Senior Design Tips

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Management

A well managed average group is better than a poorly managed smart group.

- Unexpected delays
- Multiple persons on task
- Don’t do unnecessary tasks
Management

- Leader must break down project into manageable tasks
  - Assign tasks to group members in “homework problem” size chunks
  - Increase or decrease granularity as needed on individual basis
- TODO list on (color coded) white board and in your lab notebook
- Design for test/well defined measure of success
Your Project Sponsor

- Signed agreement with sponsor
- Well defined specification
- Regular meetings with sponsor
Balancing Expertise

- Balancing CEs and EEs: More EEs for wireless projects
- At least one strong programmer: More for software heavy projects
- CE 121 and CE 173/174 very valuable
- Don’t be afraid to move task to someone with most experience
Good Start

- Learn to use your tools (compiler, simulators, boot loaders, ...) early
- Get “Hello World” running on your dev. kit early
- Experiment with micro controller features: A/D, D/A, network interfaces, ...
- Start a documentation file early: will be less likely to leave it until very end
- Can head start during the break
Acquiring Materials

- Order part before placing in schematic
  - Even better: already test part in simple setup
- Buy full development kits
- Order extra parts: some will burn out
- Don’t re-invent the wheel
- Research prior art
Productivity boosters

- JTAG interfaces
- Integrated parts
- Revision control systems (SVN) and wikis
- Don’t lose sleep
- Lab cleanliness
- Keep lab notebook near
- Data sheet notebook
Once the magic smoke comes out of the chip, it is hard to get it back in!

- High voltage and reverse polarity
- Chip rotations, TX/RX, color coding, metric spacing, ...
- Reserve time for testing
- Bring up boards sequentially
- Practice presentation
Documentation

- Try to document as you go
- \LaTeX + SVN is best
- Include:
  - Parts list
  - Schematics
  - Board layout
  - Photo of board with explanations
  - Some code summary

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