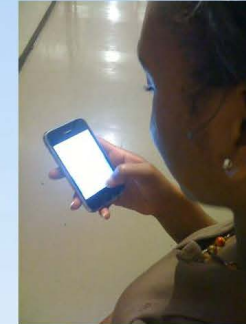
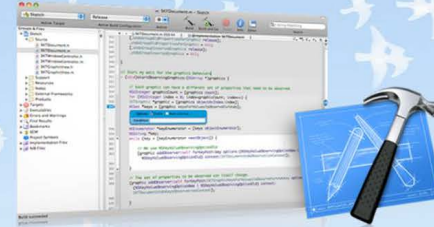


INTRODUCTION

- ❖ Smart homes and smart home technologies are designed to enhance the overall living experience.
- ❖ Solar smart houses are designed and built to operate in an effective and energy-efficient way.
- ❖ Virginia Tech competes in the Department of Energy's 2009 Solar Decathlon (LumenHaus project).
- ❖ The project aims to use smart mobile devices technology to provide a unique user experience and integrated monitoring and control of the solar house.
- ❖ The idea is that the iPhone will be the ultimate master control device to the home.



The results of our first iteration of interface design, the model with which we conducted our user study



USER STUDY

- ❖ Users comments were crucial to this project
- ❖ We tested our application on six different users.
- ❖ Many users commented that the purpose of the application was not clear while they were using it.
- ❖ It became apparent that the UI needed to be re-designed due to lack of informational clarity

Users commented that it was difficult to become familiar with the original UI

PROPOSED APPROACH

- ❖ The LumenHaus has multiple control and monitoring features.
- ❖ It would be far too cumbersome to use multiple control mediums for the Smart Home.
- ❖ We hypothesize that the iPhone can be used as a universal control device
- ❖ Our research project consisted of three phases:
 - A preparatory phase (getting familiar with the Objective-C programming language)
 - A design phase (designing the UI to be used)
 - An implementation phase (physically constructing the UI for our application).



IMPLEMENTATION/RESULTS

- ❖ Initially the application simply connected to wunderground.com and tailored the personalized forecast for iPhone presentation
- ❖ The revised application code uses peer-to-peer based approach to create a Bluetooth data bridge between the host iPhone and a Bluetooth enabled device (i.e. another iPhone or Bluetooth capable device)
- ❖ This is used to transmit the weather data from wunderground.com to the host phone without that device being physically connected to the internet.
- ❖ The result is our LumenWæther application, which provides a web based weather service to the LumenHaus users.

This is a snapshot from our final application, aptly named LumenWæther



FUTURE WORK

- ❖ We would like to extend this concept to other services within the LumenHaus, i.e. home temperature controls, home appliance controls, power level management, etc.
- ❖ We would also like to integrate all control/monitor/information services into a single application
- ❖ More usability testing for fine tuning of the interface design.

WIFI ACCESS POINT

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