

INTRODUCTION

Introduction to adhoc networks – definition, characteristics features, applications. Characteristics of Wireless channel, Adhoc Mobility Models: - Indoor and outdoor models.

MEDIUM ACCESS PROTOCOLS

MAC Protocols: design issues, goals and classification. Contention based protocols- with reservation, scheduling algorithms, protocols using directional antennas. IEEE standards: 802.11a, 802.11b, 802.11g, 802.15. HIPERLAN.

NETWORK PROTOCOLS

Routing Protocols: Design issues, goals and classification. Proactive Vs reactive routing, Unicast routing algorithms, Multicast routing algorithms, hybrid routing algorithm, Energy aware routing algorithm, Hierarchical Routing, QoS aware routing.

END-END DELIVERY AND SECURITY

Transport layer: Issues in designing- Transport layer classification, adhoc transport protocols. Security issues in adhoc networks: issues and challenges, network security attacks, secure routing protocols.

CROSS LAYER DESIGN AND INTEGRATION OF ADHOC FOR 4G

Cross layer Design: Need for cross layer design, cross layer optimization, parameter optimization techniques, Cross layer cautionary perspective. Integration of adhoc with Mobile IP networks. Mesh Networks, Vehicular Area Networks

Books and References:

1. Toh C.K., Ad-Hoc Mobile Wireless Networks – Protocols and Systems, Prentice Hall.
2. Siva-RAM-Murthy, Ad-Hoc Wireless Networks - Architectures and Protocols, Addison-Wesley.
3. Stojmenovic and Cacute, Handbook of Wireless Networks and Mobile Computing, Wiley, 2002, ISBN 0471419028. (Chapters 11, 15, 17, 26 and 27)
4. Edgar H. Callaway, Wireless sensor networks: architectures and protocols, Auerbach Publications.
5. Feng Zhao, Leonidas J. Guibas, Wireless sensor networks: an information processing approach.