

Ubiquitous Computing
CSE40827/60827

Fall 2009
University of Notre Dame

Computer Science and Engineering - University of Notre Dame

Course Overview

- Instructor
 - Christian Poellabauer
 - cpoellab@cse.nd.edu, 354 Fitzpatrick Hall
 - Office hours:
 - Mon 9-10, Wed 1-2
 - By appointment
- Teaching Assistant
 - Nikhil Yadav
 - nyadav@nd.edu, 214 Cushing Hall
 - Office hours:
 - Wed 12-1, Fri 10.40-11.30
 - DARTS Lab (356B Fitzpatrick Hall)

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Course Overview

- MW(F) 10.40 – 11.30, deBartolo 202
- Friday lectures “on demand” (like this week)
 - Catching up
 - Tutorials
 - Student presentations
 - Independent lab meetings
- <http://www.cse.nd.edu/~cpoellab/teaching/cse40827/>

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Course Overview

- Student requirements
 - Prepare for lectures (15%)
 - Paper summaries due before lecture (AFS)
 - Create directory “readings” and name summaries “summaryMMDD.xxx” (MM=month, DD=day, xxx=extensions (doc, pdf, ps, txt, rtf))
 - Survey paper on topic of your choice (15%)
 - “How to” tutorial on one technology (15%)
 - Projects (40%)
 - ~ 3 mini-projects
 - Project proposal
 - Design, feasibility study
 - Implementation and evaluation
 - Presentation and documentation
 - Collaborative assessment (15%)
 - wiki

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Reading Assignment

- “The Computer for the 21st Century”, Mark Weiser
- “Synthetic Serendipity”, Vernor Vinge
- “Mike Villas’s World”, Harry Goldstein

- Paper summary:
 - Summarize each paper in 1-2 paragraphs
 - Key ideas, problem discussed, solutions proposed, open issues, etc.
 - Answer questions (1-3 sentences each)
 - How does Weiser explain the term “embodied virtuality”?
 - Can you comment on some of his predictions (battery life time, screen size, removable hard disks and memory chips, wireless transfer rates, etc.)?
 - What does Weiser identify as the key social issue?

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What is Ubiquitous Computing?

- *“The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.”*, Mark Weiser 1991

- <http://www.youtube.com/watch?v=iGnZ9ST9ST0>

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Ubiquitous Computing

- Wave 1: Mainframe Computers
 - Computers run by experts “behind closed doors”
 - Many users access computer via “dumb” terminals
 - Computers large, “powerful”, and expensive



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Ubiquitous Computing

- Wave 2: PC (Personal Computers)
 - Users have their own computers
 - Quite powerful, relatively inexpensive
 - Laptops replace desktops (add mobility)
 - Opened doors for new applications (word processing, productivity, video/audio, web applications)



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Ubiquitous Computing

- Wave 3: Internet
 - “information age”, online services, cloud computing, new businesses, ...
 - Combines elements of PC era and mainframe era



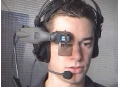


“Those are interesting questions Timmy, I suggest you ask your search engine.”

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Ubiquitous Computing

- Wave IV: Ubiquitous Computing
 - Explosion in number/variety of devices
 - Humans become subjects (instead of users)
 - Anywhere, anytime, but “invisible”
 - Intention: make our lives “better”



Ubiquitous computing will enable diverse wireless applications, including monitoring of pets and houseplants, operation of appliances, keeping track of books and bicycles, and much more.

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Ubiquitous Computing

- [Minority Report Clip 1](#)
- [Minority Report Clip 2](#)

- Requirement: network capability!
- “Internet of Things”

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