CPE495 Computer Engineering Design I

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• Syllabus
  □ Textbook & other references
  □ Lab
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  □ Groups
  □ Important Dates
  □ Course Outline
• Prerequisites
• Projects
• Reality Check
  □ Projects, presentations
• Resume building
• Teamwork
• Timeline
CPE 495 Computer Engineering Design I

- Computer Engineering Design at UAH
  - Hardware/Software
- ABET accreditation
  - paperwork
- From Idea to Product
- Rapid Prototyping
- Corporate research environment
  - Presentations
    - School & real life
- An embedded system - dedicated to a specific application
  - control system/monitoring system
  - optimization for a single function (system resources, extension, ...)
  - block diagram
    - inputs > processing > outputs

CPE 495 Computer Engineering Design I

- State of semiconductor industry
- Number of transistors
  - 60 million / person
  - 1 billion by 2010
- Semiconductor market $150 billion($204B in 2000)
- Computing power
- Zero power/Zero volume computing
  - 8-bit microcontrollers → more than 3 billion chips
  - 2% processors, PC only 2% of all processors!
Software and Hardware Development

- Concept/Problem Definition
- Requirements/Specifications
- Architectural Design
- Detailed Design and Construction
- Final Prototype Construction and Integration
- Reviews
- Testing
- Release
Alabama Launchpad

- [www.alabamalaunchpad.com](http://www.alabamalaunchpad.com)
- Funding $350K
- Team registration
- Business projects

Previous Projects
Intelligent Signal Processing Module (Top)

Intelligent Signal Processing Module (Bottom)
Web Monitoring

1. Get G-forces
2. Monitor ADC and Accelerometer
3. Send sensor data in web page via Wi-Fi

Homework #1

- Assignment
  - [http://www.ece.uah.edu/~jovanov/CPE495/notes/495Fall08_HW1.pdf](http://www.ece.uah.edu/~jovanov/CPE495/notes/495Fall08_HW1.pdf)
  - Homework due: Monday, September 8, 2008.
- eZ430 Board
- MSP430 documents
  - [http://www.ece.uah.edu/~jovanov/msp430/msp430.html](http://www.ece.uah.edu/~jovanov/msp430/msp430.html)
- Documentation (local disk)
  - `\iar\ew23\430\doc`
  - `\docs\ti\msp430`
- `ew430.pdf`
  - Windows Workbench Interface Guide
- `cw430.pdf`
  - C-Spy User's Guide