



# GEETHANJALI

Institute of Science and Technology

Department of Computer Science and Engineering

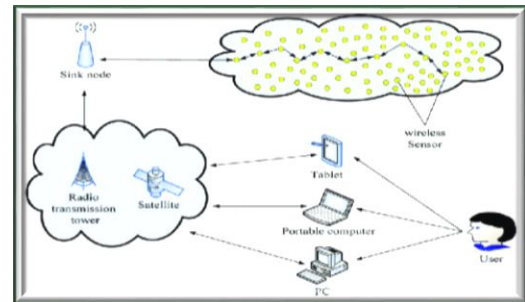
## Techies Chronicle

“Driven to Discover”

### Wireless Sensor Networks

A wireless sensor network (WSN) has many real life applications. Basically, wireless sensor network consist of spatially distributed autonomous sensors which monitors physical or environmental conditions. Some of them are temperature, sound and pressure. What happens is it sends the data from one point to another point wirelessly. Nowadays, modern networks are said to be bi-directional, which means two way transmission and also there is control of the sensor activity. Besides, current sensors are smaller, cheaper and more intelligent. The development of wireless sensors began with the implementation in national security aspects such as the army and police. For instance, battlefield surveillance and in our modern world wireless sensors are used in many industries and consumer usage. The basis of the wireless sensor networks are the nodes which can range from a few to several thousands. These nodes are usually connected to sensors. The sensors are equipped with wireless interfaces which can communicate with each other to form a network. The sensor network normally consists of several parts which include a radio transceiver with an antenna, a memory unit, processors, sensors, Global positioning system (GPS) and power source.

The sensor node varies with size. Even the cost varies according to specifications. The topology of a wireless sensor network can range from an easy star network to a complex wireless mesh network. The transmission method between the networks can be routing or by flooding. The design process of wireless sensor networks depends vastly on the application of the sensors and other factors such as environmental, cost, hardware availability, system constraints. The reasoning towards this review research paper is to present a comprehensive review of the applications of wireless sensors networks currently in the modern world and present its features. Adhering to the top-down approach, we give an overview of what wireless sensors are all about and its applications and then give our suggestions on how to improve the application of various aspects of wireless sensor networks. A WSN can be defined as a network of devices, denoted as nodes, which can sense the environment and communicate the information gathered from the monitored field through wireless links. The data is transmitted via hops, to a sink which can be a monitor/controller that can use it on its own or is connected to other networks through a gateway. The nodes can either be static or mobile. Also it can be aware of its location or not. And it can be homogeneous or not. This network suffers from the lack of scalability which means by increasing the number of nodes, the amount of data gathered by the sink increases and once its capacity is at its maximum. Hence, the network size cannot be augmented. The Medium Access Control (MAC) and routing aspects means network performance cannot be considered independent of the network size. Then there are multiple sinks in the network. The level of node density, a larger number of sinks will decrease the probability of isolated clusters of nodes that cannot deliver their data owing to unfortunate signal propagation conditions. In contrast, a multi-sink WSN can be scalable which means the same performance can be achieved even by increasing the number of nodes in a network, while does not apply for a single-sink network. However, a multi-sink WSN does not represent a minor extension of a single-sink case for the network engineer. Generally, nodes send the data collected to one of the sinks selected among many, which then will forward the data to the gateway, to the end user. Taking the protocol point of view, this means that a selection can be done, based on a suitable criteria that could be, for example, minimum delay, maximum throughput, and minimum number of hops. Thus, multi sinks provides better network performance with respect to the single-sink assuming the same number of nodes is deployed over the same area but, the protocols used needs to be designed using suitable criteria.



### Editorial Board

**Faculty Editors:** P. Radhika, Asst. Professor, Sk. Asiff, Asst. Professor

**Student Editors:** 1. J. Bhavya Sree (II CSE) 2. M.V. Akhil (II CSE) 3. I. Vineela (III CSE) 4. I. Vennela (III CSE)

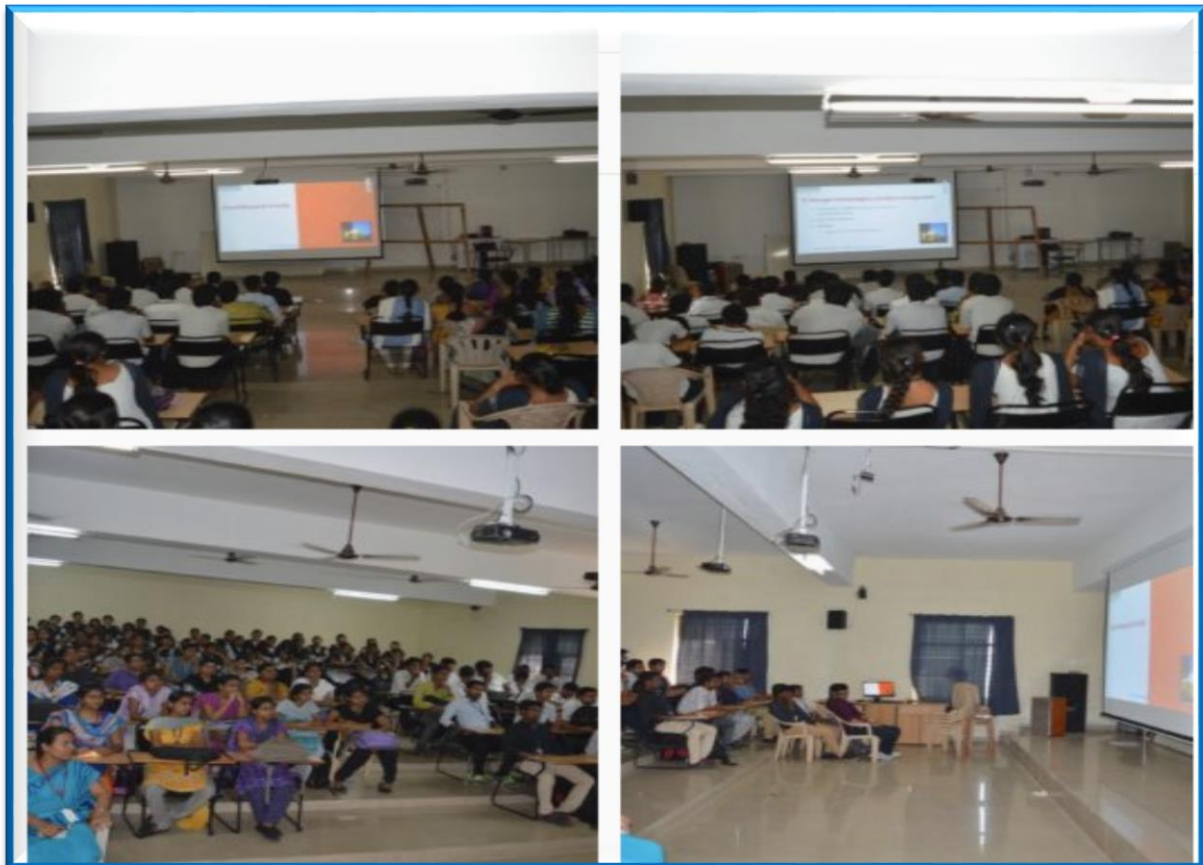
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## Events organized

### ✓ IUCEE Research Cluster Webinar

Although cloud computing has been widely adopted by the industry and other organizations, the research on cloud computing is still at an early stage and evolving rapidly. Many existing issues have not been fully addressed. New challenges keep emerging from industry and government applications. In addition, the Indian Government cloud computing initiative – Meghraj- GI Cloud opens a new set of research opportunities. Presenter for the Webinar was Prof. Ravindra Dastikop, Director, Center for web enabled learning (C- WEL), Assistant Professor, Department of Computer Science and Engineering, Placement Officer, Faculty Coordinator, IPR Cell, SDM College of Engineering and Technology, Dharwad. The Webinar was held on Mar 28<sup>th</sup>, 2016.



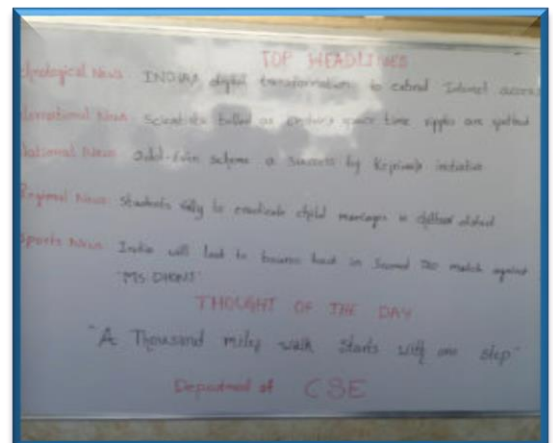
### ✓ Workshop

Department of Computer Science & Engineering organized “a one day workshop on trends in mobile computing, internet of things & cyber physical systems ” in association with Computer Society of India on 13th April 2016. **Prof. L.M. Patnaik** was the speaker. Around 250 students along with 30 faculty members attended the workshop.



### ✓ News Board Inauguration

Sharing of knowledge -information, skills or expertise – is very desirable among the students, faculty and others. Realizing the importance of this, the students of the Department of Computer Science and Engineering have initiated to install a News Board, where information is posted regularly, regarding Technical aspects, Important International and National News, Symposiums/ Conferences. In addition, some space is allocated in



the News Board is allocated exclusively for posting interesting analytical and thought-provoking questions.

### **Faculty Contributions**

- ✓ Ms. P.Radhika attended FDP on Technical Communications at Geethanjali Institute of technology and science, Nellore, during Oct 8<sup>th</sup> to Dec 5<sup>th</sup> 2015.
- ✓ Mrs. B. Susrutha attended FDP on Technical Communications at Geethanjali Institute of technology and science, Nellore, during Oct 8<sup>th</sup> to Dec 5<sup>th</sup> 2015.
- ✓ Ms. Sk. Mymoon attended FDP on Technical Communications at Geethanjali Institute of technology and science, Nellore, during Oct 8<sup>th</sup> to Dec 5<sup>th</sup> 2015.
- ✓ Mr. K. Venkataramana attended FDP on Technical Communications at Geethanjali Institute of technology and science, Nellore, during Oct 8<sup>th</sup> to Dec 5<sup>th</sup> 2015.

### **Student Achievements**

- K. Janaki and B. Murali Mohan Reddy presented a paper on “ Mod Security”, at TECHNOVISION-2K16, MERITS, Udayagiri, Nellore (Feb 27).
- M. Pravallika and K.sireesha presented a paper on “Ethical Hacking”, at TECHNOVISION-2K16, MERITS, Udayagiri, Nellore (Feb 27).
- K. Janaki and K.Sri Haripriya presented a paper on “Wireless sensor networks”, at SANKETHIKA-2K16, SVCN, Nellore (March 18).
- T. Harsha Vardhan presented a paper on “Humanoids” at NECTS-16,NEC, Nellore (April 16).
- D. Samhitha priya presented a paper on “Trends in Web Technologies”, at SANKETHIKA-2K16,SVCN, Nellore(march 18).
- D. Samhitha priya and V. Radha Yamini presented a paper on “Network Security”, at CEXTREME-2K16,JCET, Venkatachalam, Nellore(march 24).
- S. Sravani and Ch. Suharika presented a paper on “Blue Brain”, at CEXTREME-2K16,JCET, Venkatachalam, Nellore(march 24).
- T. Harsha Vardhan presented a paper on “Humanoids”, at SANKETHIKA-2K16,SVCN, Nellore (march 18).