Principles of Wireless Sensor Networks

https://www.kth.se/social/course/EL2745/

Lecture 10
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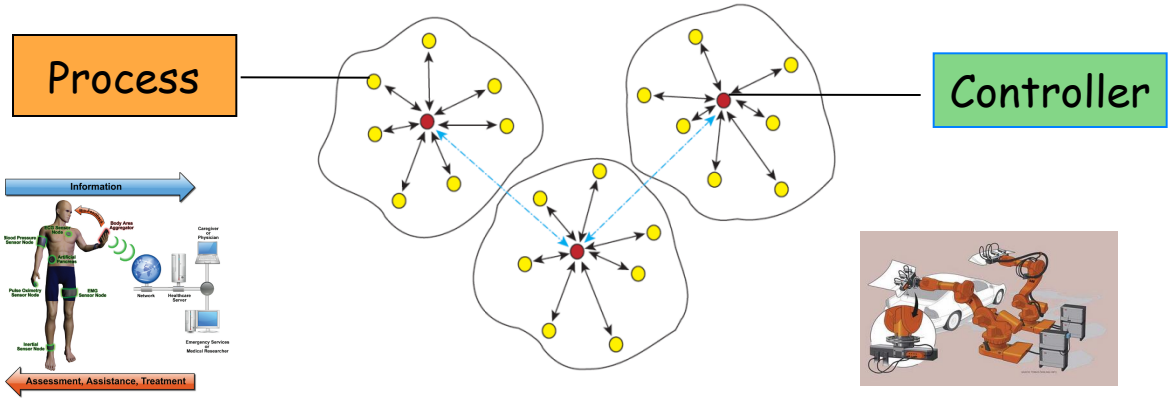
Previous lecture



How to estimate the position of fixed and mobile nodes?

Course content

- Part 1
  - Lec 1: Introduction
  - Lec 2: Programming
- Part 2
  - Lec 3: The wireless channel
  - Lec 4: Physical layer
  - Lec 5: Mac layer
  - Lec 6: Routing
- Part 3
  - Lec 7: Distributed detection
  - Lec 8: Distributed estimation
  - Lec 9: Positioning and localization
  - Lec 10: Time synchronization
- Part 4
  - Lec 11: Networked control systems 1
  - Lec 12: Networked control systems 2
  - Lec 13: Summary and project presentations

Today's learning goals

- Which measurements are used for synchronizing the nodes?
- What is the hardware clock?
- What is the software clock?
- How to synchronize pair of nodes
- How to synchronize a network of nodes?

Outline

- Basic of synchronization
  - Hardware clock
  - Software clock
  - Message exchanges
- Synchronization protocols
  - Two nodes with different drifts and offsets
  - Distributed clock synchronization

Summary

- We have studied the basic of synchronization for sensor networks
- Synchronizing the nodes consists in applying estimation techniques

Next lecture

- The fourth and last part of the course starts: control over WSNs