

INTRODUCTION TO WIRELESS SENSOR NETWORKS

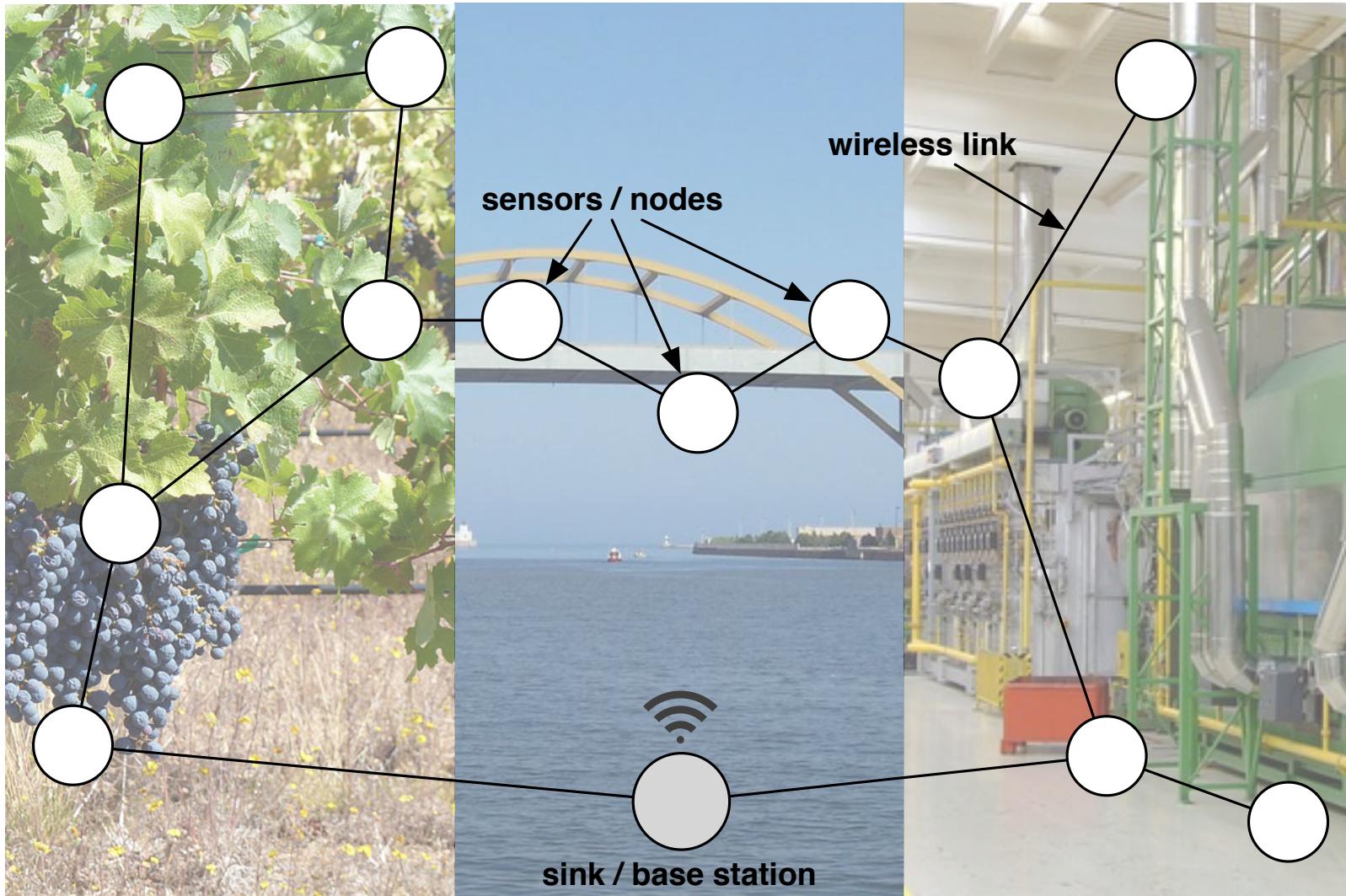
CHAPTER 1: WHAT ARE WIRELESS SENSOR NETWORKS?

Anna Förster

OVERVIEW

1. Wireless Sensor Networks
2. Sample Applications Around the World
3. Types of Wireless Sensor Networks

TYPICAL WIRELESS SENSOR NETWORK



Anna Förster, Introduction to Wireless Sensor Networks, 2016

WIRELESS SENSOR NETWORK

- The resources of individual nodes are highly limited
- Wireless links are spontaneous and not planned
- The network senses some phenomenon and needs to transfer the data to an external user
- **The main functionalities of a sensor node are *sensing* and *sending***

SAMPLE APPLICATION (1)

Vineyard monitoring (SmartVineyard Solutions, Hungary)



SAMPLE APPLICATION (2)

Bridge Monitoring (Charilaos Trikoupis, Greece)



Guillaume Piolle, Flickr

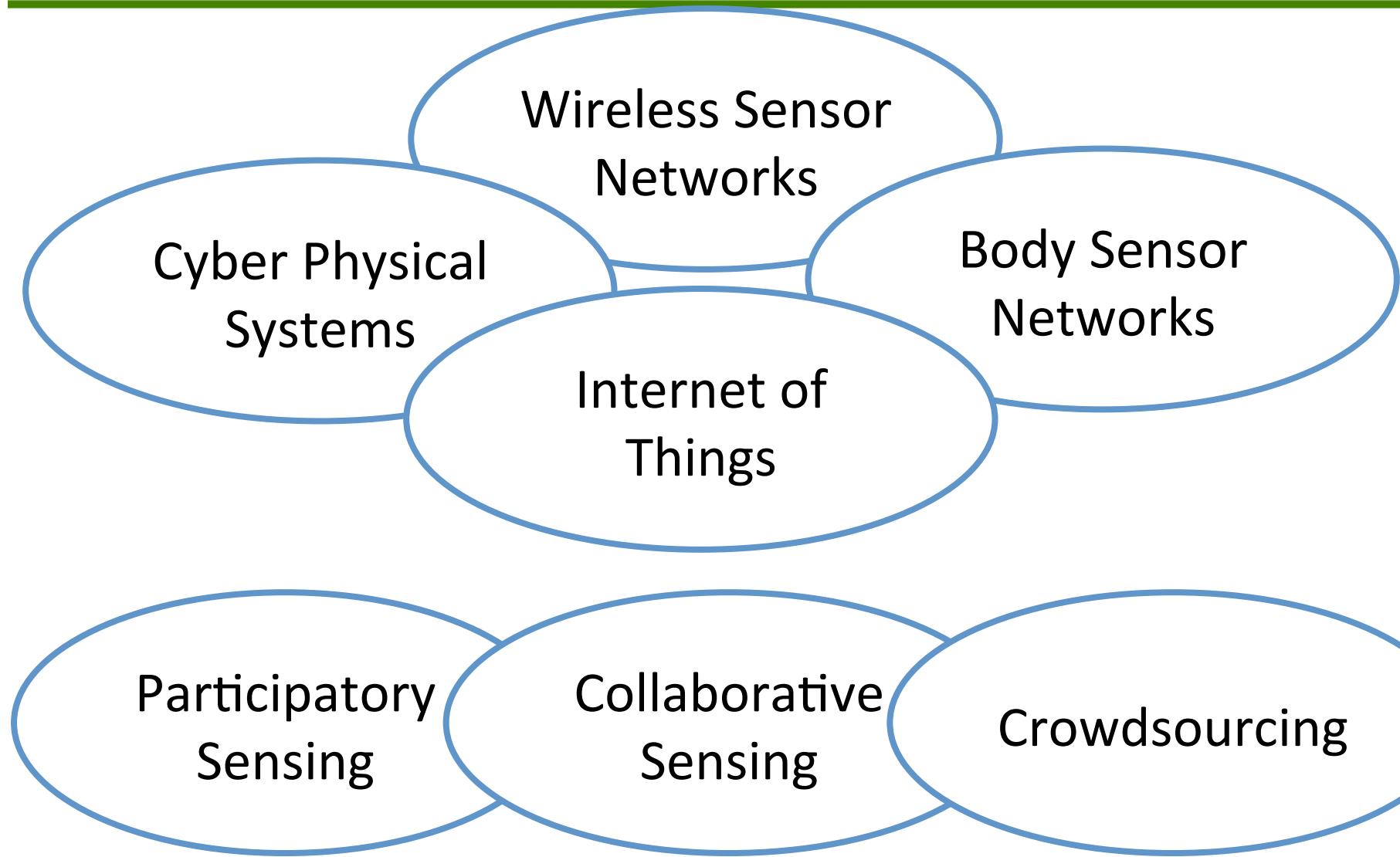
Anna Förster, Introduction to Wireless Sensor Networks, 2016

SAMPLE APPLICATION (3)

Animal Monitoring and Virtual Fences (CSIRO, Australia)



TYPES OF SENSOR NETWORKS



Anna Forster, Introduction to Wireless Sensor Networks, 2016

SUMMARY

- Sensor networks consist of few to thousands of nodes
- Nodes are low-cost and small-size
- Sensor network design is tightly coupled to the application it serves
- Main challenges:
 - Sensing
 - Communication
 - Energy-efficiency
 - Installation