UECS2333 Human computer interaction design (May 2016)

Mini Project: Design the user interface for a personal lifestyle monitoring system

Assignment #1 : conceptual model, user research, storyboard of wireframes (51%->9%)

Your Task:
This project consists of designing a user interface for a personal lifestyle monitoring system. The system allows a user to carry a new wrist-band device throughout the day which records the wearer's physiological and physical states such as skin temperature, heart rate, activity states (sitting, standing, walking, running, lying down, eating), location (GPS location, indoor, outdoor, etc.) continuously. The user can use the collected data during the day with her mobile device and in the evening uploaded to the cloud server where data will be analysed and visualised to the user on a laptop, tablet or mobile phone. The data presented to the system would give opportunity to the user to start certain action like changing his/ her exercising level during jogging by changing the running speed to adapt the heart rate of by reducing exercising weights in a gym to avoid acidity of the muscles. Finally, the system user can contact his/ her doctor or coach to discuss the retrieved personal health data.

Please follow the due date strictly for each submission. Each project group should consist of **three** to **four** persons.

Step1: Create sketches
In this step you will explore how your personal lifestyle monitoring system will look. More specifically:

- Sketch 2 ideas for how your personal lifestyle monitoring system might signify to visualise the record of health condition of day to day based on skin temperature, heart rate, skin temperature, activity states, and location on either tablet or mobile phone (depends on assigned group).
- Sketch 2 ideas for how your personal lifestyle monitoring system might support at least five independent aspects of discoverability. These can be specifically related to a core function/ service that the system provides or more generally related to how a user might navigate within the system.
- Sketch 2 ideas for how your personal lifestyle monitoring system might provide at least 5 instances of feedback. These can be specifically related to a core function/ service that the system provides or more generally related to how a user might navigate within the system.

Step2: Create a storyboard of wireframes
Use your sketches to inform wireframes that summarizes what each screen of your system will look like and the major steps users will take when interacting with it. Focus on the conceptual model you're trying to communicate to the user, and think about your task analysis: what the user needs to do and how they can do it. You are not required to use the exact sketches from Step 2; you should feel free to expand and evolve these ideas into a larger experience represented by your wireframes.

Performing a task analysis helps you understand:

- What your users' goals are; what they are trying to achieve
- What users actually do to achieve those goals

- What experiences (personal, social, and cultural) users bring to the tasks
- How users are influenced by their physical environment
- How users' previous knowledge and experience influence:
  - How they think about their work
  - The workflow they follow to perform their tasks

To perform task analysis, develop a usage scenario following the questions in mind:

(a) When and how will a user use the system?
(b) What are the main functionalities of the system?
(c) What are the design issues that will be important?

Step3: Get user feedback

Identify who the target users are and get their background for user analysis. Ask 3-5 people to provide feedback on your wireframes. Try to get a variety of people in different ages and backgrounds (not just your peers like you).

Step4: Refine your design

Now that you have collected user feedback, it is time to use what you learned to inform another round of iteration. Using a fresh set of templates, redraw your wireframes. At this stage you should be quite inspired by what you learned from users and have clear ways to improve feedback and discoverability. You might also have some ideas for refining order and hierarchy of the system screens.

To gather information for the user and task analysis, you must talk with the representative users in Step 3. While they walkthrough your storyboard, ask questions that could refine your concept of usage for the system based on the questions in task analysis. When you write up your analysis, you must give the evidence that you interviewed, conduct short questionnaire and observed people.

What to Hand In

This assignment report comprises the following:

- **Cover page** : subject code/ title, project title, assignment title and group members' names
- Write up your user analysis clearly, concisely, and completely. Include questionnaire and result for user analysis and task analysis. Get at least 3 users. Each user is from different background or groups (for example novice and expert). Define how each group is different.
  - **User analysis write-up**
  - **Hierarchical Task Analysis** is focused on decomposing a high-level task subtasks.
- **Storyboard designs with screen sketches.**
  - 6 sketches (and your accompanying text) of your conceptual models from Step 1.
  - Storyboard of wireframes from step 2, before user feedback.
  - Storyboard of wireframes, after user feedback. The screens you show here should be your final flows, after step 4.
- **A summary of what you learned by evaluating your design with others.**
  - Include how many users you get for your storyboard feedback.
  - What kind of reactions your design received from users
  - What specific modifications you thought were important, etc.

- **Appendices**
  - Questions asked to users (survey, questionnaire)
  - Each member in the group should submit their own diary log that record the activities involved in each completion of assignment/ phases in designing the UI

E.g.

Stage of design	Time spent on the task (day)	Design Task description	Difficulties/ problems encountered
User analysis	1 hour		
Task analysis	4 days		
Conceptual design	2 days		
Storyboard design (group)	1 day		
Sketch main screen (myself)			

Duration: 5 weeks (week 7)

Conceptual mode, user research, storyboarding (group): 42%

Individual contribution effort: 9%

<u>Assignment #2: Move to high fidelity prototype (48% -> 8%)</u>

The next step is to make your storyboard of wireframes to an interactive prototype. The interactive prototype will be used to conduct usability testing in Assignment III.

Task scenario. Write a scenario that involves required tasks that need to be evaluated. At least 5 different scenario of use is written. Where your task descriptions in task analysis were abstract, your scenario should be concrete, complete with imaginary users' names and imaginary details.

Develop the interactive prototype based on the final storyboard in Assignment #1 and 5 task scenario of use you have identified.

Build your prototype. Develop your prototype in high fidelity using Axure Prototyping tool. Decide how to implement the dynamic parts of your interface. You can leave out most of your backend.

What to Hand In

- **Scenario of tasks**
- **Prototype in Axure file**
- **Appendices**

  Each member in the group should submit their own diary log that record the activities involved in each completion of assignment/ phases in designing the UI

E.g.

Stage of design	Time spent on the task (day)	Design Task description	Difficulties/ problems encountered

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Your group will sign up for an appointment to demonstrate your implementation to the instructor on the due date. You will have a 15-20 minutes time slot. Within this time, you will have to:

- brief us about your application's purpose and user population
- take us on a guided tour of the interface for the design or prototype based on the 5 scenario of use.
- answer the questions about your design decisions and development process

Demonstrations will generally take place in the lecture room. You should make arrangements to bring your interface somehow, either by putting it on the Web or bringing your own laptop. If your interface has special needs that aren't portable, you can arrange for the demonstration to take place elsewhere, but you must make these arrangements in advance.

Duration: 3 weeks

Demonstration of prototype: week 10

Scenario of tasks (group): 9%

Individual contribution effort: 9%

Demonstration and presentation of prototype (group): 30%

Assignment #3: Usability testing (42% ->8%)

In this group assignment, you will evaluate your interface with users. Find 3-5 representative users from your target population. Write a final reflection. None of your users should be enrolled in this subject/ unit. All should be willing to participate voluntarily.

Scheduling the test. Make arrangement with the users to come to test your application.
Prepare a briefing and tasks. These may be the same ones that you used in paper prototyping, but you may need to improve them based on feedback from the paper prototyping.

Pilot test your briefing, demo, and tasks, before you test your real users. You can use another member of the class for your pilot testing, if you wish.
Conduct a formative evaluation with each user:

- Provide your briefing and (optionally) demo.
- Then provide the tasks one at a time, observe, and take notes.

One member of your group should be the facilitator of the test, and the rest should be observers. Watch and record critical incidents. We don't recommend that you videotape your

users. However, if you want a record of the user test to supplement your notes, you may try using screen capture software, such as Camtasia Studio.

Testing day with users:

- Prepare an agreement for the users to evaluate the systems.
- Explain to user based on the task scenario.
    - Observe users when he/she is having difficulty with while completing the task such as
        - Difficulties in finding the object of interaction
        - Error made by user (observe if the users navigating the previous links for some times)
        - Optionally, may ask the users to do think-out-loud while performing the task in order to know the tester's expectations of, and reactions to, the software he or she tests.
        - user makes interesting comments or suggestions
- Ask the user to fill in the satisfaction survey provided (based on template given).

What To Hand In

- **Evaluation report**

Follow the template of report given, describe how you conducted your user test. Describe how you found your users and how representative they are of your target user population (but don't identify your users by name). Describe how the users were briefed and what tasks they performed; if you did a demo for them as part of your briefing, justify that decision. List the usability problems you found, and discuss how you might solve them. Details the findings from the usability test.

- **Appendices**
    - Each member in the group should submit their own diary log that record the activities involved in each completion of assignment/ phases in designing the UI

E.g.

Stage of design	Time spent on the task (day)	Design Task description	Difficulties/ problems encountered
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Task analysis	4 days		
Conceptual design	2 days		
Storyboard design (group)	1 day		
Sketch main screen (myself)			

Duration: 3 weeks (week 13)

Usability report (group): 33%

Individual contribution effort: 9%