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Number of books and chapters in edited volumes / books published, and papers in national/international conference-proceedings per teacher during the year : 2019

S. No	Name of the teacher	Title of the book/chapters published	Title of the paper	Title of the proceedings of the conference	Name of the conference	National / international	Year of publication	ISBN number of the proceeding	Affiliating Institute at the time of publication	Name of the publisher	Relevant link
1	Mrs. Narmada Alaparathi et al	NA	Performance comparison of CSMA, MACA, Generic MAC and Sensor MAC channel access protocols for ZigBee WSN with RIPv2 as Routing protocol	Innovations in Power and advanced Computing Technology-IEEE	Innovations in Power and Advanced Computing Technologies (i-PACT)	International	2019	978-1-5386-8190-9	VMTW	IEEE	https://ieeexplore.ieee.org/document/8960033?denied=
2	Dr. S. Ranga Swamy et al	INTERNET OF THINGS - A STUDY	NA	NA	NA	NA	2019	9780359563067	VMTW	Published in LULU Publications-USA	http://www.lulu.com/shop/dr-sasikumar-gurumorthy-and-ranga-swamy-sirisati-andponguwala-maitreyi/internet-of-things-a-study/paperback/product-24050253.html



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3	Mrs. Narmada Alaparathi et al	NA	Dynamic Source Routing Protocol-- A Comparative Analysis with AODV and DYMO in ZigBee based Wireless Personal Area Network	NA	2019 6th International Conference on Signal Processing and Integrated Networks (SPIN)	NA	2019	978-1-7281-1380-7	VMTW	IEEE	https://ieeexplore.ieee.org/document/8711689



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Performance comparison of CSMA, MACA, Generic MAC and Sensor MAC channel access protocols for ZigBee WSN with RIPv2 as Routing protocol

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Abstract: Monitoring and coordinating the remote physical conditions of an environment is found difficult in many user applications. A wireless sensor network can be one of the best solutions in this application. Sensors are inter-connected together in the form of a mesh network to form Wireless Sensor Network (WSN). Transmitter and receiver are embedded in a single sensor called a "NODE" in other words called a transceiver, which is a battery operated and microcontroller enabled intelligent device. Further the nodes can also be interconnected in different topologies viz., Star, Ring, Mesh, etc.

While many channel access protocols may be competent for using them in Wireless Sensor Networks, it is commonly found that IEEE 802.15.4 MAC (Medium Access Control) protocol is often used over IEEE standard 802.15.4 ZigBee protocol stack. As there are many other protocols reported in literature, it is felt necessary to revisit all the suitable protocols to find, if any, more efficient protocol for WSN exists. In this paper a study is carried out with CSMA, MACA and GENERIC MAC protocols for their suitability for WSN. The study is done by simulating these protocols in 802.15.4 ZigBee for different number of nodes from 15 to 30. The summary of the characteristics of all these protocols is presented. Qualnet 5.0.2 network simulator is employed to analyze the important characteristics like throughput, end-to-end delay, jitter, total packets received, etc., by varying the various parameters under low, medium and heavy loads.

Keywords: Adhoc networks, WSN, CBR, CSMA, MACA, Generic MAC, IEEE 802.15.4

I. INTRODUCTION

Radio signal frequency is employed in WSN to setup a communication among the nodes, PDAs and other networks. The primary objective of Sensor Networks is to carry sensors data from remote locations to the data acquiring system installed at remote location. However WSN is considered as a low speed network. The operating modes of WSNs are mainly categorized into two types: (i) infrastructure mode and (ii) ad-hoc mode. In the infrastructure mode, the network devices such as computers are connected to each other by using a network-switch. In ad-hoc mode a self organizing network is formed by network nodes connected in peer-to-peer fashion. A host of channel access protocols that may be the candidate for use with WSN are MAC, CSMA, MACA and GENERIC MAC while WSN is implemented with sensor MAC. Sensor MAC employs hierarchical network architecture in which coordinator is used to start the network and coordinator is involved in every data transfer introducing lot of unnecessary delay, which can be reduced with appropriate protocol. This paper consists of nine sections apart

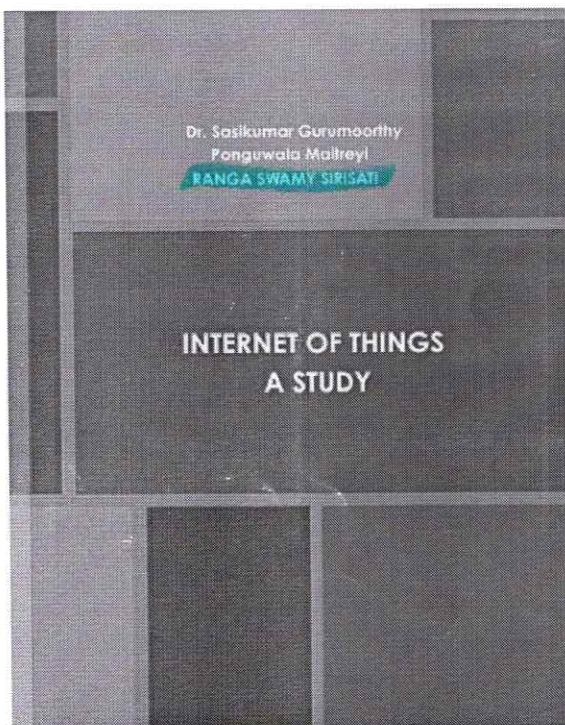
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Dynamic Source Routing Protocol –A Comparative analysis with AODV and DYMO in ZigBeebased Wireless Personal Area Network

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Abstract: The suitability of various applications with respect to wireless ad hoc networks and the corresponding scalability to such network extended to incorporate various other nodes is justified by ad-hoc networks with peer-to-peer nature. Different types of sensors are associated with each WSN node that is battery powered, operated and controlled by a microcontroller. Route to an intended destination is discovered only if the source node has a data packet to send in on-demand routing. Ad hoc On-Demand Distance Vector (AODV) routing protocol is extensively used as network layer protocol in Wireless Sensor Networks based on ZigBee (IEEE standard 802.15.4). The proposed application is aimed at a network with few number of WSN nodes suitable to a typical user home or private network forming Wireless Personal Area Network. The disadvantage of AODV is that it consumes more system resources and memory. Hence it is required to re investigate and find more appropriate protocol for the proposed application.

In order to find out the suitable protocol set for the proposed application, this paper describes and published about the methodology and results of experimentation in the network layer of IEEE standard 802.15.4 ZigBee protocol stack with different types of On-Demand Distance vector routing protocols viz., AODV, DYMO and DSR, while keeping the MAC layer protocol Sensor MAC (SMAC) unchanged. In this process, values of different types of performance metrics viz., Throughput, Average end-to-end delay, average jitter and total packets received are measured and compared using Qualnet network simulator version 5.0.2 by varying number of hops and network traffic loads other applicable parameters during experimentation.

Keywords: Ad hoc networks, WSN, CBR, DSR, AODV and DYMO.

I. INTRODUCTION

Wireless Sensor Network is a set of nodes interconnected with a radio signal to communicate with various other computing, network devices. A lot of research is in place to explore its suitability to different types of applications which are not limited to

surveillance, security, remote monitoring control etc [1-5]. The nodes are further connected using any one of the two modes viz, infrastructure mode and ad hoc mode in a wireless network. There is a specific methodology to be followed in infrastructure mode and it is usually applicable to wired networks as this methodology involves lot of infrastructural requirements. Peer-to-peer communication is very well exploited in ad hoc network so as to extract maximum efficiency out of the wireless network, which is usually battery powered, remotely monitored and controlled.

II. LITERATURE SURVEY

Lot of research is being taken up in the area of customization of ZigBee stack to incorporate IP functionalities but no not fruitful in finding a stack to suit the required user application so that different user appliances are operated and controlled by a single virtual personal area network. Numerous applications are possible in this area of research [10-20].

III. PROPOSED APPLICATION

This paper published the work carried in the network layer of customized ZigBee stack to suit a small user personal area network which also supports IP protocol stack. The proposed application aims at building up of a user personal area network (WPAN) using wireless sensor network that comprises of transceiver nodes [1] based on customized ZigBee stack[5-11] in-order to cater various communications requirements of the user personal Area Network with 15 to 25 nodes. Already existing on-demand routing protocols AODV, DYMO and DSR are chosen to understand the suitability to the proposed application. These protocols are compared with respect to different metrics of experimentation using qualnet network simulator 5.0.2

IV. ROUTING PROTOCOLS CLASSIFICATION



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