Standards

Due to the lack of concrete standards in application development, the standards of our project relied heavily on user interface heuristics recommended by specialists.

We examined guidelines suggested by Doctor Jakob Nielsen, a guru in software usability research. We weighed his 10 Usability Heuristics, found at http://www.useit.com/papers/heuristic/heuristic_list.html, and found seven that we felt were especially applicable to our project. Below, each section discusses a heuristic and how it is applied in our project.

Visibility of System Status

"The system should always keep users informed about what is going on, through appropriate feedback within reasonable time."

HVAC

- o Displays current temperature on main screen
- o Displays current system settings on main screen
    - o Heating, Cooling, or Fan Only
    - o Fan On, Fan Off, or Fan Auto
- o Pops up a notification immediately after one of these states are changed

Washer

- o Displays progress screen upon start of wash program
    - o Time remaining in wash
    - o Type of load
    - o Load size
    - o Other program settings

Match between system and the real world

"The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order."

Our goal in meeting this heuristic focused on using common icons and symbols were appropriate, and making our terminology match that of the users.

Washer

- o Washer Dial

- o Wash progress bar
- o Magnifying glass for search in stain guide and maintenance guide
- o Use of washing machine terminology
    - o Delicate
    - o Color
    - o Dark
    - o White

HVAC

- o Prominent current temperature
- o Red up arrow to increase temperature
- o Blue down arrow to decrease temperature
- o Date selector in Schedule has a roll selector like other products (Apple & Blackberry)

User Control and Freedom

 "Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo."

Both Applications
- o Inclusion of a Home button

HVAC
- o Inclusion of Cancel buttons on Schedule Time "Select Time Interval" and "Select State"

Washer
- o Putting all wash settings on one screen to prevent the need to Undo
- o Inclusion of Cancel Wash button

Consistency and standards

"Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions."

Both Applications

- o Use of similar terminology throughout each application
- o Use of a toolbar & home button to follow the platform conventions of applications

Error prevention

"Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action."

Both Applications

- o Inclusion of a popup screen to alert the users they don't have Internet access for weather, instead of allowing the application to crash

Washer

- o Inclusion of popups that alert user if they have not selected a wash when they click the start button

Recognition rather than recall

"Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate."

Both Applications

- o Inclusion of a help button that is available from every screen

Aesthetic and minimalist design

Dialogues should not contain information that is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Both Applications

- o Followed suggestions from Industrial Design team

Help and documentation

Even though it is better if the system can be used without documentation, it may be necessary to provide help and documentation. Any such information should be easy to search, focused on the user's task, list concrete steps to be carried out, and not be too large.

Both Applications

- o Inclusion of a help button that is available from each screen.