Unit - 2

11 The Broadcast storm :

- Doing network wide broadcasting in MANETs requires one device to broadcast the information to all the neighbors.
- For far-away devices, the message is rebroadcasted which could cause collision if multiple device broadcasts the same time and are in the neighborhood.
- This is also known as the broadcasting storm problem.
- This section we discuss ways to perform efficient rebroadcasting of message. we assume that MHs in the MANET share a single comman channel with carrier sense multiple access, but no collision detection or

collision avoidance capability.

- It is observed that Redundancy, contention & collision could exist if flooding is done blindly.

2) Broadcasting in a MANET.

A MANET consists of a set of MHs that may communicate with one another from time to time, and where no base stations are present.

Characteristics of Broadcast problem:

- → The broadcast is spontaneous.
- → The broadcast is frequently unreliable.

① The broadcast is spontaneous:

- Any MH can issue a broadcast operation at any time.
- for reasons such as the MH mobility and the lack of synchronization, preparing any kind of global topology knowledge is prohibitive.

② The broadcast is frequently unreliable :

- Attempt should be made to distribute a broadcast message to as many MHs as possible without putting too much effort. The motivations for such an assumption are :

ⓐ A MH may miss a broadcast message because it is off-line, it is temporarily isolated, or it experiences repetitive collisions.

ⓑ Acknowledgements may cause serious medium contention surrounding the sender.

ⓒ In many applications, a 100% reliable broadcast is unnecessary.

- In Addition, we assume that a MH can detect duplicate broadcast messages.

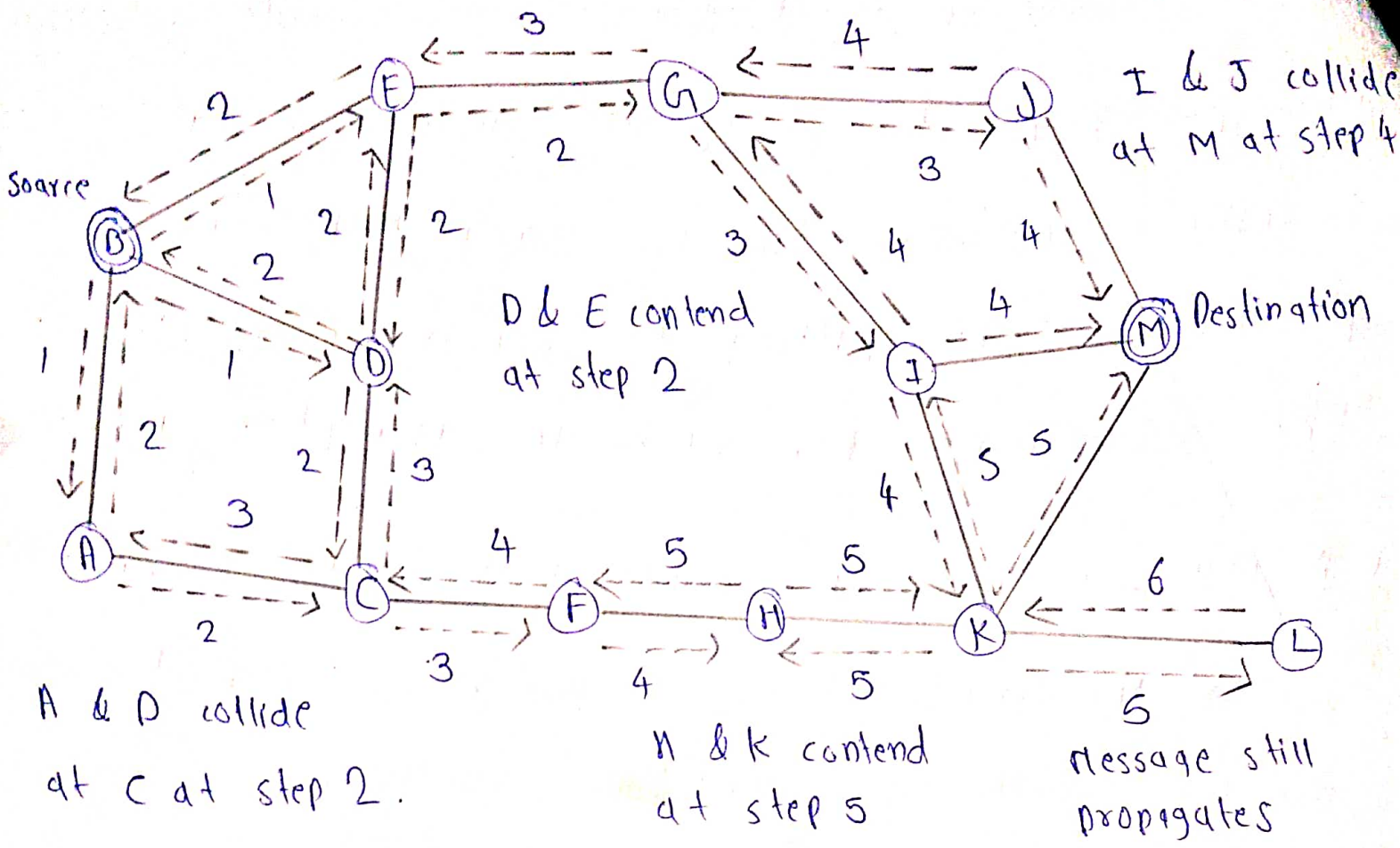


figure) The broadcast storm problem in a MANET.

2) Flooding Generated Broadcast storm :

Drawbacks of flooding generated Broadcast storm include :

- Redundant rebroadcasts.
- contention
- collision

① Redandant rebroadcasts:

- When a MH decides to rebroadcast a broadcast message to its neighbors, all its neighbors may already have the message.

② Contention.:

- After a MH broadcast a message, if many of its neighbors decide to rebroadcast the message, these transmissions may severely contend with each other.

③ Collision:

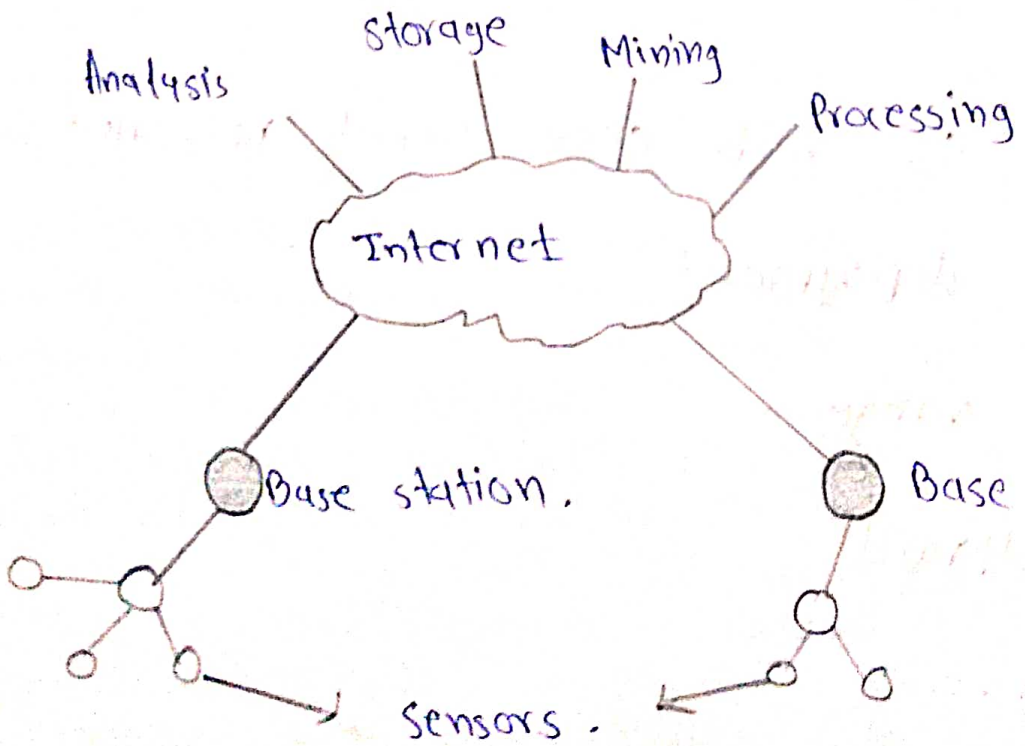
- Because of deficiency of backoff mechanism, lack of RTS/CTS handshake in broadcasts and absence of collision detection, collisions are more likely to occur.

Unit - 4

Adhoc

1| Mobile sensors. (Wireless sensor Network).

- Wireless sensor networks (WSNs) allow for innovative & attractive solutions by providing many important benefits such as real time access to data, coverage of wide areas, long term monitoring & system scalability.
- Sensor NIW are highly distributed, lightweight nodes, deployed in large number to monitor the environment or system.



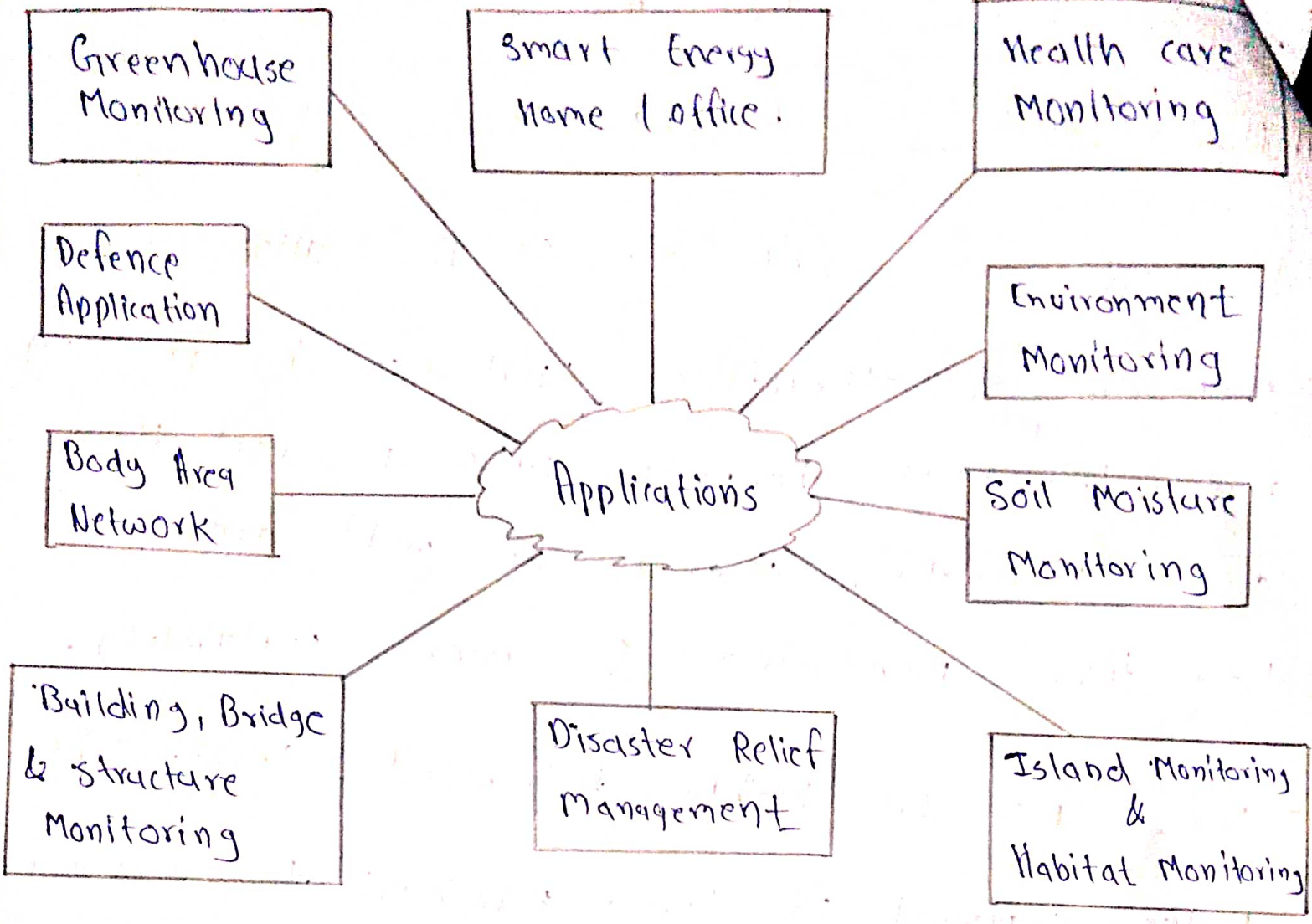


figure : Applications of Wireless sensor Networks.

* Advantages of WSN over wired network :

① Ease of deployment

② Extended range

③ Fault tolerant

④ Mobility.

4) Challenges of WSN

1) Adhoc deployment

2) Computational capabilities.

3) Energy consumption without losing accuracy

4) Scalability

5) Communication Range

6) Fault tolerance.

7) Connectivity

8) Transmission media.

9) QOS

10) Control overhead.

11) Security.

3) Advantages of WSN over wired Network.

- Ease of deployment
- Extended Range
- fault tolerant
- Mobility

other advantages :

- It is scalable & hence can accommodate any new node or device at any time.
- It is flexible & hence open to physical partitions.
- As it is wireless in nature, it does not require wires or cables.