

# Chapter 0: Syllabus

Prof. Yuh-Shyan Chen

Department of CSIE

National Taipei University





# 課程內容大綱

---

- Chapter 1: **Motivation & applications**
- Chapter 2: **Single node architecture**
- Chapter 3: **Network architecture**
- Chapter 4: **Medium access control protocols**
- Chapter 5: **Introduction of IEEE 802.11**



# Cont.

---

- Chapter 6: **Relay-Enabled Medium Access Control Protocol for MANETs**
- Chapter 7: **Directional and Smart Antenna**
- Chapter 8: **Broadcast I:**
- Chapter 9: **Broadcast II: Broadcast Storm**



## Cont.

---

- Chapter 10: **Multicast**
- Chapter 11: **Routing/QoS Routing**
- Chapter 12: **QoS Routing on MIMO MANETs**
- Chapter 13: **Mobicast Routing Problem on WSNs**
- Chapter 14: **Vehicular Ad Hoc networks**

# Chapter 1: Motivation & applications

Example of Wireless Bio-Sensor

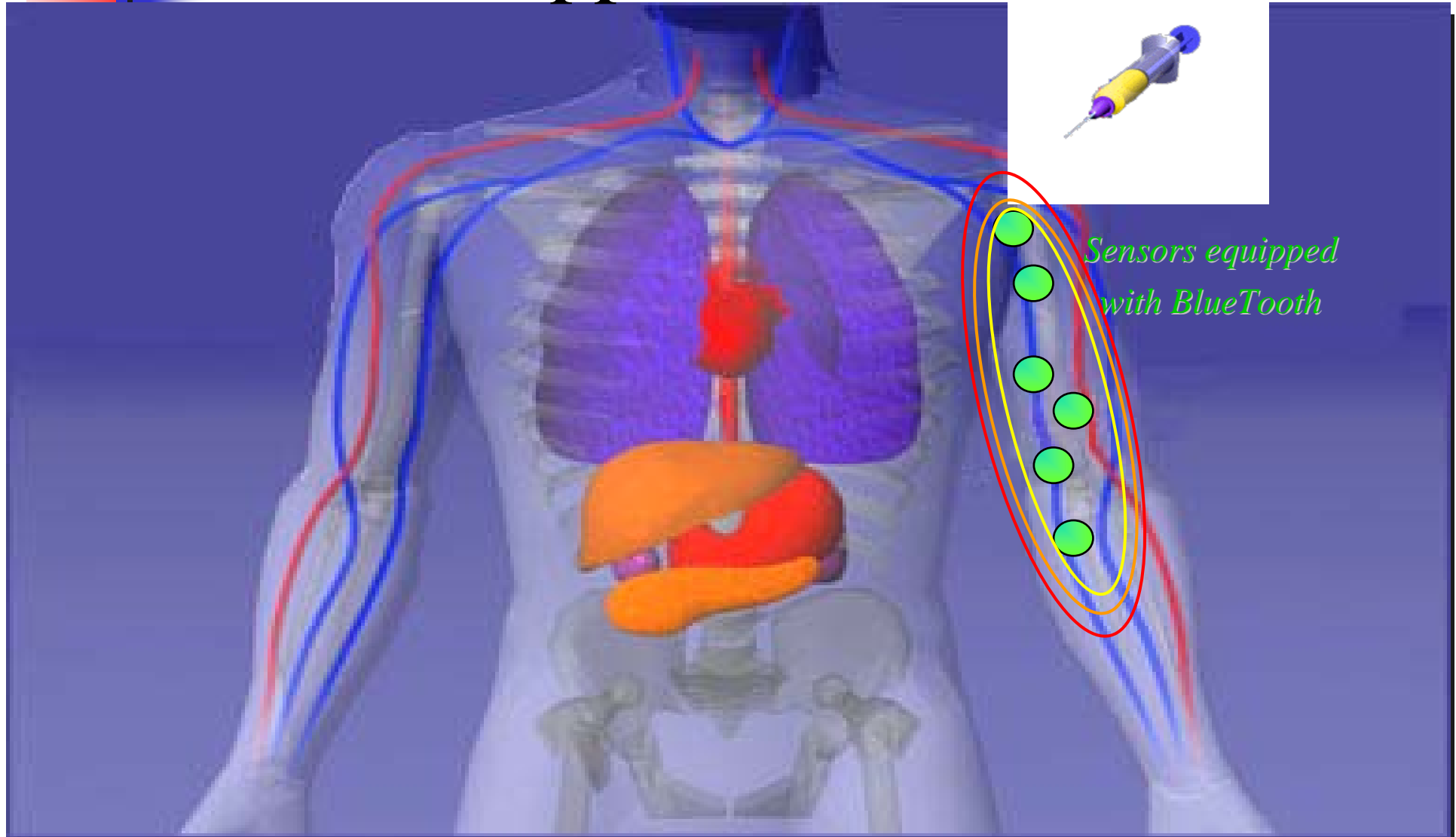


# Medical and Healthcare Applications

Source: USC Web Site



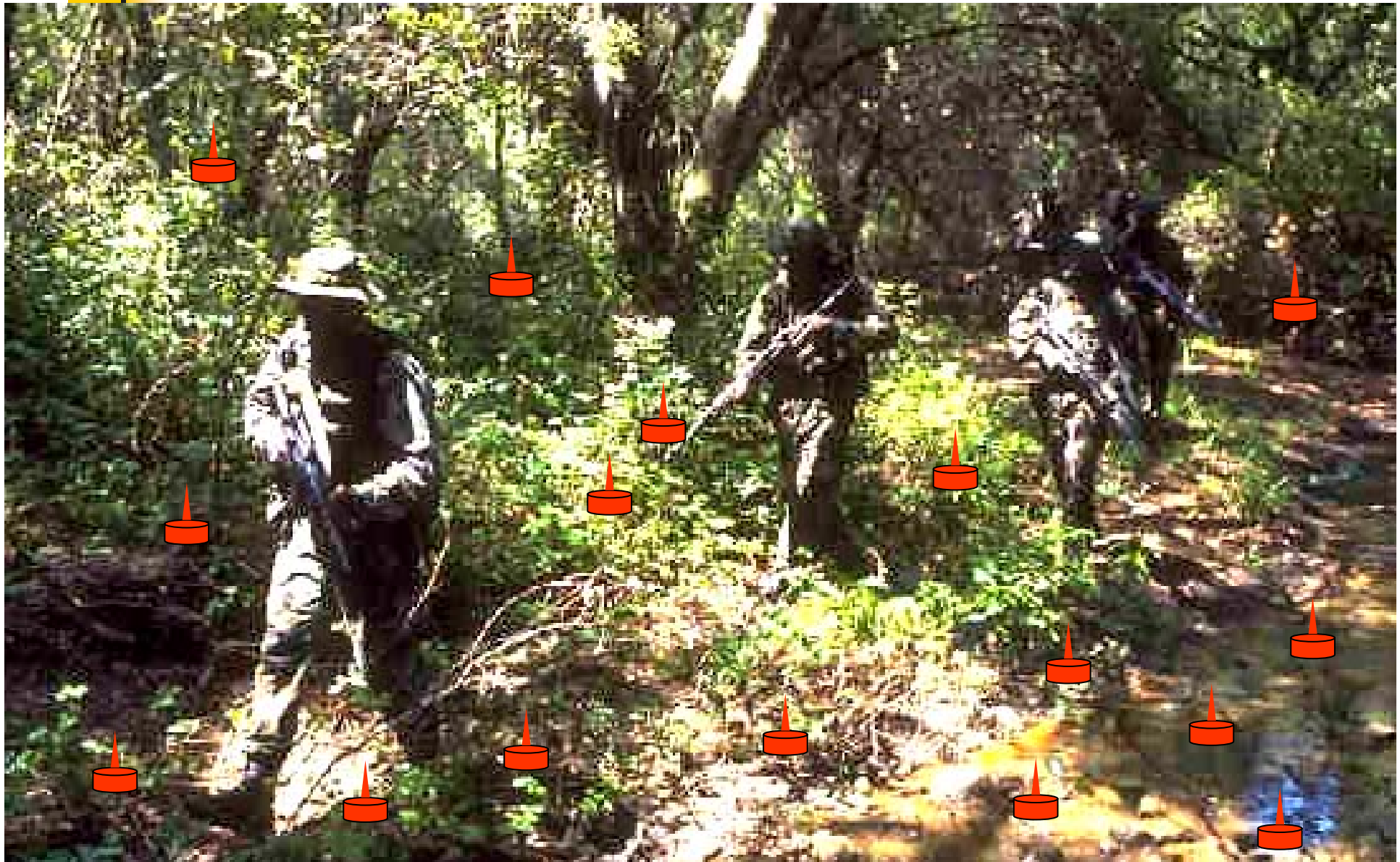
*Sensors equipped  
with BlueTooth*



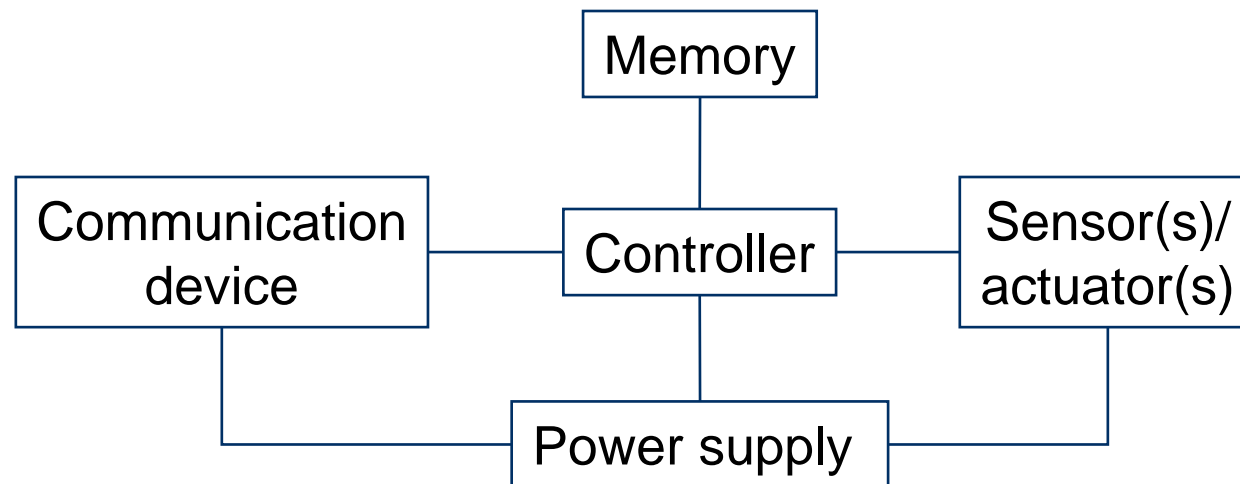
# Environment Monitoring System



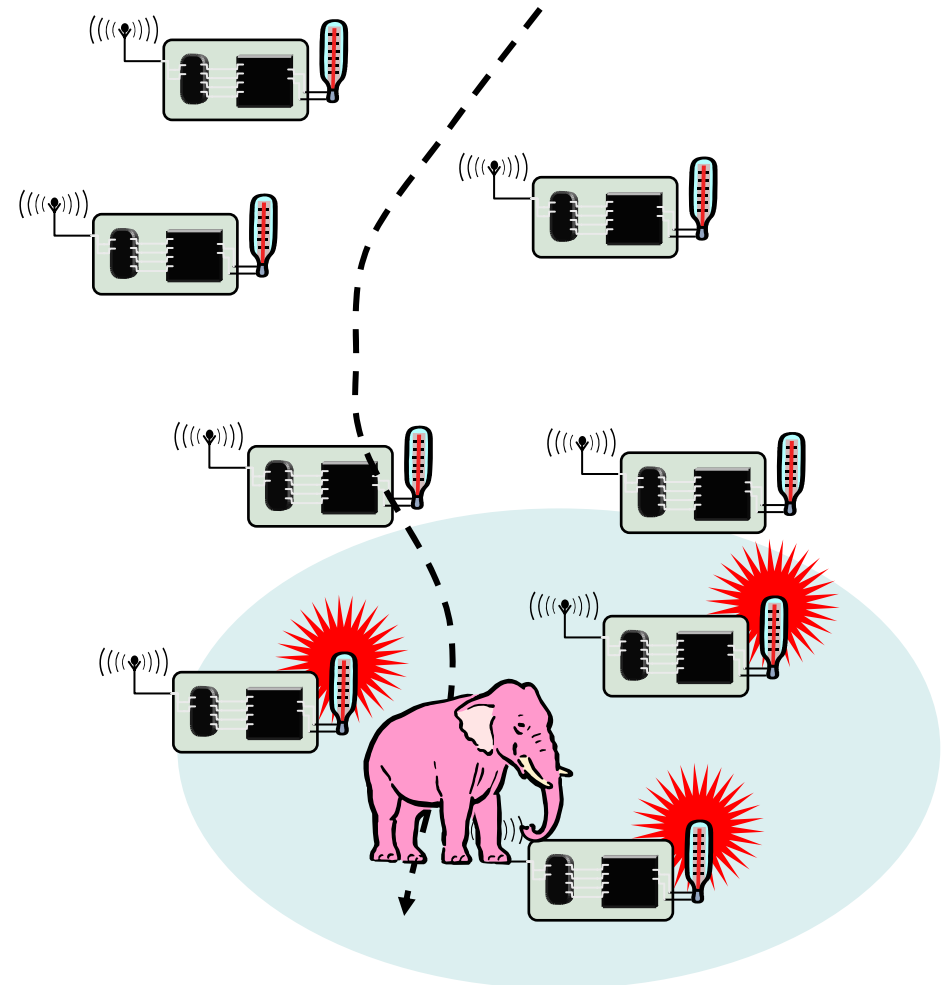
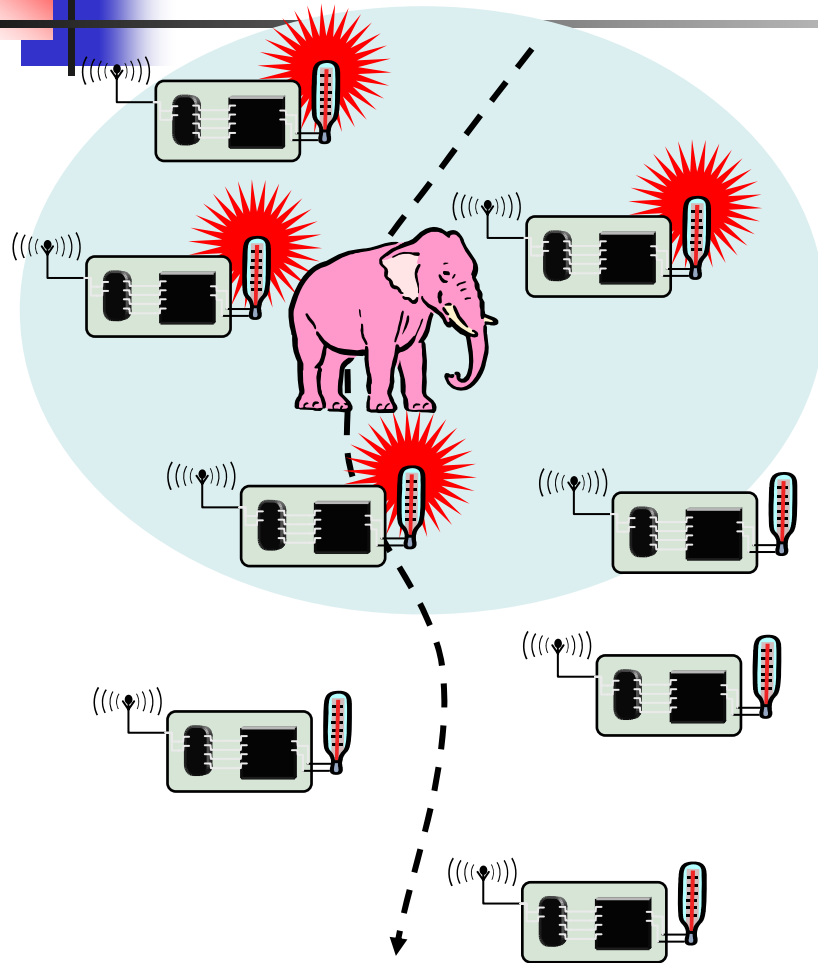
# Sensors in Unknown Terrain



# Chapter 2: Single node architecture

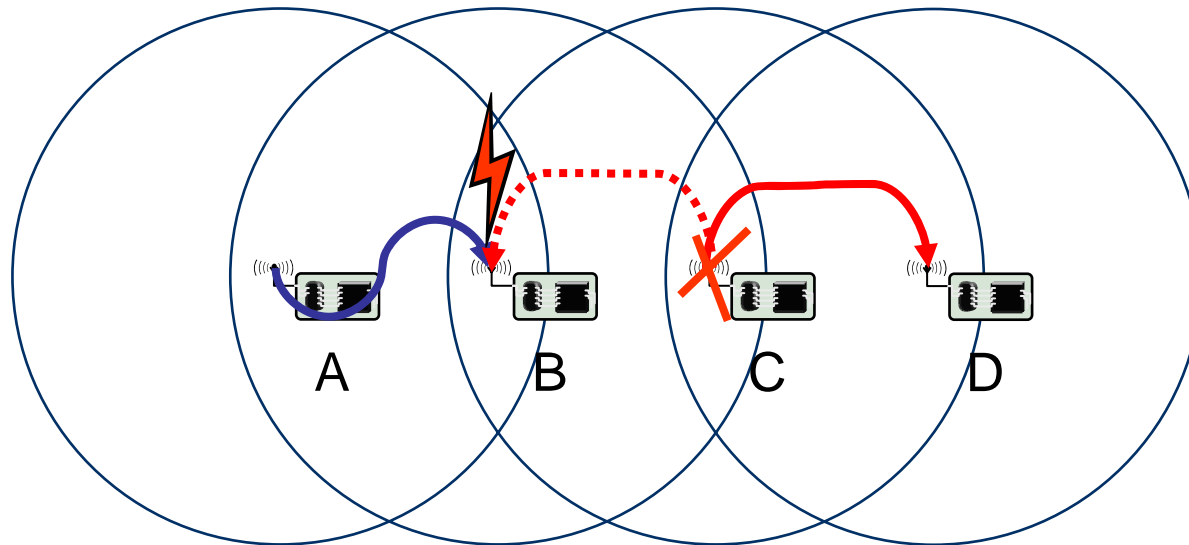


# Chapter 3: Network architecture



# Chapter 4: Medium access control protocols

Hidden terminal scenario:

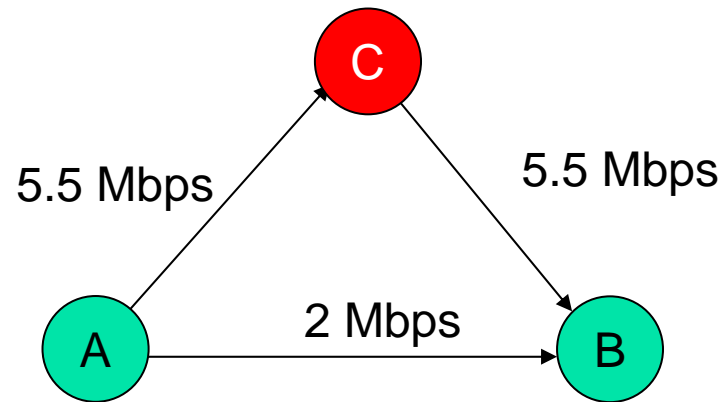


Also:  
recall  
exposed  
terminal  
scenario

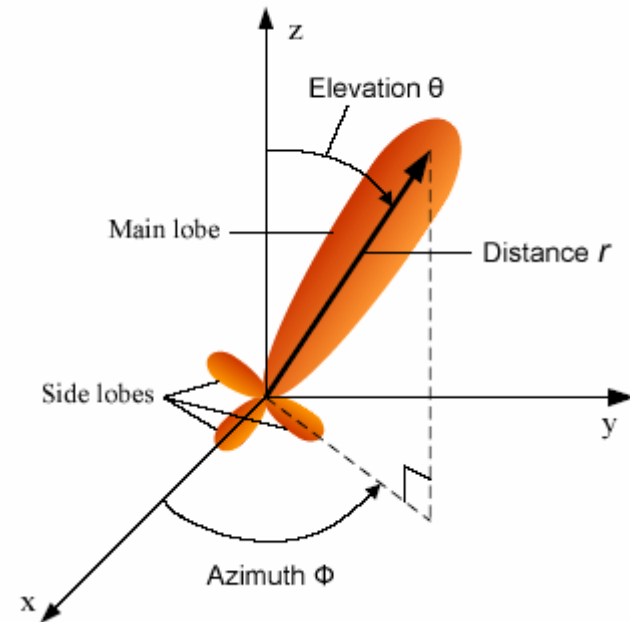
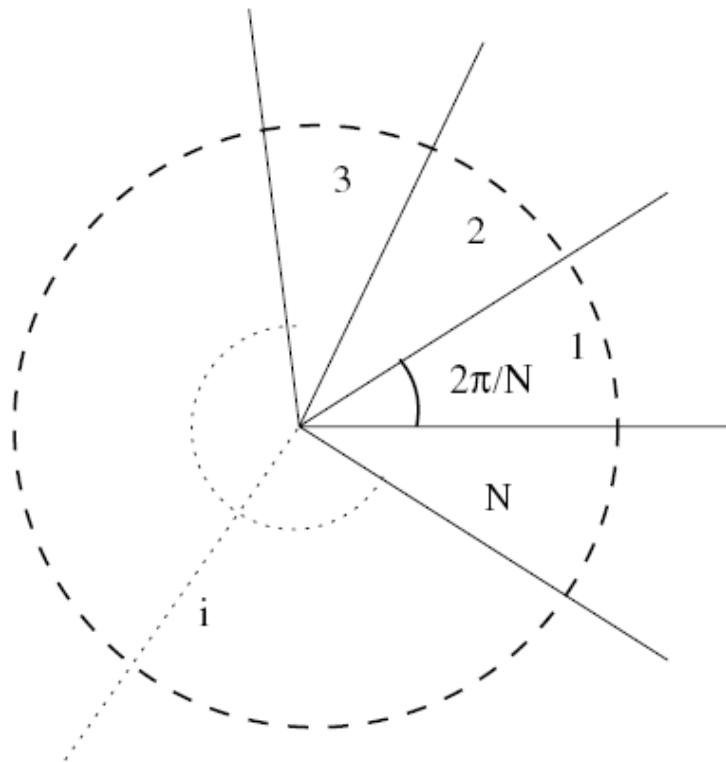
# Chapter 5: Introduction of IEEE 802.11



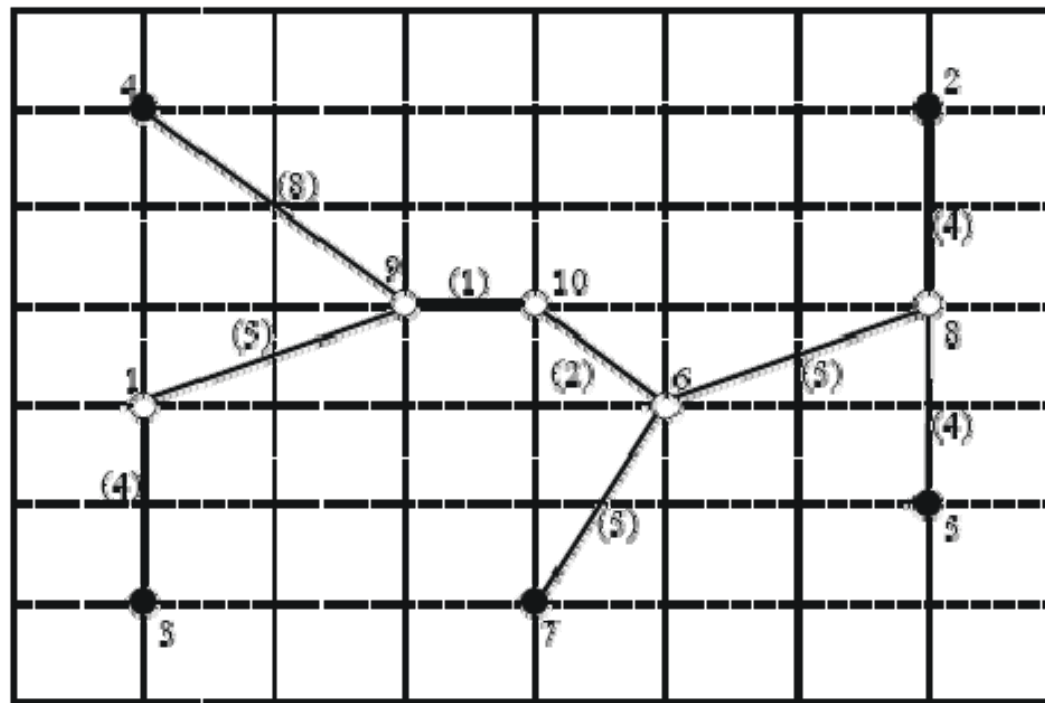
# Chapter 6: Relay-Enabled Medium Access Control Protocol for MANETs



# Chapter 7: Directional and Smart Antenna

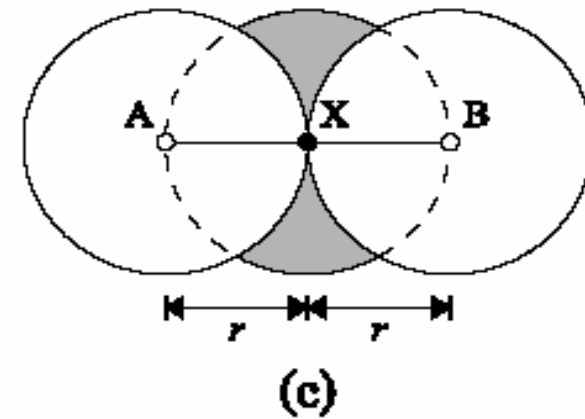
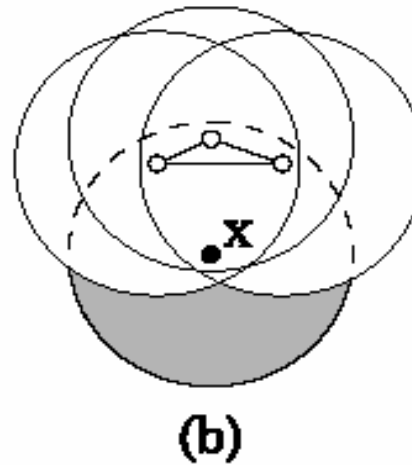
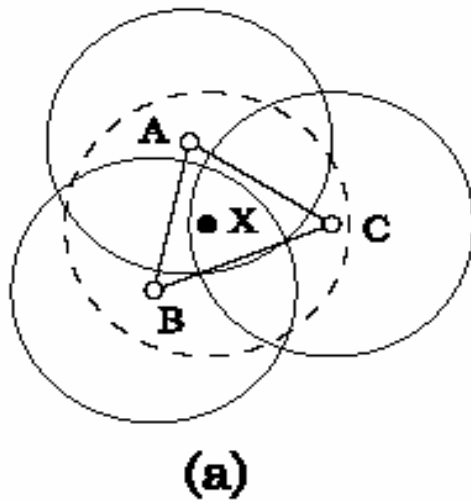


# Chapter 8: Broadcast

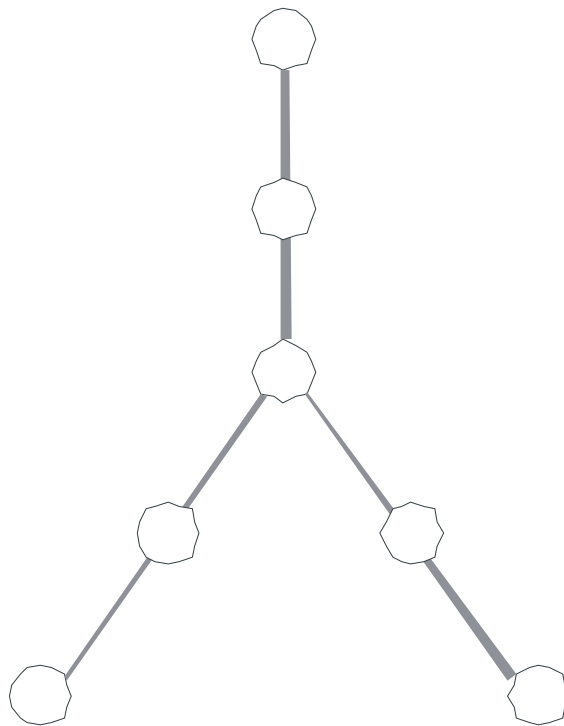


**Fig. 3:** A MST broadcasting tree

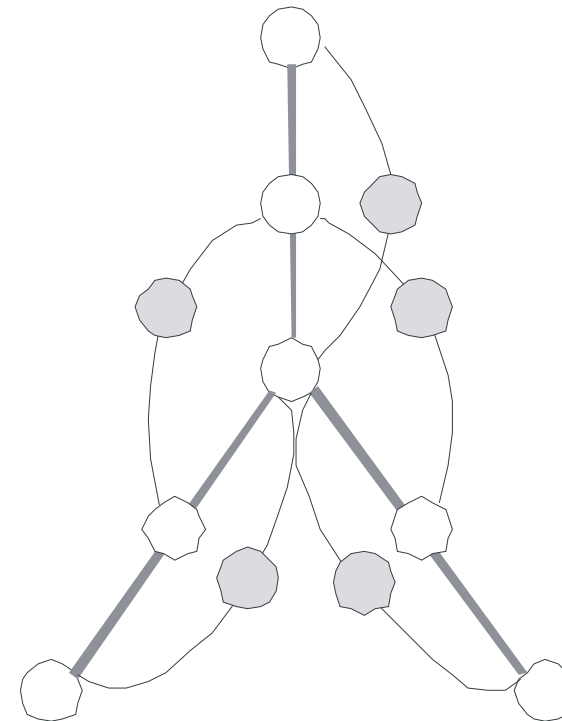
# Chapter 9: Broadcast II: Broadcast Storm



# Chapter 10: Multicast



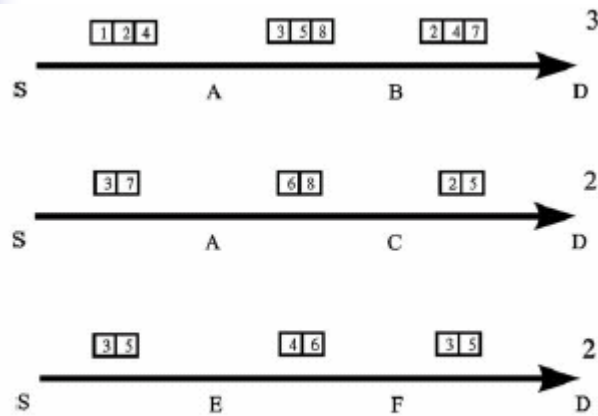
( a )



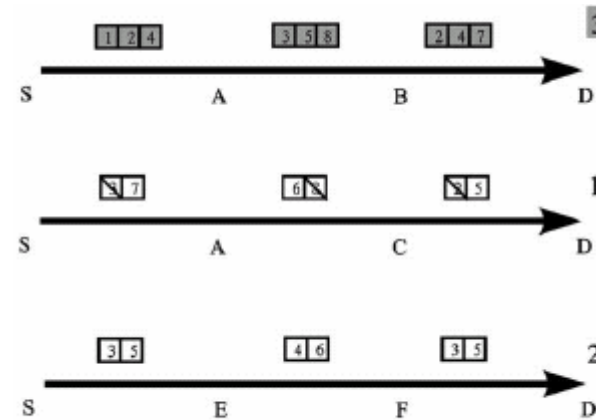
( b )

# Chapter 11: Routing/QoS

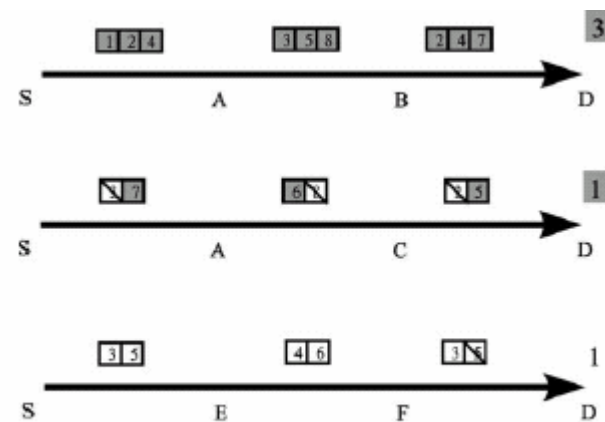
## Routing



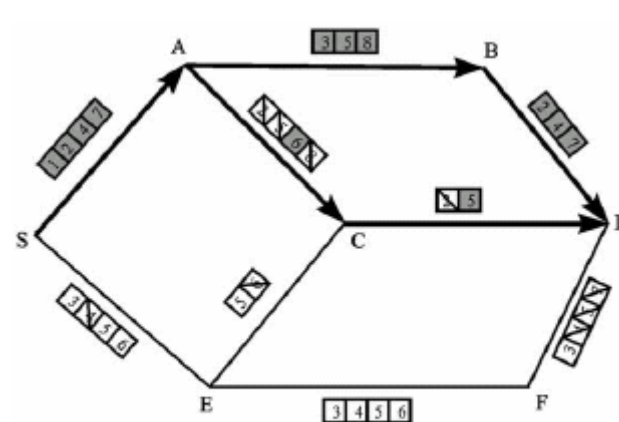
(a)



(b)

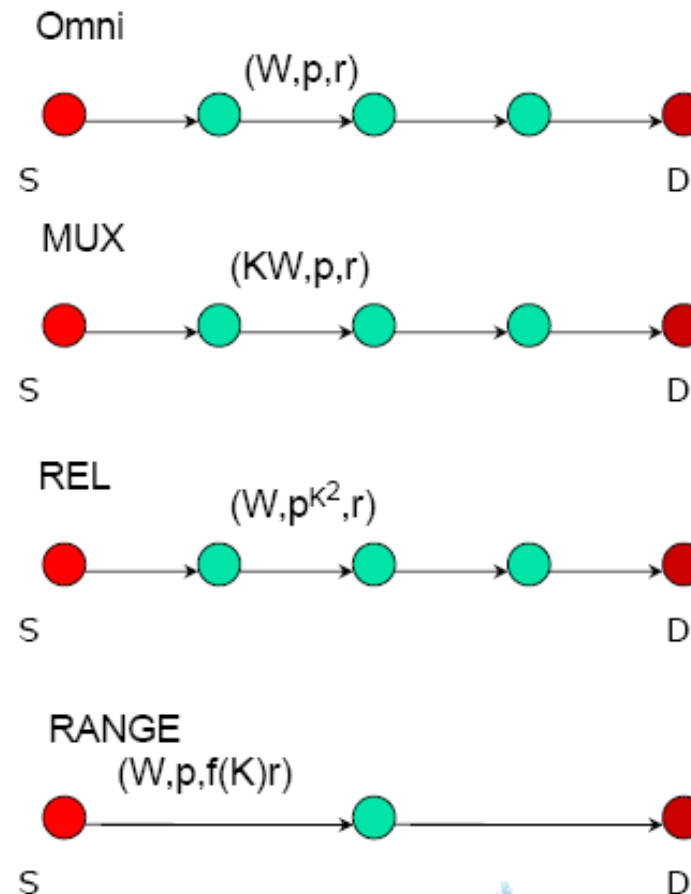


(c)

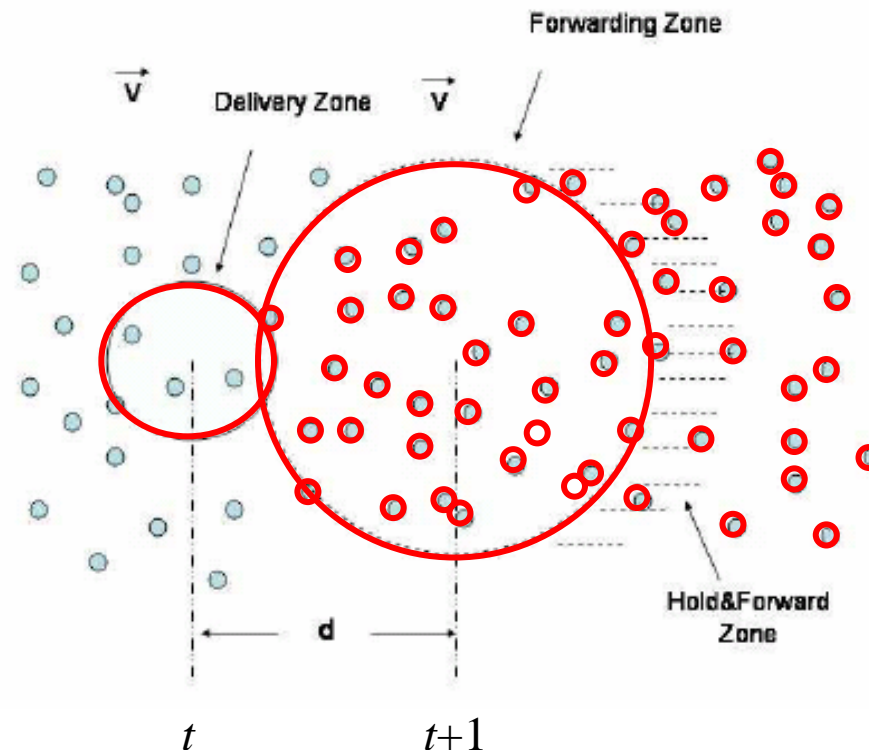


(d)

# Chapter 12: QoS Routing on MIMO (Multiple Input Multiple Output) MANETs

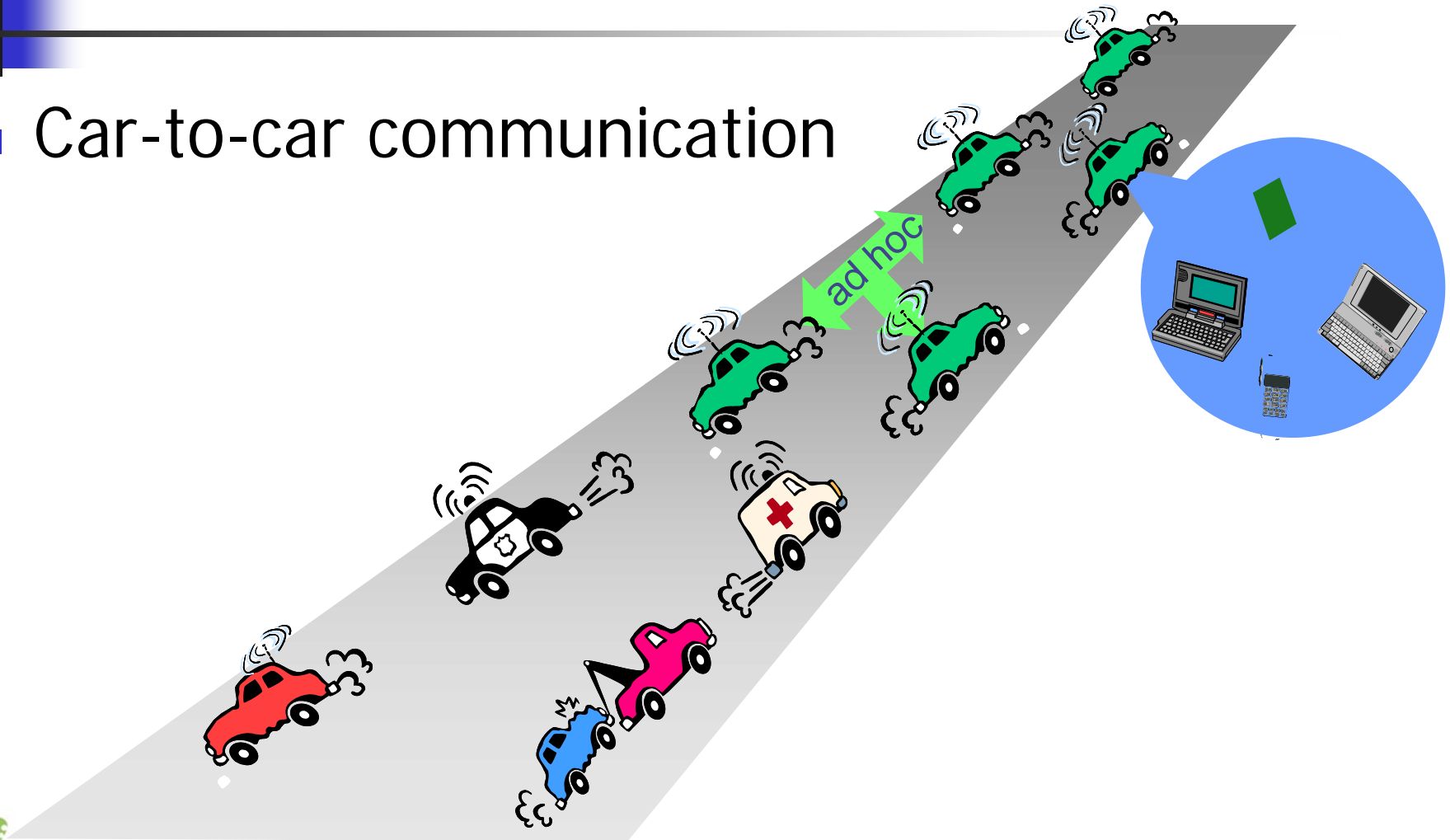


# Chapter 13: Mobicast Routing Problem on WSNs



# Chapter 14: Vehicular Ad Hoc Networks

- Car-to-car communication





# Vehicle Infrastructure Integration (VII) [from Telcordia]



from Telcordia





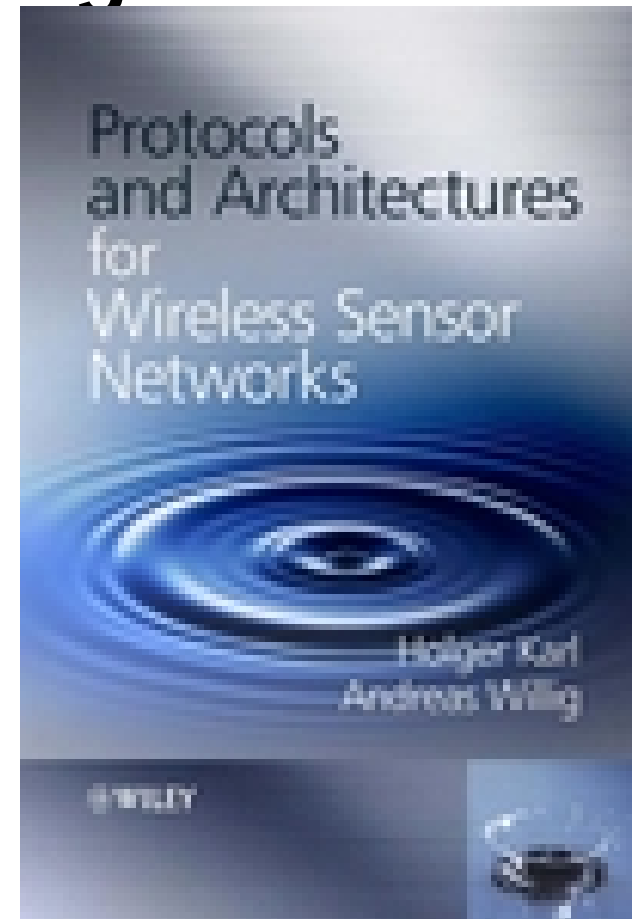
# Other reference books

---

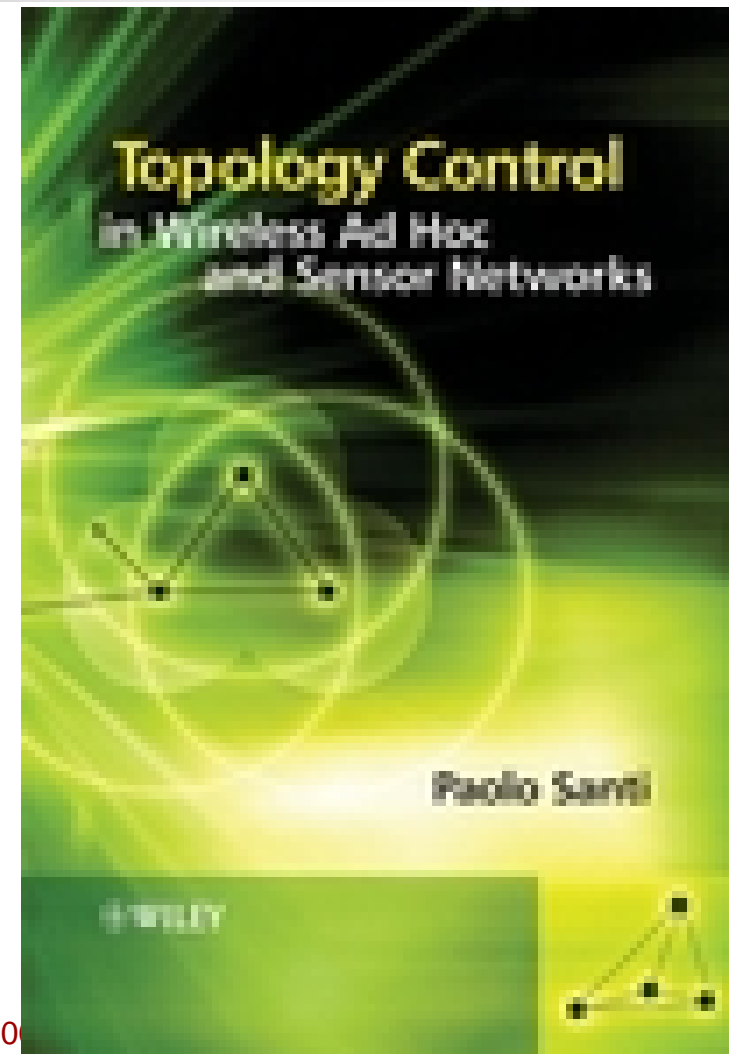


# Protocols and Architectures for Wireless Sensor Networks

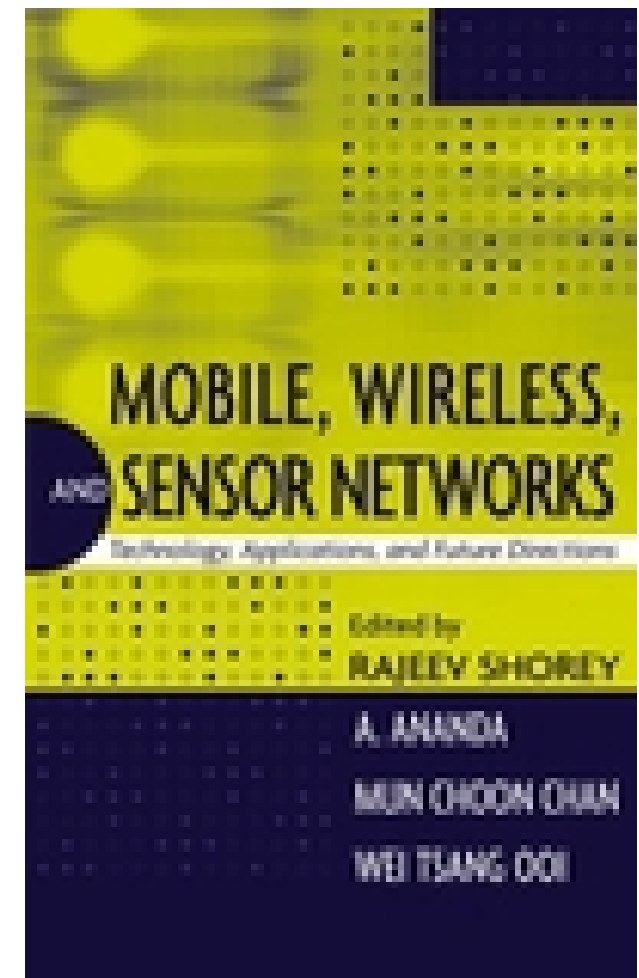
- By Holger Karl, Andreas Willig



# Topology Control in Wireless Ad Hoc and Sensor Networks

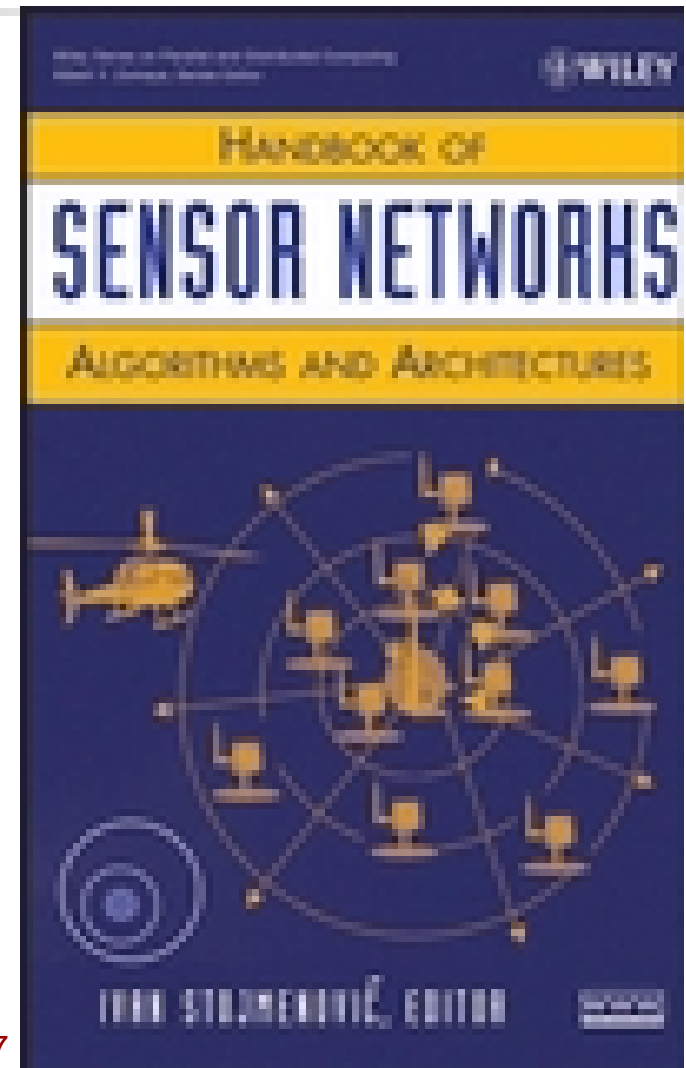


# Mobile, Wireless, and Sensor Networks: Technology, Applications, and Future Directions



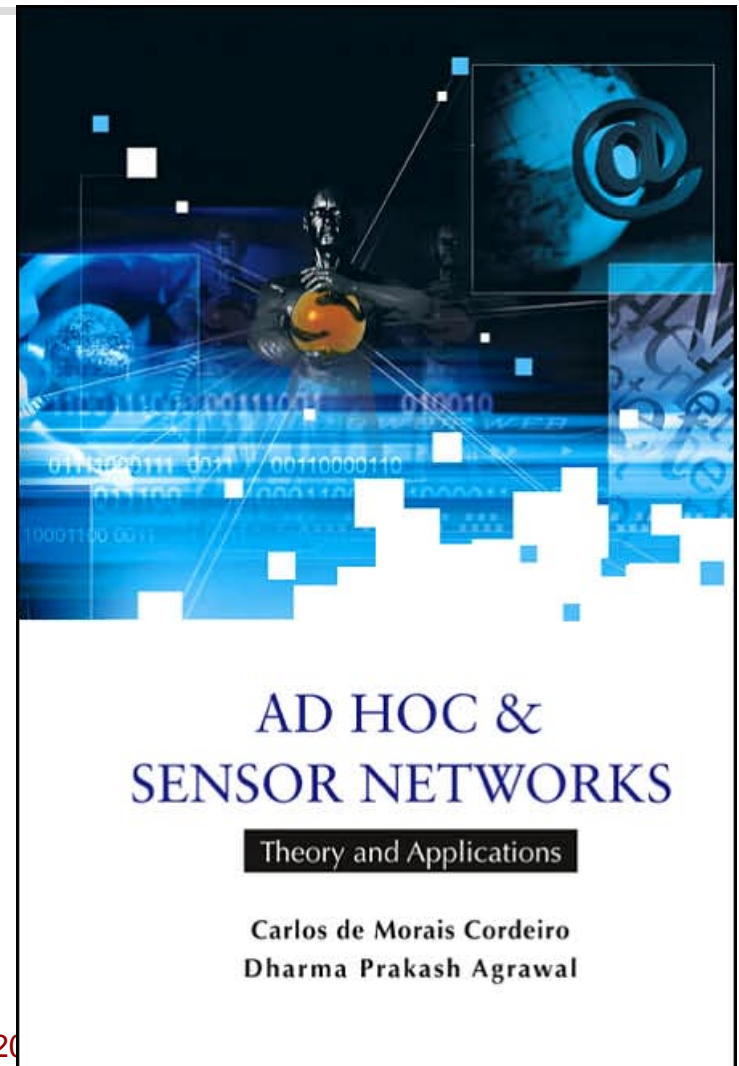
# Handbook of Sensor Networks: Algorithms and Architectures

國立臺北大學 資訊工程學系  
NTPU, Department of Computer Science and Information Engineering

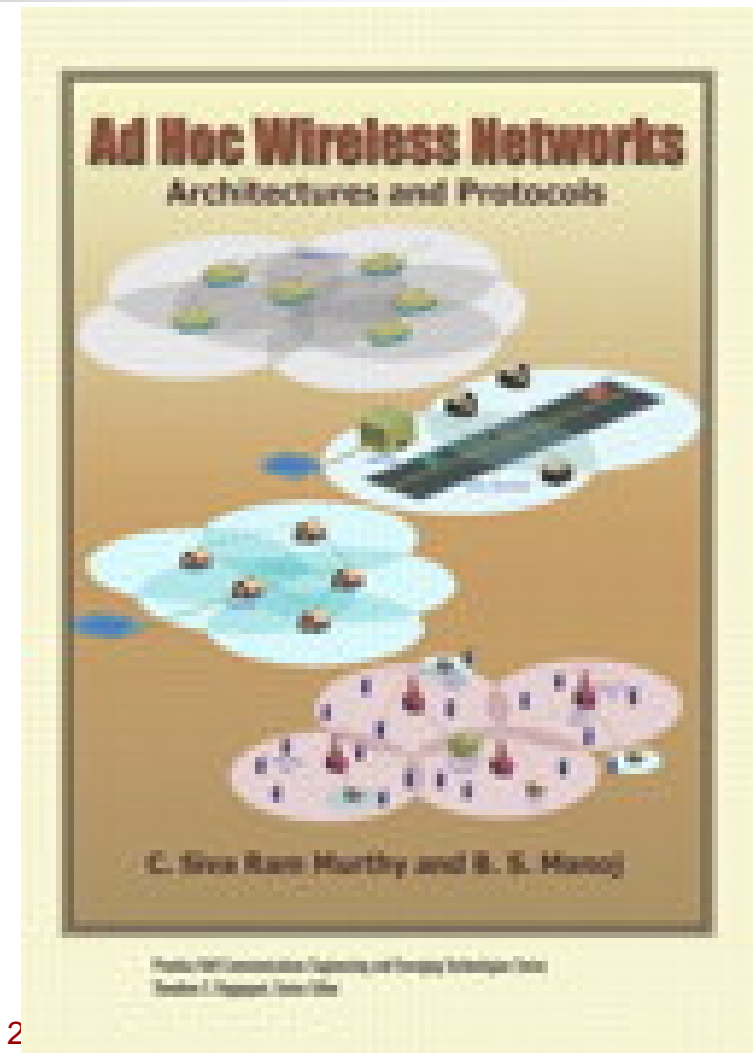


Advanced Techniques of Mobile Ad Hoc and Wireless Sensor Networks, 2007

# Ad Hoc & Sensor Networks, Theory and Applications



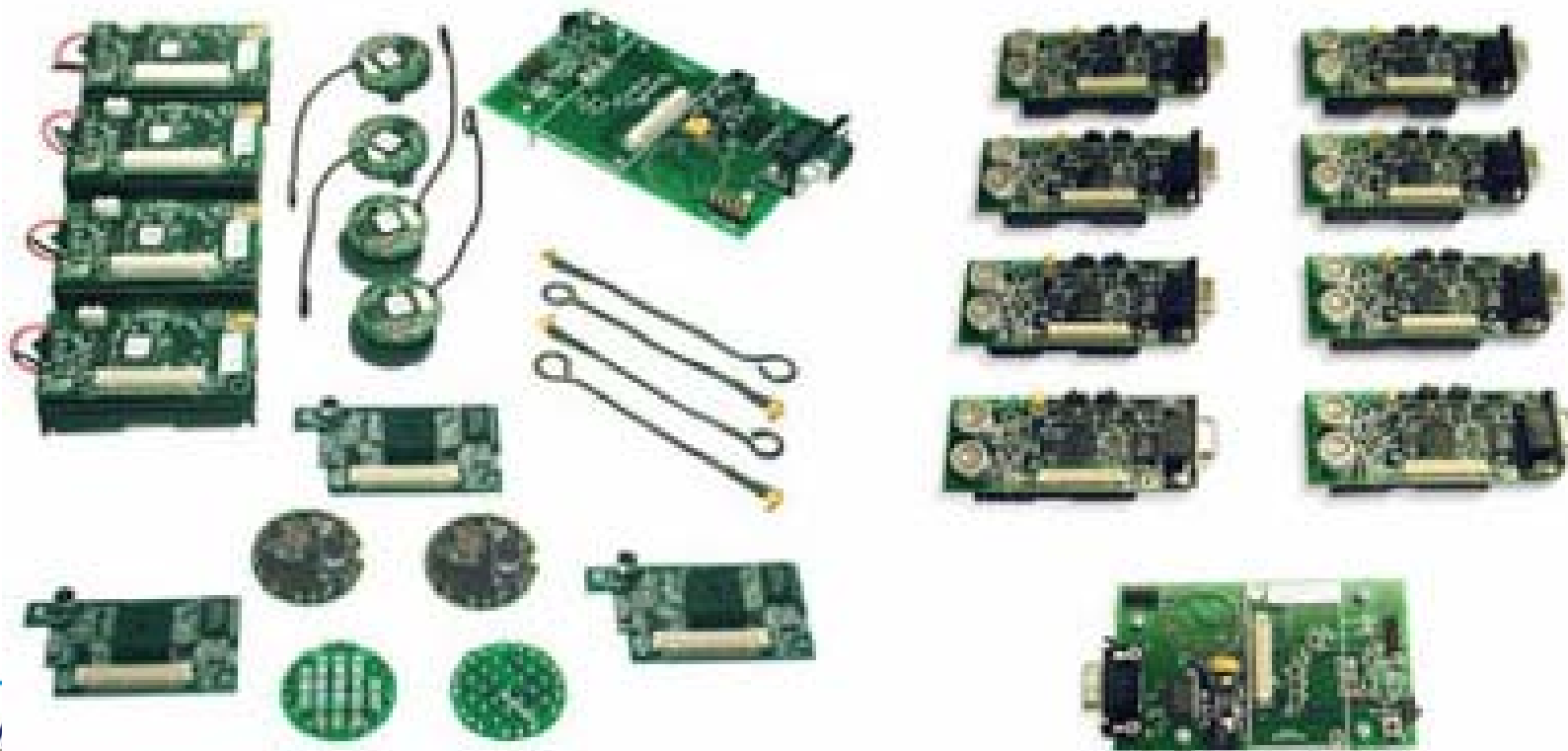
# Ad Hoc Wireless Networks Architectures and Protocols



# Ad Hoc and Wireless Sensor Networks

- 「無線隨意及感測網路進階技術」

## Mote Kits





# 學期成績計算方法

---

- 期中考 (30%)
- 期末考 (30%)
- Homeworks (20%)
- 1 個 實驗 (20 %)