



UNIT I

APPLICATIONS OF AD HOC SENSOR NETWORKS

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- 1. Military Application**
- 2. Collaborative & Distributed computing**
- 3. Emergency Operations**
- 4. Wireless Mesh Network**

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APPLICATIONS OF AD HOC SENSOR NETWORKS

DOMESTIC:

- Home Automation
- Smart Metering



INDUSTRIAL:

- Automation
- Supply Chain



ENVIRONMENTAL:

- Precision agriculture
- Monitoring



MILITARY:

- Surveillance
- Targets Tracking



BIOMEDIC:

- Biological data monitoring



TRANSPORTS:

- Intra-vehicle sensors
- Traffic monitoring



Military Application

- ❑ Ad hoc wireless networks can be very useful in establishing communication among a group of soldiers for tactical operations.
- ❑ Setting up of a fixed infrastructure for communication among group of soldiers in enemy territories or in inhospitable terrains may not be possible.
- ❑ In such a case, ad hoc wireless networks provide required communication mechanism quickly.

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Collaborative & Distributed computing

- ❑ Ad hoc wireless network helps in collaborative computing, by establishing temporary communication infrastructure for quick communication with minimal configuration among a group of people in a conference.
- ❑ In distributed file sharing application reliability is of high importance which would be provided by ad hoc network.
- ❑ Other applications such as streaming of multimedia objects among participating nodes in ad hoc

Emergency Operations

- ❑ Ad hoc wireless networks are very useful in emergency operations such as search and rescue, crowd control and commando operations
- ❑ The major factors that favour ad hoc wireless networks for such tasks are self-configuration of the system with minimal overhead, independent of fixed or centralised infrastructure, the freedom and flexibility of mobility, and unavailability of conventional communication infrastructure.

Wireless Mesh Network

- ❑ Wireless mesh networks are ad hoc wireless network that are formed to provide an alternate communication infrastructure for mobile or fixed nodes/users, without the spectrum reuse constraint & requirement of network planning of cellular network.
- ❑ It provides many alternate paths for a data transfer session between a source & destination, resulting in quick reconfiguration of the path when the existing path fails due to node failure.

References

- ❑ Ad Hoc Wireless Networks: Architectures and Protocols, C. Siva Ram Murthy and B. S. Manoj, Pearson Education.
- ❑ Wireless Sensor Networks – Principles and Practice, Fei Hu, Xiaojun Cao, An Auerbach book, CRC Press, Taylor & Francis Group

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Thank You