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FACULTY OF EGINEERING AND TECHNOLOGY

WSN (MCS-033)

LECTURE -13

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OUTLINE

- Limitations of Wireless Sensor Networks
- Routing Issues
- Wireless Sensor Network Architecture:
  - Layered Network Architecture:
  - The cross layers consist of the following:
- MCQ
- Reference

Limitations of Wireless Sensor Networks

1. Possess very little storage capacity – a few hundred kilobytes
2. Possess modest processing power-8MHz
3. Works in short communication range – consumes a lot of power
4. Requires minimal energy – constrains protocols
5. Have batteries with a finite lifetime
6. Passive devices provide little energy

WIRELESS AD-HOC NETWORK (WANET)

Routing Issues

1. Node deployment:
2. Fault Tolerance:
3. Scalability:
4. . Transmission Media:
5. Coverage:
6. Data Aggregation:
7. Quality of Service:

Sensor Network Architecture

Sensor Network Architecture is used in Wireless Sensor Network (WSN). It can be used in various places like schools, hospitals, buildings, roads, etc for various applications like disaster management, security management, crisis management, etc.

There are 2 types of architecture used in WSN: Layered Network Architecture, and Clustered Architecture. These are explained as following below.

1. Layered Network Architecture:

Layered Network Architecture makes use of a few hundred sensor nodes and a single powerful base station. Network nodes are organized into concentric Layers.

It consists of 5 layers and three cross layers.

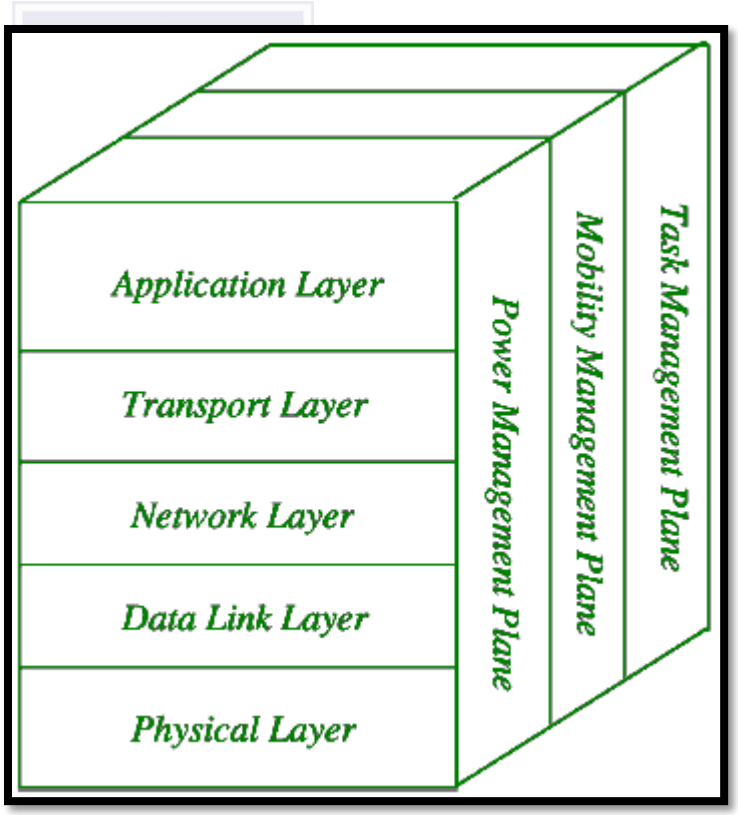
The 5 layers are:

1. Application Layer **2.** Transport Layer **3.** Network Layer **4.** Data Link Layer **5.** Physical Layer

WIRELESS AD-HOC NETWORK (WANET)

The cross layers consist of the following:

1. Power Management Plane
2. Mobility Management Plane
3. Task Management Plane



MCQ

1) RTS/CTS period is called ( )

(a) Waiting period (b) Contention period (c) Running period (d) none of these

2) Existing MAC protocols cannot be used in MANETs because of ( )

(a) Resource constrained nodes (b) Limited bandwidth (c) Lack of centralized control (d) All of the above

3) MARCH exploits the properties of _____ antennas and overhearing properties of MANETs. ( )

(a) Single directional (b) Bi-directional (c) Omni directional (d) None of these

4) Which protocol is more bandwidth efficient, RTMAC or MACA/PR? Explain.

5) Explain how clustering solves the issue of scalability on WSN

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