EE/CpE 423
Senior Design
Fall 2005
Class 2 – 9/6/05
Agenda

• Introduction of Jason Berenbach (jberenba@stevens.edu) — Senior Design TA

• Problem definitions

• Announcement, issues

• Directions and more logistics.
Problem Definition

• I want to:
  – build a widget
  – explore gizmos
  – program a thingamabob
  – design a doohickey
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They are solutions, looking for a problem

• Gizmos are too hard to use while riding a unicycle
• Widgets are too expensive for everyday users
• Thingamabob’s use too much power to last a day
• Doohickeys are too large to carry in your pocket
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The solution will follow

• Focus on user/customer needs:
  Functions, Size, Performance, Power, Cost
September 13 Deliverable:

http://www.ece.stevens-tech.edu/sd/material/Project_advisor_form.doc

1. Forming a group to commit to an idea is the first priority.
2. Finding an advisor (ECE, PEP, CS) to work with you is your next priority.
3. A working project title is fine.
4. A paragraph to a page description is sufficient at this stage.
# Project Status

<table>
<thead>
<tr>
<th>Group #</th>
<th>Project</th>
<th>Team members</th>
<th>Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Digital Camera &amp; Camcorder Wireless Extended Data Storage Unit (DCC-WEDSU)</td>
<td>George Gryzb, Jeffrey Engleman, Hieu Trinh</td>
<td>Man</td>
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<tr>
<td>2</td>
<td>Neural Protection</td>
<td>Shant Stepanian, Matthew Conforth, Nicole Young</td>
<td>Man</td>
</tr>
<tr>
<td>3</td>
<td>Dynamic Classroom</td>
<td>Yevgeny Ivanyutin, Bradford, Chiappetta, Jennifer Kurucz</td>
<td>Comaniciu</td>
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http://www.ece.stevens-tech.edu/~bmcnair/senior_design-05-06/groups.html
# Students Not in Groups

<table>
<thead>
<tr>
<th>Ali Afzal</th>
<th>Hoda Aghajani-Memar</th>
<th>Shamim Akhtar</th>
<th>Christopher Alfonzo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ravi Amin</td>
<td>Joseph Ante</td>
<td>Zachary Belcher</td>
<td>Melissa Biel</td>
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<tr>
<td>Reid Borsuk</td>
<td>Christian Budiarjo</td>
<td>Iris Bundang</td>
<td>Manuel Caceres</td>
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<td>Lauren Carola</td>
<td>Carlos Castro</td>
<td>Matthew Ceanfaglione</td>
<td>Jonathan Chia</td>
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<td>Brian Compter</td>
<td>Kristen Daly</td>
<td>Ian Denholm</td>
<td>Domenico DiLeo</td>
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<tr>
<td>Agnes Dobrowolski</td>
<td>Shaina Doherty</td>
<td>Sheelpan Doshi</td>
<td>Igor Feinstein</td>
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<tr>
<td>William Figueroa</td>
<td>Ricardo Garcia</td>
<td>Daniel Grinkevich</td>
<td>Srikanth Gupta</td>
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<tr>
<td>Lauren Hollahan</td>
<td>Amoumoune Ibra</td>
<td>Esther Irungu</td>
<td>Kerry Johnson</td>
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<tr>
<td>Matthew Kelly</td>
<td>Joseph Kilroy</td>
<td>Karl Kolze</td>
<td>Garima Kulshrestha</td>
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<tr>
<td>Christian Latoja</td>
<td>Didier Latortue</td>
<td>Yves Lawson</td>
<td>Stephanie LeBlanc</td>
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<tr>
<td>Richard Lemence</td>
<td>Eric Lenge</td>
<td>Christopher Lubin</td>
<td>Tina Matos</td>
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<tr>
<td>Katarzyna Maziarz</td>
<td>Isaiah McNabb</td>
<td>Manish Modi</td>
<td>Abdelnabi Musa</td>
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<tr>
<td>Rajarshi Nandy</td>
<td>Justin Ong</td>
<td>Robert Osorio</td>
<td>Walter Petronczak</td>
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<tr>
<td>Christopher Pook</td>
<td>Rebecca Quinn</td>
<td>Intiazur Rahman</td>
<td>Christian Ramos</td>
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<tr>
<td>Paul Rea</td>
<td>Liza Robles</td>
<td>Ishtiaq Saaem</td>
<td>Frantz Salomon</td>
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<td>Joseph Salvo</td>
<td>Louis Scaturro</td>
<td>Edward Schneider</td>
<td>Mary Schurgot</td>
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<tr>
<td>Deepu Sebastian</td>
<td>Alexander Semidey</td>
<td>Suvesh Shah</td>
<td>Charul Singla</td>
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<tr>
<td>Benjamin Slivka</td>
<td>Jeffrey Smith</td>
<td>Sumana Som</td>
<td>Byung-II Song</td>
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<tr>
<td>Jennifer Spero</td>
<td>Sheila Sun</td>
<td>Michelle Teixeira</td>
<td>David Toner</td>
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<tr>
<td>Adolfo Velasco</td>
<td>Jeremiah Ventry-McGee</td>
<td>Carlos Vinasco</td>
<td>Vinh Vo</td>
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Senior Design Tasks – Fall ‘05

- Identify project
- Form group
- Select advisor
- Develop project proposal
- Publish project proposal
- Develop final design report
- Submit parts list, final design report
- Oral/slide presentations
- Effectiveness surveys
- Weekly status reports

Timeline:
- 9/1/04: Today
- 9/13
- 10/1
- 10/18
- 11/1
- 12/1
- 12/6
- 1/1/05
Stages in Development Cycle

- Basic Research
- Applied Research
- Exploratory Development
- Advanced Development
- Prototype / Initial Product Development
- Final Product Development
- Market Trials

- Development of Technology
- Proof of Feasibility of Technology
- Refinement of Technology
- Application of Technology

Suitable for Senior Design
Constraints That Can (Should?) Be Relaxed For Prototype

• Physical size
  – Level of integration (VLSI vs. FPGA, μC, LSI/MSI, etc.)

• Implementation platform
  – simulating a Palm on a laptop,
  – simulating functions in software that would normally be in hardware, and vice versa

• Feature set
  – What is essential to demonstrate concept, vs. what could be imagined/assumed
  – What is known to be doable vs. what is to be demonstrated

• Performance
  – Speed, capacity, etc.

• Environmental constraints
  – Operating temperature range, shock, vibration, etc.

➢ Focus on key attributes of end design, not every detail
Now that you’ve formed a group...

- Weekly reports due Monday by Noon
  - Use ONLY the template provided to ensure consistent format:
  - Template is on Senior Design web site (below)
  - Team leader is responsible for submission of weekly report (electronically)
  - **Group grade will be influenced by timeliness, completeness of reports**

  - To be sure your group gets proper credit for report submissions, email them to jberenba@stevens.edu and bmcnair@stevens.edu
  - Email subject should include the date (Monday) the report is due, the group number, and ‘weekly report’

http://www.ece.stevens-tech.edu/sd/material/weekly_report_template.doc
Now that you’ve formed a group...

- Group Effectiveness Survey
  - Use ONLY the template provided to ensure consistent format:
  - Template is on Senior Design web site (see below)
  - EACH group member must submit survey EACH week (electronically)
  - Group grade will be influenced by timeliness, completeness of reports
  - Individual grades will NOT be influenced by content of these reports
  - I encourage (but do not require) that you share content with your other team members
  - DO NOT SEND EFFECTIVENESS REPORTS TO ADVISOR!!!

- To be sure your group gets proper credit for report submissions, email them to jberenba@stevens.edu and bmcnair@stevens.edu
- Email subject should include the date (Monday) the report is due, the group number, and ‘effectiveness survey’

http://www.ece.stevens-tech.edu/sd/material/Group_effectiveness_survey.doc
Emailing submissions

1. Send to bmcnair@stevens.edu and jberenba@stevens.edu

2. Send to sd@koala.ece.stevens-tech.edu

3. Mail from within WebCT
Emailing submissions

1. Send to bmcnair@stevens.edu and jberenba@stevens.edu
   No issues with attachments, no permanent record in mailbox

2. Send to sd@koala.ece.stevens-tech.edu

3. Mail from within WebCT
   Mail is permanently saved in WebCT folder
   WebCT (and koala) are UNIX-based.
   They mess up attachment file names that come from Windows
   (use no spaces in file name – use _ or - instead)
Upcoming Discussion/Seminar Topics

• Patents, Trade-secrets, Intellectual Property and Technical Business Ethics
• What is important to define a project/start a business
• GPS and Geolocation Services
• RS-232 Interfacing with Uncooperative, Non-Standard Devices
• Embedded systems
• I’ll add other topics as they occur to me or students propose them
Other Resources

• Circuit Cellar Magazine

• http://www.ece.stevens-tech.edu/~bmcnair/senior_design-05-06/hw_sw.htm