Final presentations in 6 weeks!

Week 8: Presentations & the Design Process
AGENDA

• Presentations
• Quick Design Process Review
• Brainstorming & Project Pugh Charting
• Follow-up Presentations
DESIGN IS HARD...

- Tradeoffs
- Dynamics
- Details
- Time Pressures
- Economics
DESIGN IS HARD...

especially for developing countries

- Tradeoffs
- Dynamics
- Details
- Time Pressures
- Economics

- Knowledge of the user
- Experience with the need
- Ethical concerns
- Extreme design constraints

- $, robustness, usability, mfg & distribution strategy, transparency
DESIGN IS HARD...

and **rewarding**...especially for developing countries

- Tradeoffs
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THE DESIGN PROCESS
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• Information Gathering
• Problem Definition
• Design Specifications
• Idea Generation
• Concept Evaluation
• Analysis & Experimentation
• Detail Design
• Fabrication
• Testing & Evaluation
THE DESIGN PROCESS

• Planning
  • Mission Approval
• Concept Development
  • Concept Review
• System-Level Design
  • System Spec Review
• Detail Design
  • Critical Design Review
• Testing & Refinement
  • Production Approval
• Production Ramp-up
THE DESIGN PROCESS

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PUGH CHART

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See http://web.mit.edu/2.009/www/labs/lab2picture.jpg
Image removed due to copyright restrictions.
See http://upload.wikimedia.org/wikipedia/en/7/73/Pert_example_gantt_chart.gif
BEST PRACTICES

• timeline minder
  • are we hitting our dates? what can we do RIGHT NOW?
• goal minder
  • is what we’re doing getting us closer to our goal?
• community partner liaison
• documentation (photos & wiki)

• fail fast
• prototype early
• identify your dealbreakers immediately (physical impossibilities)
## OUR DESIGN PROCESS

<table>
<thead>
<tr>
<th>Step</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning</td>
<td>Everything until today</td>
</tr>
<tr>
<td>- Mission Approval</td>
<td>today-4/1</td>
</tr>
<tr>
<td>Concept Development</td>
<td>4/1-4/8</td>
</tr>
<tr>
<td>- Concept Review</td>
<td>4/8 project spec. disc.</td>
</tr>
<tr>
<td>System-Level Design</td>
<td>4/9-4/15</td>
</tr>
<tr>
<td>- System Spec Review</td>
<td>4/15 Design Review</td>
</tr>
<tr>
<td>Detail Design</td>
<td>4/16-4/22</td>
</tr>
<tr>
<td>- Critical Design Review</td>
<td>4/22 Design Review</td>
</tr>
<tr>
<td>Testing &amp; Refinement</td>
<td>4/22-5/6</td>
</tr>
<tr>
<td>- Production Approval</td>
<td>5/7 Final Presentation</td>
</tr>
<tr>
<td>Production Ramp-up</td>
<td>[plans in final report]</td>
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</tbody>
</table>
## Remaining Deliverables

<table>
<thead>
<tr>
<th>Week</th>
<th>Wednesday</th>
<th>Friday</th>
<th>Assignments Due of Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mar 30</td>
<td>Concept Generation: trip presentations, evaluate projects</td>
<td>Team Formation, Brainstorming</td>
<td>Trip Report; select projects; team roles assigned (timeline minder, goal minder, community partner liaison, documentation)</td>
</tr>
<tr>
<td>Apr 6</td>
<td><strong>Exam 2 &amp; librarian visit</strong></td>
<td>Experimentation overview; Project work</td>
<td>Wiki Design Notebook Report (best brainstormed ideas, Pugh charts); project specifications due - on wiki &amp; discussed in class</td>
</tr>
<tr>
<td>Apr 13</td>
<td>Project Work</td>
<td>Project Work</td>
<td>Wiki Design Notebook Report (sketch models &amp; experimentation); sketch models &amp; experiment due - on wiki &amp; discussed in class</td>
</tr>
<tr>
<td>Apr 20</td>
<td>Project Work</td>
<td><strong>Design Review &amp; Build</strong></td>
<td>Wiki Design Notebook Report; initial working prototype shown at design review</td>
</tr>
<tr>
<td>Apr 27</td>
<td>Project Work</td>
<td>Project Work</td>
<td>Wiki Design Notebook Report</td>
</tr>
<tr>
<td>May 4</td>
<td>Project Work</td>
<td>Optional Prep</td>
<td><strong>Final Presentation/Review (on Saturday)</strong></td>
</tr>
<tr>
<td>May 7</td>
<td><strong>Final D-Lab Presentations, 12-3</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>May 11</td>
<td>Wrap-up &amp; Documentation</td>
<td>No Lab (Classes over)</td>
<td><strong>Final project report &amp; team assessment (due on Wednesday)</strong></td>
</tr>
</tbody>
</table>
NOW

- finalize problem definitions for D-Lab Energy-relevant projects
- compare using Pugh chart method
  - criteria??
- 2:30 - 1-minute pitches for each possible final project and 3 minutes on Pugh chart pros/cons