

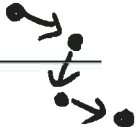
Lecture on 3/22/12

EE597

Course Structure

Part 1 : PHY Layer 

Part 2 : MAC / Link layer
Resource Allocation 

Part 3 : Network Layer
(Routing) 

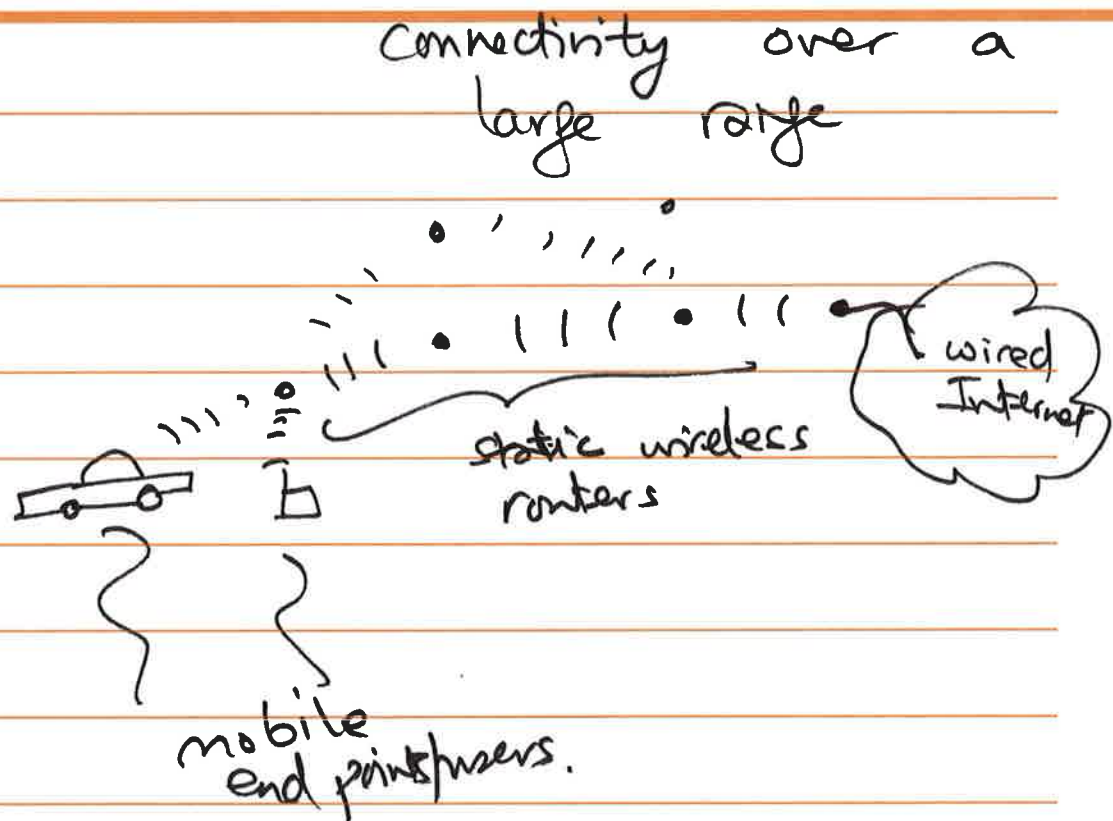
Part 4 : Transport Layer
(Congestion Control) 

Routing over Multi-Hop
Wireless Networks

Types of multihop Wireless Networks

Wireless Mesh Network

- multi-hop system
- the intermediate wireless routers are static
- for providing Internet



Wireless Sensor Networks Embedded

Low-power Wireless Networks

- individual nodes are very small & inexpensive
running on batteries
transmit range \sim 3m to 30m

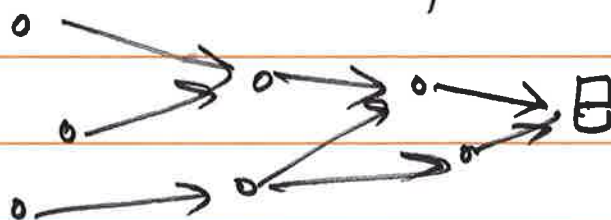
data rates \sim 250 kbps

Zigbee Alliance } IEEE 802.15.4 standard
for PHY & MAC

also uses the same ISM
band as Wifi / Bluetooth

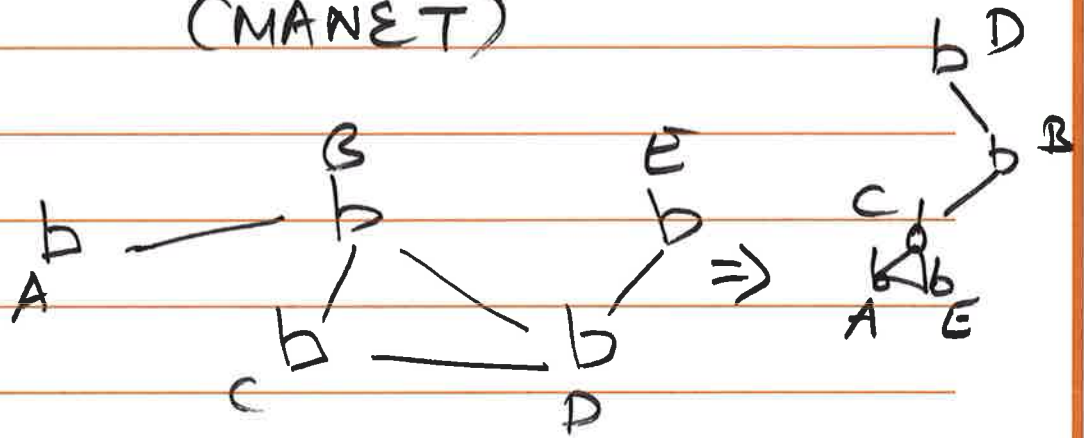
EE652
Fall 2012

very low capability processor,
low memory, storage etc.



Convergent
routing

Mobile Ad Hoc Networks (MANET)



- all nodes are mobile
- spanning a large area

so that multiple hops
are required

- any to any and
multicast / broadcast
applications

Intermittently Connected Mobile Network (ICMN)

Delay tolerant networks } OTN
Disruption tolerant networks }

- typically, all (most) nodes are mobile.



- unlike a MANET, the deployment is ~~much~~ sparser
- There may not always/ever be an end to end instantaneous route between any pair of nodes.

Vehicular Networks

Vehicular Ad hoc Networks

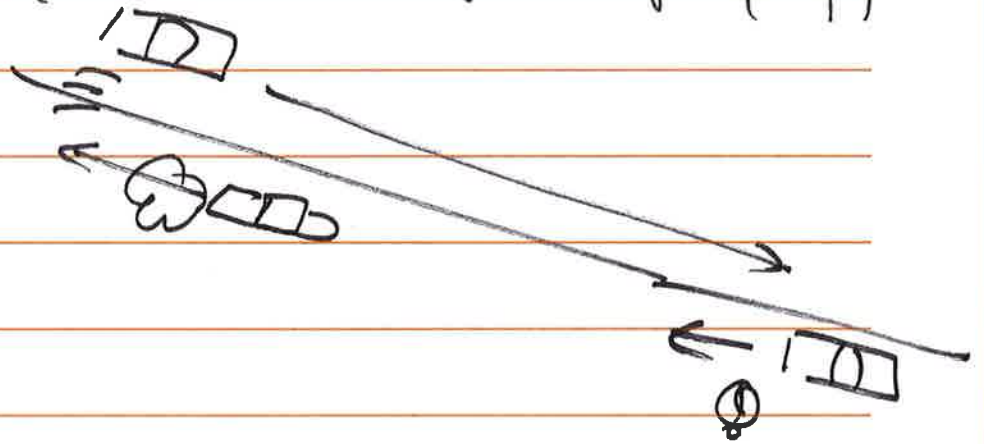
IEEE 802.11p

WAVE

Wireless Access in Vehicular Environments

DSRC - dedicated short range communication.

primarily envisioned for safety applications



Also new Android-based mobile devices w/ WiFi-Direct make this of network a possibility for mobile P2P applications.