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FACULTY OF EGINEERING AND TECHNOLOGY

WSN (MCS-033)

LECTURE -9

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OUTLINE

- Wireless ad-hoc network (WANET)
- How does it work?
- Features
- Advantages of WSN
- Disadvantages of WSN
- MCQ
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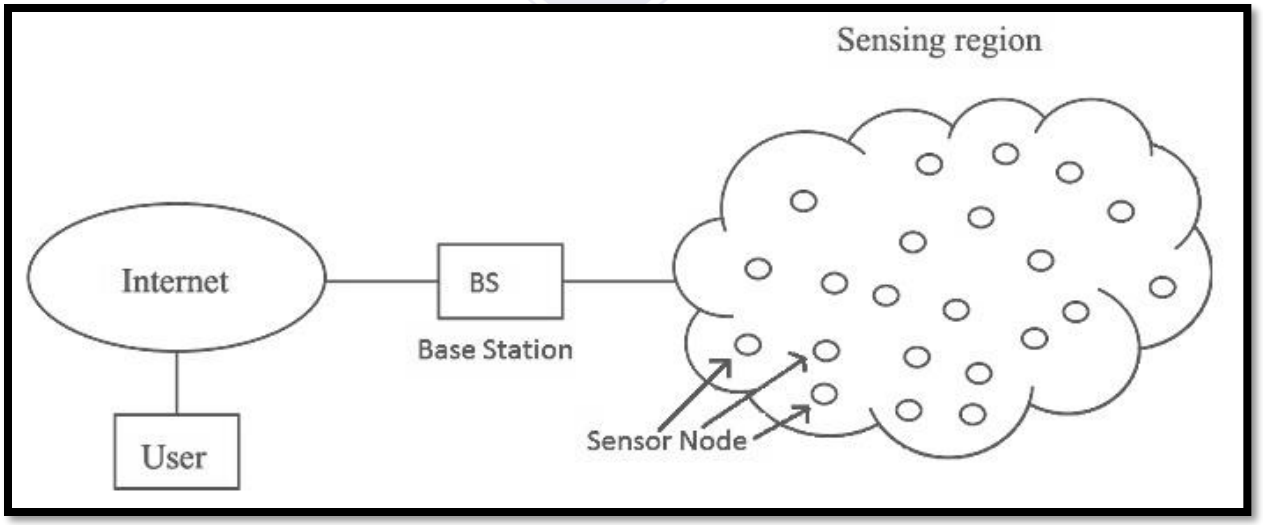
Wireless ad-hoc network (WANET)

A wireless ad-hoc network (WANET) is a type of local area network (LAN) that is built spontaneously to enable two or more wireless devices to be connected to each other without requiring a central device, such as a router or access point. When Wi-Fi networks are in ad-hoc mode, each device in the network forwards data to the others.

Since the devices in the ad-hoc network can access each other's resources directly through a basic point-to-point wireless connection, central servers are unnecessary for functions such as file shares or printers. In a wireless ad-hoc network, a collection of devices (or nodes) is responsible for network operations, such as routing, security, addressing and key management.



WIRELESS AD-HOC NETWORK (WANET)

How does it work?

Devices in the ad-hoc network require a wireless network adapter, and they need to support a hosted network. When setting up a wireless ad-hoc network, each wireless adapter must be configured for ad-hoc mode instead of infrastructure mode. All wireless adapters need to use the same service set identifier (SSID) and channel number.

Creating an ad-hoc network for Windows 8 and 10 applications is more difficult than it was for earlier Windows OSes. Networking experts offer pointers on how to tackle this issue.

WIRELESS AD-HOC NETWORK (WANET)

Features

Instead of relying on a base station to coordinate the flow of messages to each node in the network, the individual nodes in ad-hoc networks forward packets to and from each other. In Latin, ad hoc literally means "for this," meaning "for this special purpose" and also, by extension, improvised or impromptu. Makeshift by nature, ad-hoc wireless networks are useful where there isn't a wireless structure built -- for example, if there aren't any access points or routers within range.

In the Windows operating system, ad-hoc is a communication mode (setting) that allows computers to directly communicate with each other without a router.

Ad-hoc networks, which can be wired or wireless, are also known as P2P networks because the devices communicate directly and do not rely on servers. Similar to other P2P configurations, ad-hoc networks typically consist of a small group of devices in close proximity to each other.

However, not all Wi-Fi networks are the same. In fact, Wi-Fi access points work in either "ad-hoc" or "infrastructure" mode. Typically, Wi-Fi networks in infrastructure mode are created by Wi-Fi routers; meanwhile, ad-hoc networks are often short-lived networks created by a laptop or other device. Network protocols and algorithms available for wired and infrastructure-less wireless networks usually are not suitable for ad-hoc networks.

Advantages of WSN

Flexible:

WSN is a flexible network and can adapt to the changes.

Additional of New Device:

WSN can accommodate new devices in the network any time with ease.

Save Cost:

Wireless sensor networks save a lot of wiring cost and sensors like PIR detectors are relatively cheaper then wires.

Useful to society:

Wireless sensor network are used in different fields like healthcare, defense, environment monitoring which is very beneficial to human welfare

Disadvantages of WSN

Security:

WSN networks are not secure as compared to wired networks. Hackers can easily hack the network.

Battery Issue:

Nodes need to be charged at regular intervals. Battery life of the nodes is very low.

Low Communication Speed:

Communication speed is comparatively low than the wired network.

Distraction:

Wireless sensor networks keep distracting by other wireless devices.

MCQ

1) They can even use other services such as location tracking using the __.

(a) GPS (b) VPS (c) GPRS (d) GSM

2) W-CDMA is ____.

(a) Wireless Code Division Multiple Access (b) Wideband code division multiple access (c) Wide code division multiple access

(d) Web band code division multiple access

3) Wireless networks are computer networks that use radio frequency channels as their __ for communication.

(a) Physical Medium (b) Medium Access Control (c) TDMA (d) CDMA

4) Match the following pairs:

5) Which of the following is a collection of many separate networks?

(a) LAN (b) MAN (c) WAN (d) PAN

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