Senior Projects for CpE, EE, and CSE majors

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5/7/2015

What is Senior Project

- 2-quarter sequence to build a project
  - mostly some kind of embedded systems
  - plus one quarter for writing
- Purpose
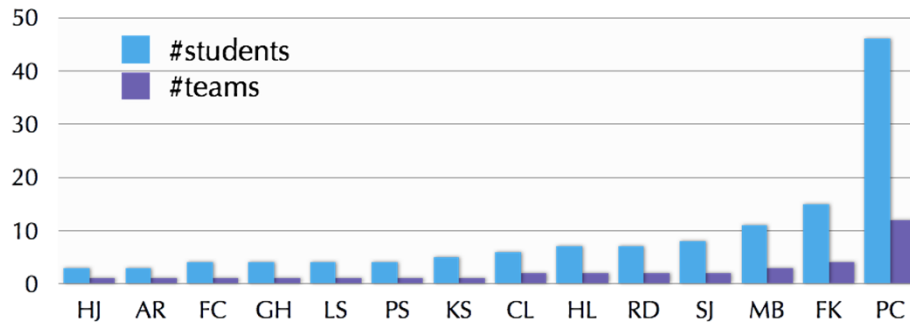 - hands-on experience to solve a real problem
  - team work

How are projects picked?

- Faculty defined
  - in faculty's own area of expertise
  - in faculty's area of curiosity (but not expertise)
- Student defined
  - in student's own area of interest (challenging)
  - in student's own area of confidence (but may not be challenging)

Statistics from 2014-5

- Early September 2014:
  - Faculty that provided topics: 12
  - Faculty that did not provide topics: 16
- By December 2014
  - 34 teams were formed
  - 23 groups of 4, 10 groups of 3, 1 group of 5
  - 14 faculty participated

Statistics: Faculty Load (2014-5)

Distribution
* 9 EE   faculty supervising 14 teams (52 students)
* 4 CpE faculty supervising 19 teams (72 students)
* 1 ICS faculty supervising 1 team (3 students)

Whose idea was it (2014-5)?

- Faculty
  - 1 + 1 + 1 + 1 + 2 + 2 + 3 + 4 = 15 projects
- Student
  - 1 + 1 + 1 + 2 + 2 + 12 = 19 projects
- Students prefer their own idea
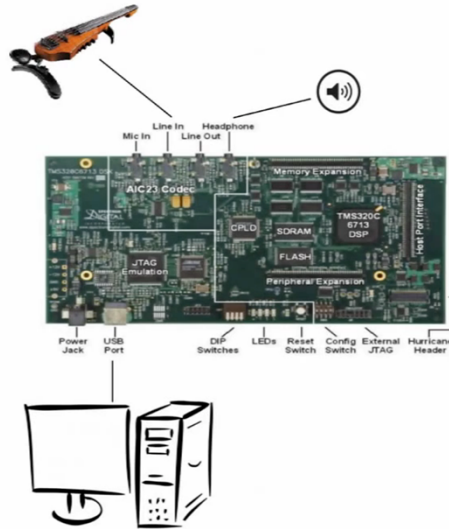- Faculty prefer their own ideas

Project Topics from 2014-5

- Internet of Things   (10 projects)
  - Home automation, monitoring, security, lighting (8)
  - Internet appliances (2)
- Mechanical Control: (9 projects)
  - Vehicles — cars, wheelchairs, carts, quadcopters (6)
  - Bike locking and anti-theft (3)
- Wearables   (14 projects)
  - Driving aid and rescue (6)
  - Medical and rehabilitation aid, EEG (5)
  - Audio (3)
- Wireless charging   (1 project)

"Drink Mixer"

Effects Unit for Electric Violin

Brainwave-controlled wheelchair

Web-controlled ambience light

Project Funding

- Your own funding
  - in the form of lab fee and your own money (~$200)b
- Mentor may pay if part of their lab
- UROP (most get funded)
  - Undergrad research opportunities program
  - Usually ~$500/team, application due November
- SURF (a little harder to get)
  - Summer undergrad research fellowship
  - ~$1500 + $1500 for two halves of summer

What you should do

- Form your team (3-4 people)
  - Interdisciplinary: CpE, EE, CSE
  - Discuss possible project ideas
- Talk to faculty as a team
  - Look at project topics posted by faculty, if any
  - Find someone with similar interest
  - CpE, EE, or CS faculty

What to Expect in Senior Projects

- Team formation, project proposal (fall)
- Poster session (near end of fall)
- Weekly reports
- Demo video (end of winter)
- Expo day (last Friday of winter quarter)
  - Presentation to external members
  - poster and demo session
- Final report (finals week of winter quarter)