

## Mobile Adhoc Network (MANET)

MANET stands for Mobile Adhoc network also called a wireless network or Adhoc wireless network that usually has a routable networking environment on top of a link layer adhoc network. They consist of a set of mobile nodes connected wirelessly in a self-configured, self-healing network without having a fixed infrastructure. MANET nodes are free to move randomly as the network topology changes frequently. Each node behaves as a router as they forward traffic to other specified nodes in the network.

MANET may operate a standalone fashion or they can be part of larger interconet. MANETs consist of a peer-to-peer, self-forming, self-healing network.



## Wireless Sensor Network:

Wireless sensor network is an infrastructure less wireless network that is deployed in a large number of wireless sensors in an ad-hoc manner that is used to monitor the system, physical or environmental conditions.

Sensor nodes are used in WSN with the onboard processor that manages and monitors the environment in a particular area. Base station in a WSN system is connected through the internet to share data.

### Enabling technologies for Wireless Sensor networks

- \* Cost Reduction
- \* For Wireless Communication, simple micro controllers, system on chip sensing, challenging issue.
- \* Energy scavenging - Recharge batteries from ambient energy
- \* Some applications demand small size
- \* Sensor management protocol

Provide software operations needed to perform administrative tasks.

Eg: Moving sensor nodes turning them ON & OFF.

### Challenges in WSN:

Security:

The security of the data should be maintained by new security challenges grow with design new technologies such as the mixing of IoT with WSN.

## Energy Efficiency:

WSNs still need high power from energy constrained batteries for data processing and sending.

## Coverage & Connectivity:

The ability of applications to connect with the sensors, people and cloud.

## Clustering Algorithms:

It is a method used to balance energy consumption in wireless sensor networks. It can increase the lifetime of the N/W & scalability.

## Routing protocols:

The routing protocol is a process to select suitable path for the data to travel from source to destination.

## Source Deployment methods:

These are two deployment methods.

Deterministic deployment

Random deployment

In deterministic deployment sensor nodes are placed at predetermined positions to meet all the requirements such as coverage, connectivity & expected lifetime.

In Random deployment sensor nodes are placed randomly for coverage, connectivity & expected life time.

## Data Aggregation:

It is a process of collecting & combining the useful information in a particular region of interest.

## Difference b/w MANET's & WSN's.

Factors/Issues	WSN	MANET
Interaction	Focus on interaction with the environment.	close to humans Ex: laptops, PDAs
Nodes deployed	Very large	Not many
Failure rate	High	low
Communication	Broadcast	point to point
Communication Range	short	long
Topology	Dynamic	Dynamic
Memory	Limited	High
Data Redundancy	Sometimes	No
Population of nodes	Densely deployed	sparsely deployed
Power	Limited	Not an issue.
Routing protocols	Floding, Gossiping, flat routing, location based	pro-active, Reactive, Hybrid
Standards	ZigBee, IEEE 802.15.4, ISA100, IEEE1451	IEEE 802.11