Solar Decathlon Smart Home Control

Team Name: The Thunder Ducklings

Group Members: Jackson Dawkins (Leader), Joey Costa, Alex Ross

Target audience: Attendees and judges of the U.S. Department of Energy's Solar Decathlon, as well as Clemson personnel for controlling the home.

Target devices: *Primary:* iPhone (4 and newer), iPod touch *Secondary:* iPad

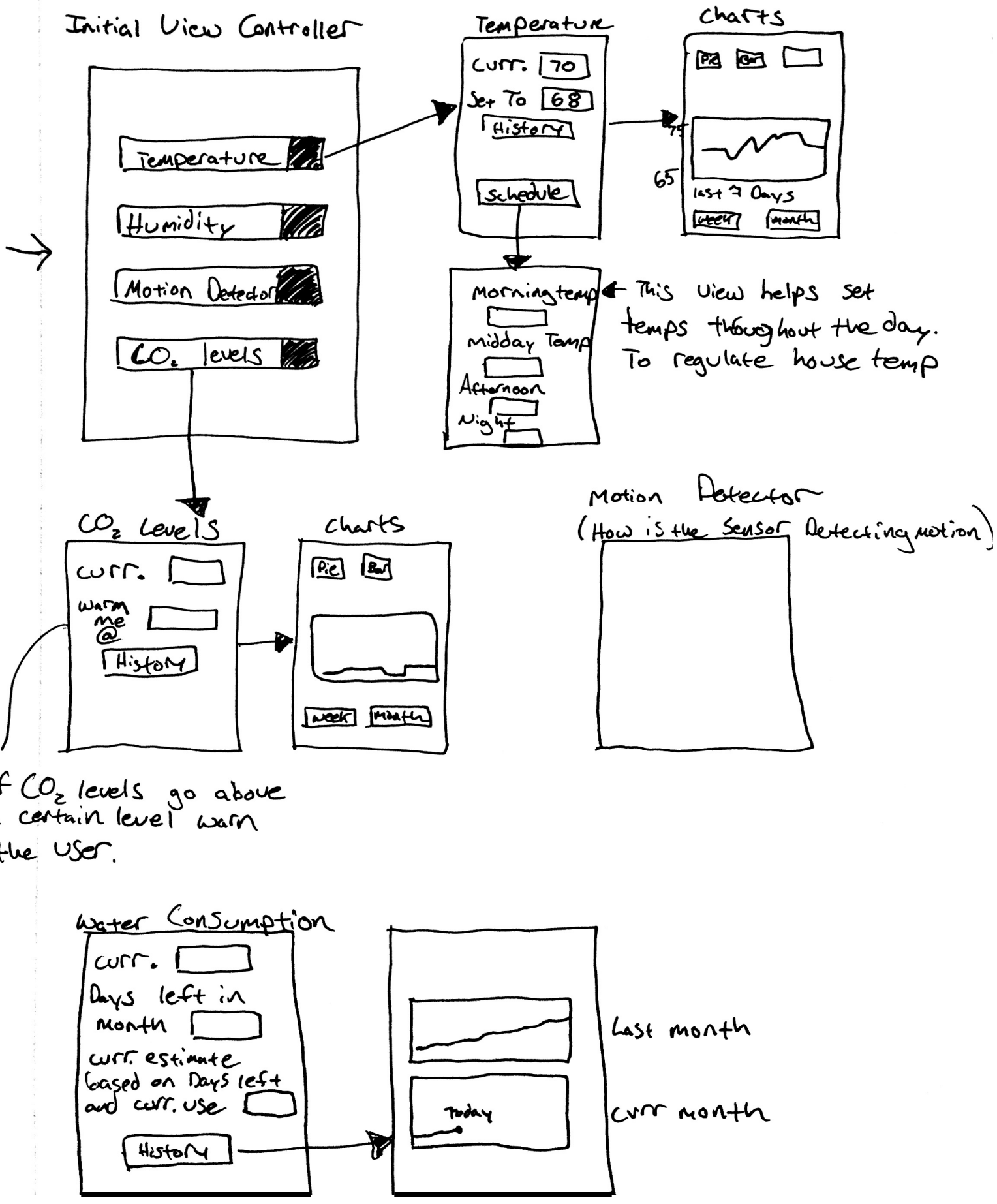
Purpose: This app will offer a view of what a home could work like in the near future. As technology gets more advanced, there is an increasing ability to use sensors and controllers to automate many features in a home, and in the end save energy, and make the owner's life simpler.

Overview of functionality: This app will display statistics as well as control options about the condition of the smart home for Clemson's entry into the U.S. Department of Energy's Solar Decathlon for 2015. The app will help the visitors and judges of the home view how the home is working in real-time, as well as see how it performed in the past. Controllers of the home could set alerts for whenever the sensors exceed a threshold for a certain kind of statistic, such as temperature, CO2 levels, energy usage, etc. and would ideally show the user how the home will attempt to automatically correct any issues (i.e. turn on air conditioning, turn off lights, etc.), if applicable. The app would also allow for a manual override of any system in the home, such as turning off the air conditioning manually, without regard to temperature.

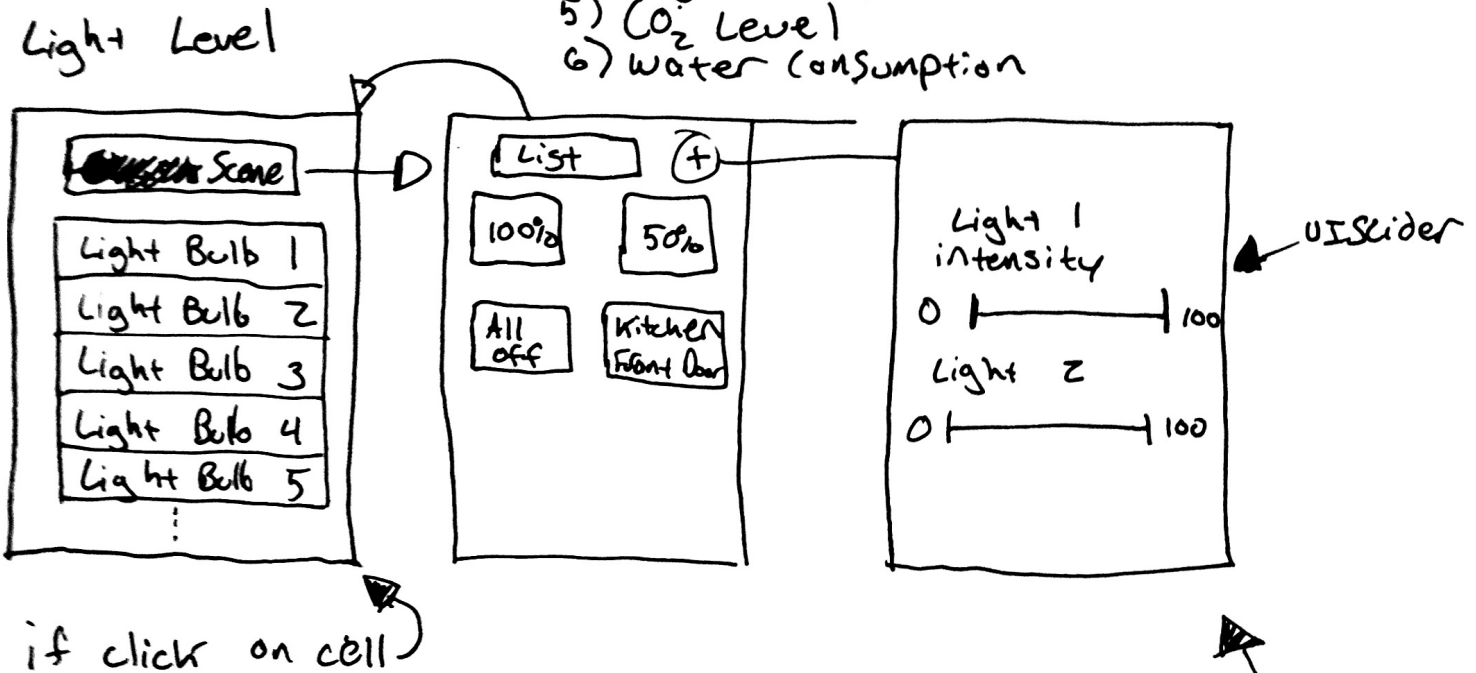
Local Artifacts: UI elements, including logos and chart templates

Local Database: This would hold summarized statistics of the house, as well as the current sensor levels in the house.

External Database: This database would hold long-term statistics to the condition of the house. This way, it would be possible to track trends over time, like how the owner consumes power in different seasons, etc. It would likely have a table for each kind of statistic, consisting of dates and times, a foreign key to a sensor table so the observer could determine which sensors contributed to data, and the data itself (different for each). There would also be a user table storing admin information to allow for administration tasks such as changing systems in the house.


Initial View Controller
Temperature
Humidity
Motion Detector
CO_2 levels
Temperature
Curr. 70
Set To 68
History
Schedule
Charts
Pie
Bar
75
65
last 7 Days
Week
Month
Morningtemp
Midday Temp
Afternoon
Night
This view helps set temps throughout the day. To regulate house temp
CO_2 Levels
curr.
warn me @
History
Charts
Pie
Bar
Week
Month
Motion Detector
(How is the sensor detecting motion)
if CO_2 levels go above a certain level warn the user.
Water Consumption
curr.
Days left in month
curr. estimate based on Days left and curr. use
History
Today
Last month
curr month

1) Temperature
2) Humidity
3) Motion Detector
4) Light Level
5) CO_2 Level
6) Water Consumption



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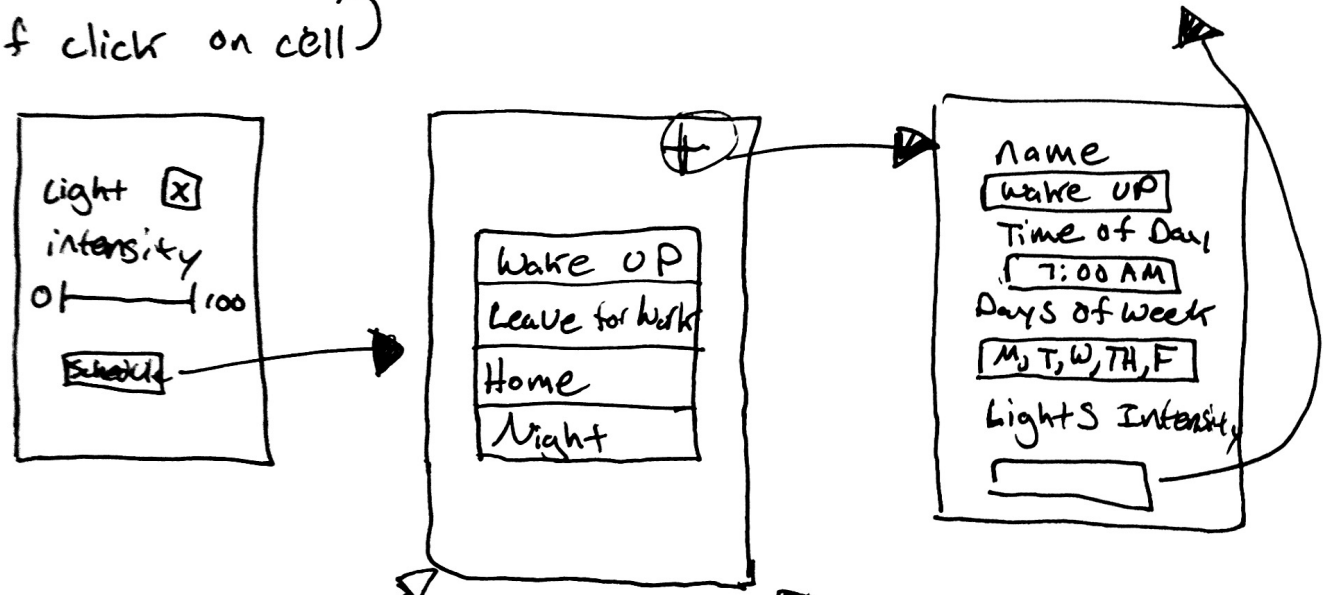

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