

Exercises of lecture
Wireless Sensor Networks
Winter 2005/2006
Sheet 1

SECTION 1:

Wireless networks

1. Name any three kinds of wireless networks.
2. Write a two differentiating factor between wireless cellular network and wireless sensor networks.
3. Write any three motivating factor for not having an infrastructure based network.
4. Write three possible wireless sensor network applications and very briefly explain them.
5. Write five differentiating factors between wireless ad-hoc networks and wireless sensor networks.

SECTION 2:

Multi-hop communication

1. How much energy is required for a three hop transmission? The distances between these hops are d , d , $3d$. Furthermore, how much energy will be required when only one hop is used?
2. Write three motivation factors for having multi hop communication instead of single hop communication.

SECTION 3:

Basics of wireless sensor networks.

1. Name three basic parts of a wireless sensor mote?
2. Write any five characteristic requirements of wireless sensor network and explain them very briefly.

SECTION 4:

Excerpt from Intel website about Improving Life and Industry with Wireless Sensors:

Intel Research, working with the academic community and industry, is addressing many of the significant challenges for ad hoc sensor networks to become a reality.

Already, a broad spectrum of sensor network pilot applications have been demonstrated. As sensor network technology emerges from research laboratories, the ability to instrument the world is likely to transform every facet of our lives.

Propose and discuss about the wireless sensor network applications for:

1. Smart home or smart office
2. Medical or bio-medical use
3. Military and battlefield
4. Traffic monitoring
5. Industrial and commercial use and other areas.