Heuristic Evaluation for Group #5: Sensible Volume Manger

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This document evaluates the Sensible Volume Manger application design and includes descriptions of the design and UI domain, domain specific usability principles, general heuristic usability principles, detailed usability concerns, and a summary of the evaluation.

Description of Design

[quoting Group 5:
http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=proposal,scenarios]

The volume manager will provide an interface for setting rules about when and or where the phone should be set to silent or vibrate. This provides users with an automated way of switching between volume modes to prevent the phone from making sounds in inappropriate situations while maximizing the users ability to be responsive by ensuring maximum "up-time" of phone alert sounds as well as providing options to alert users when the phone is switching modes. Permanent and temporary exceptions could be defined for specific contacts to allow them to bypass the sound filter. Auto response messages and social networking status alerts could be used to inform contacts of the users unavailability. These responses could also be set by rules to customize or limit the scope of contacts that receive the messages.

The Idea is to create an application to manage the phones ring settings based on time and or location. A scheduler would allow users to specify blocks of time within their schedule to silence or switch phone to vibrate mode. Alternately, GPS locations, such as a movie theater, could be defined as silent zones. GPS and scheduling information could be combined to form more advanced rules such as: put phone on vibrate on Tuesday's from 9:00AM-10:00AM while the location is Rekhi Hall
[end quote]

UI Domain

The UI domain for the Sensible Volume Manager are people being considerate about not disrupting the people around them, not disrupting themselves, and avoiding embarrassment. The Volume Manager domain is smart phone etiquette.

Domain Specific Usability Principles

Some selected usability principles specific to this UI domain include being able to turn volume off quickly, able to have volume back on, and controlling that the phone is only doing what you expect. There already is a working volume solution on every phone, which is the volume control or power phone off, so Sensible Volume Manager needs to be much more convenient.

1. set rules for when phone silent or vibrate, e.g. avoid phone notify sounds during inappropriate times (user defined)
    1.1. emergency override, X rings in pattern of Y times
    1.2. by time
        a) manually set one time
        b) manually set repeating times
        c) manually set time increments from now
        d) automatically matching another calendar application
    1.3. by location
        a) pick from a map
        b) select present location
        c) set mode for any place that is a... [e.g. bowling alley]
2. phone comes back to phone notify sounds by itself
    2.1. after the snooze
    2.2. after time
    2.3. after location
3. icon on home and locked screen indicating current mode and time remaining
4. phone recognizes entering a place where often set to quiet and prompts user to set to quiet
5. [optional] alert users when phone is switching notify settings
6. temporary or permanent sound filter exceptions defined for specific contacts
    6.1. auto response message to inform contacts when user unavailable
    6.2. [optional] only alert some contacts
    6.3. social network status alerts when user unavailable
    6.4. [optional] only alert some contacts

Heuristic Usability Principles

I have prepared an Appendix I to this document that compiles a list of heuristic usability principles gleaned from the textbook by Carol Barnum, “Usability Testing and Research” (2002). The list is too long to include here, but it informs my review of the Sensible Volume Manager application that follows.

Please note Group 5’s own list of expected usability, quoted below from their User Task documents.
[quoting Group #5:
http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=user_task_analysis]

- Specific Scheduling- MWF class - rigid schedule
    - define an area by selecting on the map
- Modifying/overriding the phone settings
    - Open app
    - Click on Select Mode
    - http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/u

se_scenarios.pdfSelect your mode

- Select/Define location
    - click on widgetspace/open app
    - Add current location
    - Type in a name
    - open app
    - click on Map
    - zoom in/out
    - use fingerstrokes to define an area
    - Type in a name
- Add/Remove Rules
    - Open App
    - Select Days, Dates, Times, Mode and associate location.
- Defining recurring events
    - open app
    - Navigate to Events View
    - Edit Events - adding time bounds, associated mode- Silent/Vibrate/Extra Loud and locations (predefined)
- Temporary Silent - Snooze
    - click on the widget
    - use a slider to decide how long to "temp silent"/"snooze" for

[end quote]

Usability Concerns

This section details any usability concerns and identifies the usability principle that the problem violates, without offering design suggestions. In general, this group has really done a lot of design work and provided copious documents as well as taking time to explain their application.

Home Screen

For home screen, please refer to the original design on page one of http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/use_scenarios.pdf.

1. Why would a user care about seeing existing filters or settings? Wouldn't they just care about quiet, not quiet, and add rules? I think mapping could be better by simplifying to the basic functions. Why is there a separation at this top screen between view and add?
2. It seems like constraints would dictate just "filters" and "snooze" on the main screen. The "filter" and "snooze" word choice seems to break the affordance. Snooze implies sleeping but it's really for being quiet, so maybe it should just be called "quiet". "Filters" implies something will come through and others will be blocked so this breaks affordance because no ring tones are supposed to come through when it is filtered, so

it should have a name that means quiet also, or that means rule for being quiet.

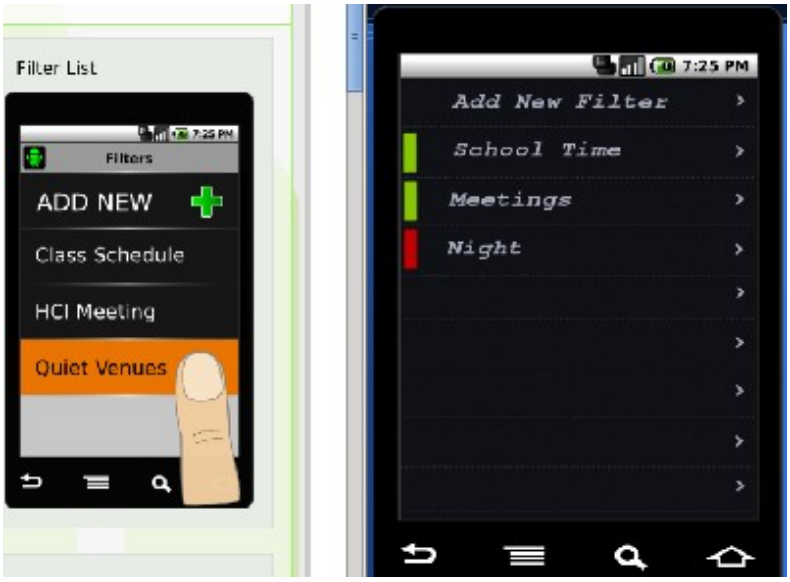
3. There is pretty good affordance with the icon pictures except for location which looks like it is a talking something. Yes I've seen that icon on google maps, but it still seems like talking. The decorative slash across "add filter" implies the red block out sign, so that is confusing, does it mean add or don't add? The settings icon looks a bit like an eyeball, and why would we want settings in the main screen anyway, couldn't that just be detail reached with the menu button?
4. Consistency dictates using key word first, so the bottom row of icons should start with "view".
5. Visibility is good by having the quick browse sliders where they are because they are away from the drag down sliders that android has at the top. Time remaining is probably too dominant both in size and lime color.
6. The font color on the sliders for "-30" and "+30" make them unreadable. And the coloring on the plus/minus sliders is probably backwards to the affordance. For example, if I want to be quiet another 30 minutes, that would be red for stop making noise. If I want to hear ringing soon or now I would expect green to go ahead and ring for the minus 30.

For home screen snooze functions, please refer to the redesigned "Graphical Editor" images on http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=screens.

1. The five images detail the redesigned snooze function. The user can option to show how much time remains on snooze or the clock time when snooze ends at top or more prominently in the middle. The orange contrast when the user touches and pulls the snooze indicator is helpful visibility to indicate the user is changing something.
2. It is not clear whether the user can just touch the snooze screen or if they have to unlock it first. Requiring some unlock might be best as many users have problems with pocket changing their handheld devices.
3. The circle with blue and a finger spot implies the user can touch and drag in the circle, presumably clockwise to add time and counter clockwise to reduce time. This is the affordance users will expect. Is this the intention of this icon?
4. The original design was the slider plus and minus 30 minutes. This was super straight forward, although needing a few tweeks, see the first section of this evaluation that reviews the home screen. As a user I prefer the slider of the original. Will the user be able to select which option they want?

Filters

For filters, please refer to both the original, pages 8 and more, viewed on right below, of http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/use_scenarios.pdf and the redesigned "Filter List" image, viewed on left below, on http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=screens.



1. The title bar on the redesign (left) is good and also that it is close to the android pull down at top menus, thus blocking accidental pull down of those menus. Having other functions that are touch controllable close to that pull down makes it hard for user to distinguish which action they are doing, so placement is good. Font size is a bit small on title, and gray background, hmmm, not sure about that.
2. Redesign with crisp command choice is good. Getting rid of the green and red vertical bars on the left is good. Redesign got rid of the arrow indicating that item is selectable. This may be a mistake because where is the visibility of knowing that you can select one of those filters? The arrow indicated that.
3. The redesign image has a finger doing something? Is that a slide up menu? Is the application going to have quiet and noisy “venues”? If not, then no need for explanation of “quiet” and the word choice “venue” is not good affordance. Venue implies selling or performing.
4. There are many design screen images in the redesign document (and I’m ignoring that some are placeholders), is there a need for some many different screens? A user might get annoyed with so many actions required to complete a task, especially since Sensible Volume Manager must be super efficient in order to beat the existing volume and power controls that already manage volume. K.I.S.S. please, keep it simple.
5. Would it be possible to have either location or time types of rule on the same control screen? Why separate location, permanent, time, repeat, and temporary rules? Visibility and consistency suggest having all rules together in one place: rules.
6. Editing rules/filters, consistency in naming? The two level logic requiring filter and rule has been explained to me, but it seems like unnecessary inconsistency. Just pick “rules”.
7. I want an affordance to suggest that I can select one of the text stripes and go to a deeper menu, just color difference from the title with black or gray doesn’t indicate that one or more of these stripes are selectable. Bring back the angle bracket arrow, that has visibility and affordance, arrow means there is more, I can select it.
8. I think “OK” button should be on the right because most people are right handed and that is the “yes” action side. Good choice to have cancel and ok buttons the same

size.

9. Having default values for every field needing completion is great. It is not clear that this is the case, but it should be.
10. Setting schedule, time, day, too many screens. Users will lose patience, why bother. If Sensible Volume Manager can be synced with an online app, then this would be easier. Will these view screens be enlargable or not? They are already very ergonomic for the one task at a time, but is this the patience level of a typical user? Could there be slide left or right screens for time, repeat day, rule name? With angle bracket arrows on the side of the screen showing there's more to complete if desired? Or is that confusing because touch to slide screen gets mixed up with touch to enter info?
11. Time roll selectors are slow and annoying. If a user can text at 30 words a minute, why can't they text enter the details of a rule, what option is there for this? One screen, text enter, two finger slide enlargement?
12. Regarding separate summary screen indicating time, days, repeating (page 13 of original design document): the red X on time is very clear, "delete it here". Good affordance and visibility, but logically, why would one delete the time? They might delete the rule, but not just the time? They might edit the time, but not delete it altogether because then there would be no point for the rule? OK, page 19 shows multiple times for the same rule, OK then. Again, less sub screens for better visibility and consistency.

Mapping Locations

For mapping locations, please refer to both the original, pages 22 and more of http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/use_scenarios.pdf and the not redesigned "Graphical Editor" images on http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=screens.

1. There is good consistency with color on the buttons across this design. The small labels on the "paint", "eraser", and "Map Nav" buttons are very hard to see. Maybe the buttons could be colored or iconed to indicate their purpose. Such icons are common. And is "paint" the best word to indicate you can select a region on the map? Is "map nav" the compass arrows type control?
2. Is this usage common with the slider menu having a tab sticking out? Visibility seems to be a problem with a handheld device and adding this tab design seems to increase that concern.
3. Users might want to look at the map in landscape format, how do the buttons respond to that? The buttons would take up more space then.
4. Is is clear what "OK" and "Cancel" buttons do on this screen? What do they do? Select a painted map region for a rule?
5. Page 25 with the red box around the button is a good solution. Is it obvious enough? Why is the task bar of buttons still visible? Users probably want to focus on the map when painting, so a full screen view of the map with usage coming from the menu button seems more logical. Closing the buttons for options when painting would be better constraints, then the user wouldn't accidentally paint a button and select the

button while painting. Page 27 shows this but the user had to slide the buttons away. Maybe having the buttons disappear after selecting paint would be a better affordance and more expectable.

Reviewing Filters

For reviewing filters, please refer to the original, pages 30 and more of http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/use_scenarios.pdf .

1. This screen, titled “Edit Filter” seems to be more what users might expect, a summary of the filters with a clear icon out of the way of the text on the right. This icon indicates “cog” or “settings” which means “edit” to the user in this context. This seems clear. The plus button on the bottom is crisp and clear, the font and color of the accompanying label just needs clarifying. This is the type of design that simplifies this application.
2. Based on the Navigation Flowcharts documents: http://www.csl.mtu.edu/cs4760/www/Projects/Undergraduate/group5/www/doc/?p=flow, it seems like this Edit Filter screen will be a successful summary for location and schedule rules.

Feedback

In general, what design plans are there for feedback? Will the user have to confirm the volume going off or on? Will there be confirmation screens for setting a filter? Or setting the snooze? Will there be the ability to draw a circle around an entire region on the map and that is all “painted”, for example, the state of Oregon, would there be a confirmation screen asking the user if they want all of Oregon to be a silent zone?

Other Heuristics

Sensible Volume Manager has done a decent job of making their application usable with just recognition and no need for recall or extensive learning. Visibility of system status is clear in the time counter on the home screen. User’s have control and freedom although improvements include more simplification and/or use of more menu button instead of separate touch fields/buttons.

This design includes consistency of view and lots of flexibility, but it appear inefficient with so many separate edit screens (and it’s possible that the design documents are misleading in this aspect). Aesthetically they’ve chosen a masculine and neutral color scheme that is minimalist. There are areas where they could increase use of color to aid in user recognition of functionality (see detail above). Error prevention and recovery are unclear to me as a reviewer, but some suggestions include arrows indicating selectable fields. Sensible Volume Manager looks pleasant to use, although overly complicated.

Summary of Evaluation

There are no glaring heuristic failures or critical concerns with this design, but their design details seem complicated. I would recommend simplifying their design and remembering that the menu button is their friend, a useful tool. Also, what feedback and confirmation screens are intended?

Sensible Volume Manager has some features that are very sensible for the user who can't be bothered remembering to turn their phone back on, and could improve phone etiquette for users. This design team has done a lot of detail work thinking and analyzing the problem and solution. As a user, the "snooze" feature and the gps feature seem very helpful, but I would want snooze renamed and mapping to be much easier, and I would want a confirmation screen or alert that my phone was changing volume settings.

The android already has a super easy one slide volume off/ volume on. As a user, when I leave an event where my phone was silent, I need to check messages, emails, facebook, texts, and missed calls and doing that shows me the orange "phone on silent" on the main glance screen, which reminds me to slide that again and turn on the volume. Sensible Volume Manager has to really wow the user to beat the currently existing ease of use.

APPENDIX I: Heuristic Usability Principles

Gathered from CS4760 lecture notes by Dr. Pastel and from the textbook: Carol Barnum, "Usability Testing and Research" (2002), and from internet searches.

Example Principles

- Visibility - visibility of functions and information
- Feedback - as a result of an interaction
- Constraints - restricting interactions
- Mapping - mapping of controls to their function
- Consistency - similar operations and tools for similar tasks
- Affordance - property of a object that just by looking at an object if it gives you clues about what it does, affordance should be intuitive

Design Principles

C.R.A.P.
Contrast - repetition – alignment - proximity

Heuristic Principles with Detail

Adapted from Jakob Nielson, IBM, and the textbook referenced above.

visibility of system status

headers/titles, icons,menu instructions, prompts, error messages, choices clearly visible, mutliple options visible, current status visible, response time visible, menu naming consistent with user's domain, glanceable state of the system

match between system and real world

icons familiar, logical order, sequence to menu choices, related and dependent fields close, color matches expectations, default values in entry fields, keys labeled clearly

user control and freedom

easy to remember low frequency tasks, easy to switch windows, warnings to confirm before destructive command, undo function or easy to reverse, any retrace mechanism, user controlled defaults, how to cancel, menus s/b broad, not deep

consistency and standards

icons labeled, color, visual cues, window titles, menu structure matches task structure, same place on screen for same function, attention getting tricks saved for as-needed, most important info at beginning of prompt, actions named the same across menus, abbreviations consistent

recognition rather than recall

data starts in upper left,prompts and messages where eye goes, breathing space around text, choose many and choose one menus distinct, gray out or delete inactive choices/keys, items grouped logically, good separation, reverse color used to get attention (good), mark that something is selected, color and contrast use, first word in choice most important, mapping function and placement, confusing pairs eliminated, menu selection defaults, affordance use, function keys arrange logically

flexibility and efficiency of use

can user enter minimal, buttons for high frequency functions, keyboard shortcuts

aesthetic and minimalist design

only info necessary to decision making on screen, icons visually distinct, simple areas and bold to distinguish areas, icons stand out from background, labels familiar and distinct, prompts affirmative and active voice, pop up or pull down menus have many clear options

error prevention: help users recognize, diagnose, and recover from errors

sound used to signal error, prompts kind to user, prompts brief, no exclamation points, avoid anthropomorphic tone, prompts place users in control, error message gives severity & cause & correction action, system helps user avoid errors, font size can be adjusted, or visual size

pleasant to use

icons harmonious, no excessive detail, color used discretely, most frequently used is most accessible, fun, easy

help and documentation (not applicable)