Human-Computer Interaction Design
Project 4.B Comfortable Spaces & Comfort Control Systems
Tuesday March 9th 2010

Eli Blevis, Associate Professor of Informatics
Kevin Makice, Associate Instructor

Project
Use the design research you did for Project 4.A to motivate and inspire a new concept related to comfort control systems and which integrates digital materials and interactivity. You may use the design research of other students also to help inspire your concept, provided only that you properly attribute. Illustrate and explain your concept—there is a fair bit of latitude about how you do this. Note that clarity and production values matter.

Explain why your choices contrast and what’s interesting about them in any terms relating to HCID. The following notions may be particularly helpful: cognitive mapping between human conceptual models and operational models; ubiquitous computing; individual and distributed cognition; sustainability; sensors; wearable computing; usability; latency. This list is by no means complete.

Format:
Your project must be presented on three and only three landscape mode pages in pdf format. The first page should be a sketch, the second page should be your final research or concept, and the third page should be your primary and secondary attributions lists, as in the example/model solution that follows. Upload your work to oncourse, as instructed in class. Be certain to reference all of your sources accurately and completely.

The example on the pages that follow gives an idea of what a design research project could look like for the purposes of this class project. The example is by no means the most ideal project—yours should not be longer, but it can and ideally should be more compelling and interesting. Please note that this week the sketch is in a very specific form that I would like you to follow if at all possible. The sketch must show the reasoning that you used to go from research to insights to concept—see the example.

DUE Wednesday March 10th no later than 23:59: An initial rough SKETCH first iteration of your ideas for how you will complete this project.

DUE Tuesday [March 23rd] no later than 11:15: A FINAL form completed project. You should also revise your sketch to make sure it shows the reasoning you have used to motivate your concept.
Research

source [2]
Passive Climate Control Green Home
passive | acts of elimination

source [3]
Dining Car
comfortable and absent of digital controls

source [1]
Digital Thermostats
variance of control design and interactivity by location
| less than thoughtful usability design

Insights

Elimination
Can we eliminate the need for interactivity in climate control systems and still afford comfort while also acting more sustainably?

Locations
Why do controls need to vary by location? Why are they different in automobiles than in homes?

Usability
Why are programmable home thermostats so hard to use?

Concept
Allow individual temperature setting preferences to travel with the person in wearable, reconfigurable forms. Let each location sense the preferences of the people in it and respond systemically by use of environmental sensors rather than interactive devices.
Concept: E-Ink Fabric Wearable Personal Thermostat & Ambient Sensors

The idea of this concept is that a digital thermostat control is woven into the fabric of clothing or worn like a bracelet or as part of a watch. The control travels with the wearer and electronically signals (many tiny transmitter/receiver technologies are available) desired temperature settings to the ambient sensors in whichever environment the wearer occupies at the moment. The environment—home, office, car, train, plane, etc.—adjusts to the needs of its occupants based on reading the desired setting, averaging desired settings when there is more than one person present, or tailoring to specific individual settings where possible, as in—for example—a car equipped with individual climate control settings capabilities. When no one is present in a particular environment, that environment does not need to use as much energy to maintain a temperature and its climate control system can respond accordingly. There are of course details to work out about how fast an environment needs to react to the entrance of a person and to what extent an environment needs to keep a certain temperature when empty in order to respond quickly. These details need to be worked out as a matter of energy use versus convenience and perceived viability of the system.

source [4]
Primary Attributions ("First Hand" Sources)
[1] Image source for picture of woman in hallway, automobile and home climate control devices: E. Blevis

Secondary Attributions (Sources other than "First Hand" Sources)
[3] source: http://www.flickr.com/photos/14589121@N00/2070419285/ @ 8.31.09 under creative commons license