A NAAC Accredited Institution
KINGS COLLEGE OF ENGINEERING
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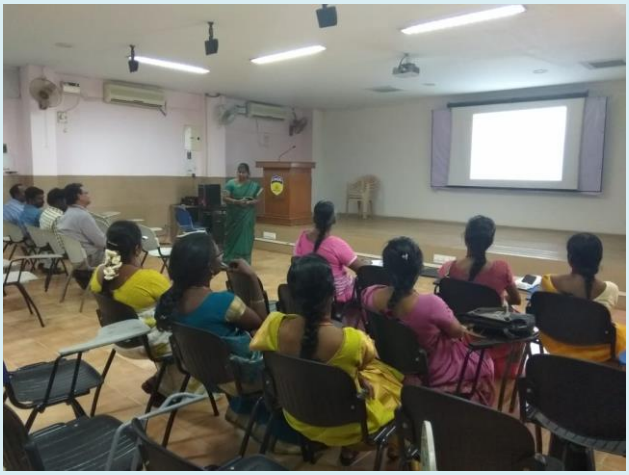
Approved by AICTE, New Delhi
Affiliated to Anna University, Chennai

ISTE STAFF CHAPTER (TN 205)
ACADEMIC YEAR 2019-20(EVEN SEMESTER)
Staff Seminar Report

The ISTE Staff Chapter, Kings College of Engineering, organized a staff seminar delivered by **Dr.M. Meenalochani,** Assistant Professor / Department of Electrical and Electronics Engineering on **"Wireless Sensor Networks"** on 20.02.2020 between 3.30pm and 4.00pm for the faculty members of the institution.

Resource Person's Talk



Audience listening the seminar

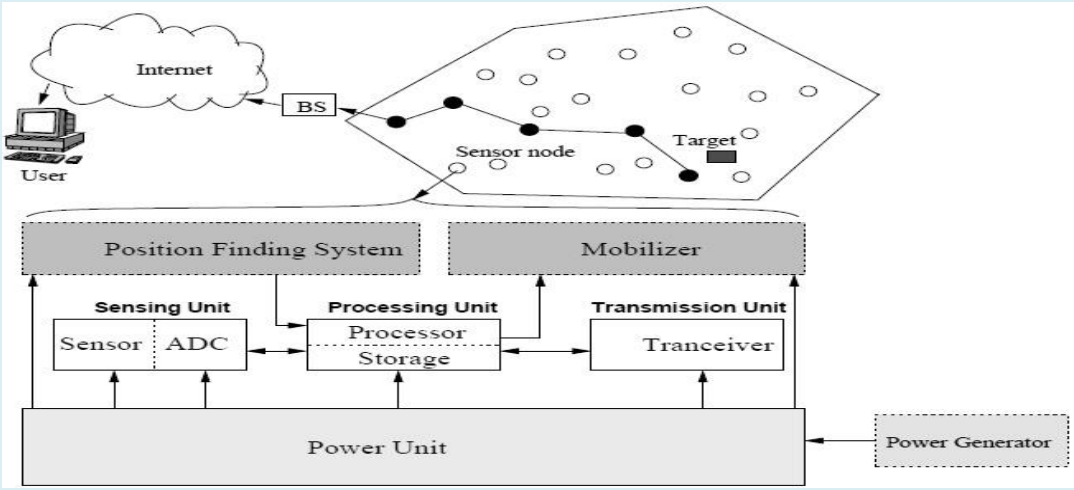
About the Seminar Topic

Wireless Sensor Networks (WSNs) can be defined as a self-configured and infrastructure-less wireless networks to monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants and to cooperatively pass their data through the network to a main location or sink where the data can be observed and analyzed. A sink or base station acts like an interface between users and the network. One can retrieve required information from the network by injecting queries and gathering results from the sink. Typically a wireless sensor network contains hundreds of thousands of sensor nodes. The sensor nodes can communicate among themselves using radio signals. A wireless sensor node is equipped with sensing and computing devices, radio transceivers and power components.

The individual nodes in a wireless sensor network (WSN) are inherently resource constrained: they have limited processing speed, storage capacity, and communication bandwidth. After the sensor nodes are deployed, they are responsible for self-organizing an appropriate network infrastructure often with multi-hop communication with them. Then the onboard sensors start collecting information of interest. Wireless sensor devices also respond to queries sent from a "control site" to perform specific instructions or provide sensing samples. The working mode of the sensor nodes may be either continuous or event driven. Global Positioning System (GPS) and local positioning algorithms can be used to obtain location and positioning information. Wireless sensor

devices can be equipped with actuators to “act” upon certain conditions. Wireless sensor networks (WSNs) enable new applications and require non-conventional paradigms for protocol design due to several constraints. Owing to the requirement for low device complexity together with low energy consumption (i.e. long network lifetime), a proper balance between communication and signal/data processing capabilities must be found.

A sensor node is made up of four basic components such as sensing unit, processing unit, transceiver unit and a power unit. It also has application dependent additional components such as a location finding system, a power generator and a mobilizer. Sensing units are usually composed of two subunits: sensors and analogue to digital converters (ADCs). The analogue signals produced by the sensors are converted to digital signals by the ADC, and then fed into the processing unit. The processing unit is generally associated with a small storage unit and it can manage the procedures that make the sensor node collaborate with the other nodes to carry out the assigned sensing tasks.



Components of a sensor node

A transceiver unit connects the node to the network. One of the most important components of a sensor node is the power unit. Power units can be supported by a power scavenging unit such as solar cells. The other subunits, of the node are application dependent.

The sensor nodes are usually scattered in a sensor field. Each of these scattered sensor nodes has the capabilities to collect data and route data back to the sink and the end users. Data are routed back to the end user by a multi-hop infrastructure-less architecture through the sink. The sink may communicate with the task manager node via Internet or Satellite. Energy consumption is the most important factor to determine the life of a sensor network because usually sensor nodes are driven by battery. Sometimes energy optimization is more complicated in sensor networks because it involved not only reduction of energy consumption but also prolonging the life of the network as much as possible. The optimization can be done by having energy awareness in every aspect of design and operation. This ensures that energy awareness is also incorporated into groups of communicating sensor nodes and the entire network and not only in the individual nodes.

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The ISTE Staff Chapter, Kings College of Engineering, organized a competition on "Word Cookies" on 20.02.2020 between 4.00pm and 4.30pm for the faculty members of the institution. Staff members have actively participated in this competition.

Prize Winners

POSITION	STAFF NAME WITH DESIGNATION
1	Mr.K.Arun, AP/CIVIL Mr.R.Sundharam, AP/CIVIL
2	Mrs.K.Abhirami, AP/CSE Mrs.R.Ranitha, AP/CSE