CS 525M – Mobile and Ubiquitous Computing Seminar

Project Presentation
Home Monitoring System Emulator

Damian Robo
Ioanna Symeou
Outline
• Project Overview
• Related Work
• Basic Architecture of actual system
• Our work
• Future work/conclusions
• Demonstration
Overview

• Use wireless & mobile networking technologies to monitor & control home and office environment

• Built emulator: mobile device uses WAP to connect with a remote server, which is connected with a device in a building that controls heating, electricity components etc.
Related Work

• We have the technology
  – WAP enabled cell phones
  – Electricity and heating controllers
  – Software & technological research:
    • *Learning to Control a Smart Home Environment*, Diane J. Cook (*software issues*)
    • *Remote Controlled Home Environment*, W. Pasman and J. Lindenberg (*technological issues*)
  – Remote access devices:
    • Robot vacuum cleaner (Samsung)
    • Welcoming host (Honda)
Home Monitoring System: Basic Architecture

- Base Stations
- Cell phone
- Server
- Controlling device
- Heating and electricity components
What did we do???

- Expensive equipment for set up, so built an emulator
- System consists of the following parts:
  - WAP enabled cell phone/WAP emulator
  - Server:
    - WML program
    - Database
    - HTML/ASP pages
How it works:
• WML program:
  – User login
  – Update Information
  – Logout
• HTML/ASP pages: Run an auto-refresh script every couple of minutes and load updated information from the database
How it works: Decrease Temperature Example
Future Work/Conclusions

• We have the technology
• We have shown it is easy to build the basic software
• Need to connect server with controller
• Issues:
  – Security
  – Database Concurrency Control
  – Bandwidth
  – General mobile & wireless software issues
Hold on... demonstration following!!!
Questions???