TIM 806, Lecture 3 (4/8/14)

Agenda

1) Review of Lecture #2

2) Suggestions for Product Dissection (FAST Diagrams)

3) HW #1

4) Product Spectrums

5) Preliminary Project Report
   - Suggestions
   - Project Review Sign ups
   - Work in Class (time permitting)
2) Suggestions for Product Dissection

1) Dissect real products, not types of products
   Example: Laptop Computer → Apple MacBook Pro

2) There is no canonical (standard) FAST diagram for a particular product. Depends on purpose of the dissection and who is doing the dissection.

3) Dissecting complex products, e.g. MacBook Pro, is an iterative, trial and error process.

Suggestion: Work from both ends of the FAST diagram

Diagram:

```
[Diagram showing relationships between subsystems, components, main function, key sub-functions, and hows and whys]
```
(4) Complex products can contain one or more sub-products.

Example: Samsung Galaxy S
- Samsung Processor
- Android Eclair
- Corning Gorilla Glass

Suggestion: use a level of detail appropriate to the product we are dissecting

Example:
- Samsung Processor → Transistors
- Android Eclair → Software Components
- Gorilla Glass → Elements (Potassium)
3) HW #1

Problem #2: Product Dissection for a laptop computer

(1) Understand how a laptop works (HowStuffWorks, Wikipedia, etc.)

(2) Select a laptop to dissect. Must be a real product, e.g. MacBook Pro. (Preferably one you own)

(3) Make a list of the sub-systems/components

- Example: MacBook Pro (3rd gen)
  - Intel i7 processor
  - Retina display
  - Aluminum chassis
  - Lithium battery
  - Keyboard

( source: Wikipedia)
(4) Identify main function and key sub-functions for the product.

Example: MacBook Pro

Main function: Provide mobile information processing

Key sub-functions:
- Input information
- Process information
- Display information
- Provide mobility

(5) Create a FAST diagram

```
<table>
<thead>
<tr>
<th>Hows</th>
<th>Why's</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intel i7</td>
<td>Provide mobility</td>
</tr>
<tr>
<td>Retina display</td>
<td>Information processing</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Information display</td>
</tr>
<tr>
<td>Battery</td>
<td></td>
</tr>
</tbody>
</table>
```

Diagram:

[Diagram showing the FAST matrix with components and their relationships]
Problem #1: Improve the Home Computer

Apply Structured Problem Solving

Step 1: Define the real problem
Assess existing home computers with respect to user needs and develop a set of guidelines/recommendations for improving home computer with respect to user needs.

Step 2: Create a plan

1) Identify the different types of computers (desktops, laptops, tablets, smartphones) and select one to focus on.

2) Determine user needs
   - Personal Experience
   - Internet research

3) Determine the key sub-systems
   - Display
   - Keyboard
(4) Assess how well existing products satisfy user needs
   - Personal experience
   - Survey friends
   - Internet research

(5) Create a table with guidelines/ recommendations for improvement (4)
   - Structured Brainstorming

Step 3: Execute the plan

Step 4: Draw some conclusions
Are existing products doing a good job of satisfying user needs?
4) **Product Spectrum**

The word *product* refers to a *spectrum*.

<table>
<thead>
<tr>
<th>Spectrum</th>
<th>Low-Tech</th>
<th>High-tech Example</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Physical Fitness</td>
<td>Productivity Software</td>
</tr>
</tbody>
</table>

($\$$) **Product** → Running Shoes → Microsoft Word

($\$$) **Solutions** → Fitness Gym → Microsoft Office

($\$$) **Service** (ongoing) → Personal Trainer → Microsoft Office 365 (cloud)

($\$$) **Experience** → Health Spa → Microsoft Office 365

  on Surface Tablet Running Windows 8
5) Preliminary Project Proposal

**Question:** What kind of product should your startup develop?
- Software (iPhone App)
- Hardware (Solar Panel)
- Hardware + (VR Headset)
- Software

**Answer:** What are the successful high-tech companies (not Startups) doing?
- Google: Search engines → Smart phones, Wearable tech, Self-driving cars
- Apple: Computer hardware → Operating System, Computer, mobile devices
- Oracle: Database Software → Servers, networking devices, hardware
- Microsoft: Operating systems → Gaming Systems, Smart phones, tablets
- Just Software → Easy to Copy (Zynga)
- Just Hardware → Commodity product (Dell)

Your startup should develop a product that combines hardware and software components.
Each project group must meet the instructor (Tyler) today (4/8/14) during office hours (E2 853 4-7pm) to firm up a product idea to work on.