. Wireless system is easy to develop and flexible as compared with wired systems. Sensor development is going on rapidly. Thus, WSN is become an important technology for IOT.

M. Collotta, G. Pau, V.M. Salerno and G. Scat'a (2012) [2] this chapter set about road supervising through wireless sensor network is identify: number of sensors are fitted on the road to measure traffic, speed of vehicles, climatic conditions. WSN cluster provide proctor system based on videotapes and simultaneously develop information which can be processed to give direct version road conditions without taking consideration of whether situations [1, 2] . Therefore, it is important to incorporate video supervising information with parameters measure by all sensors. This WSN network can supervise and evaluate roads continuously and can work during nights with poor vision. Therefore, WSN is capable to handle changes in dynamic sensor network and managed network traffic overload.

B M Thippeswamy, Reshma S , Shaila K , Venugopal K R , S S Iyengar, L M Patnaik (January 2014) [5] Management of energy is very difficult in WSN. Thus, this paper presents clear idea about energy balancing

and increase the lifetime of network. Proposed system gives algorithm which is based on energy density of clusters. The heat of clusters is selected on basis of two steps and it also gives shortcut routing path from source to destination. Thus, This algorithm maintain energy and time management.

III. General Concept

Standards of WSNs and systems

1. General

Standardization is a major prerequisite to achieve interoperability, not only between products of different vendors, but also between different solutions, applications and domains. The latter are of special interest to IOT and WSN as common access to devices, sensors and actors from various application domains leading to new cross domain applications is the major intent of IOT. Interoperability has to be considered at different layers from component, to communication, information, function and business layer. The component layer basically reflects the devices like sensors and actuators, but also gateways and servers which run the applications. The communication layer is responsible for the data exchange between the components while the information layer represents the actual data. The function layer is concerned with the functionality which can be software applications, but also hardware solutions. At the business layer the business interactions are described. From the WSN and IOT approach to provide information exchange between "things" and applications covering various application domains, common communication and information layer standards are of main interests, but also generic functions might be used by different application areas. At the component layer we will find various types of devices, but still standards defining for example form factors and connectors for modules (e.g. wireless modules, control processing unit (CPU) boards) can make sense. As a prerequisite for the successful standardization use cases and requirements have to be collected and architecture standards are needed to structure the overall system and identify the relevant functions, information flows and interfaces. As WSN will be used in the wider context of IOT, also IOT standards and standardization activities are considered. This concerns especially the higher communication protocol, information and function layer. Note that the list of standards and standardization activities below is not exhaustive.

1.1.1 Zigbee Overview

What Is Zigbee?

Zigbee and IEEE 802.15.4 are standards-based protocols that provide the network infrastructure required for wireless sensor network applications. 802.15.4 defines the physical and MAC layers, and Zigbee defines the network and application layers. For sensor network applications, key design requirements revolve around long battery life, low cost, small footprint, and mesh networking to support communication between large numbers of devices in an interoperable and multi-application environment.

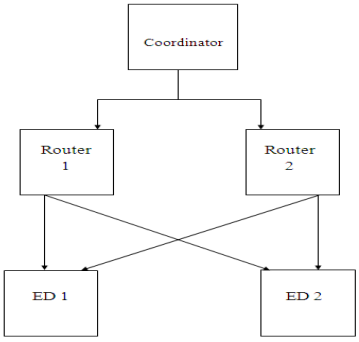
1.1.2 IEEE 802.15.4 Specification

In this section an overview of the IEEE 802.15.4 specification. 802.15.4 Define a standard for a low-rate WPAN (LR-WPAN).

1.1.3 Scope of 802.15.4

802.15.4 is a packet-based radio protocol. It addresses the communication needs of wireless applications that have low data rates and low power consumption requirements. It is the foundation on which Zigbee is built. Figure 2 shows a simplified Zigbee stack, which includes the two layers specified by 802.15.4: the physical (PHY) and MAC layers.

IV. Methodology



Coordinator broadcast data to end devices (ED) with their specific addresses through routers. Then end device will send the acknowledgement to coordinator. Router 1 is sending message 1 to end device1 and if coordinator wants to send msg 2 to same device then router 2 will send the msg2 to end device 1. End device will receive message 2 after sending acknowledgement of message 1 to coordinator.

V. Conclusion

Dynamic profiling based WSN's gives an exact view of behavior of any application but, network traffic, energy consumption, code size and computational overheads are increases. Designer use to evaluate all these data and give exact methodology. In this work, we enhance the dynamic profiling and computation framework we developed profiler to implement no. of methods and it also used to analyzed corresponding overheads. Energy consumption increases are low, code size and computation time overheads high. During choosing appropriate methodology code generator module, overhead estimation module and profile data management module used to assist designers. This methodology accurately evaluates profiling overhead. Future work includes an automated methodology to assist designers in determining best suitable application. This automated method also should be capable of evaluating profiling overhead, low energy consumption. New method will need to estimate profiling accuracy.

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