Heuristic Evaluation of [Wanderlust]

1. Problem

Wanderlust, a smartphone application, allows users to set a navigation boundary in new places; and in doing so, to be fully immersed in their environment by providing high-level information around their surroundings and assuring users of their personal safety.

2. Violations Found

1. **H1 Visibility of System Status / Severity 2 / Found by A**
   On the first screen, it is not really clear what step of the process the user is at. They might not know whether to select a destination, draw a boundary right away, or select a filter and click on a highlighted area to go there.
   Fix: Maybe an ordered list of steps would be good?

2. **H1 Visibility of System Status / Severity 1 / Found by A, D**
   When drawing the boundary, the contrast between the inside and outside of the boundary is pretty low so it's hard to see.
   Fix: Darken the outside even more than you already do. Maybe change the outline to something other than white since the map itself is mostly white?

3. **H1 Visibility of System Status / Severity 3 / Found by A, C**
   Not sure how the user knows they got to their destination.
   Fix: Send a notification, play a noise, or find some other way of notifying them.

4. **H1 Visibility of System Status / Severity 2 / Found by A, D**
   When the journey starts, the user has no idea how long it would take them to get there. It would probably be useful to have some metric so they know when to head towards their destination rather than keep exploring.
   Fix: When in explore mode, display some logistics about the trip such as ETA.

5. **H1 Visibility of system status / Severity 1 / Found by C**
   The current med-fi prototype understandably does not show how the app notifies you that you are "wandering" when the phone is unlocked but not in app. However, in future design it would be important to keep users updated about the status of their wander when not in the app.
   Fix: To keep users informed about when the wander mode is active, it might be nice to have a bar across the top that says "you are currently in wander mode" or something like that (think like when you are on a phone call but hit the home button and there is the green bar).

6. **H1 Visibility of system status / Severity 2 / Found by B, C**
   The color blobs on the main screen also obscure some of the actual map features a little.
   I know that I can toggle them on and off, but it would be nice to be able to have an idea
   of what's what on the map while still being able to see the map itself.
   Fix: Increase the transparency of those colored areas a little.

7. **H2 Match Between System & Real World / Severity 3 / Found by A, B, C, D**
   The icons used when selecting specific types of areas are not super clear. The user
   might not know which icon means shopping, safety, etc.
   Fix: Label the buttons or pick clearer icons.

8. **H2 Match Between System & Real World / Severity 2 / Found by A, B, C, D**
   Not sure what the compass symbol is doing. If it is telling what direction the user
   SHOULD head in then it was wrong when returning from the out of bounds notification. If
   it is saying what direction the user is going in then that should be more clear.
   Fix: Put the compass on the user dot if it represents where the user is going or make it
   obvious that it is the direction the user should head if that is what it is

9. **H2 Match between system and the real world / Severity 1 / Found by B**
   When I search for a location, the distances to the places are given in kilometers. Having
   lived in the US my whole life, I have a much better sense if distances in miles.
   Fix: Allow users to set whether they want to see distances in miles or kilometers, or just
   use miles if the US is your primary marketplace.

10. **H3 User control and freedom / Severity 2 / Found by C**
    The current Medium-Fi prototype does not support the functionality (or at least I could
    not find it) that allows the user to clear their current destination and reset.
    Fix: A simple "x" on the location text box would suffice.

11. **H3 User Control and Freedom / Severity 1 / Found by A, D**
    The user can only click one of the filters off at a time when selecting their path (maybe
    because it's a prototype?). Users may want to be able to toggle multiple filters at a time.
    Fix: Allow the user to toggle whichever filters they would like.

12. **H3 User control and freedom / Severity 3 / Found by B, C**
    Once I select a destination, there is no way to deselect it. I know this is probably just
    something to do with this being a prototype, but just wanted to make sure users wouldn't
    get stuck here in the future!
    Fix: Enable deselecting destination by clicking elsewhere on the map, searching again
    etc.

13. **H3 User control and freedom / Severity 2 / Found by C**
    The home screen displays blocks of color to indicate a type of location (tourist, shopping,

food etc.), but in the prototype there is no way to see what specific establishment or group of establishments is causing that color. To keep the user informed about where they are navigating to and helping them find places that are interesting to them (Task 1), they need to be informed of what data the app is using to classify these locations.
Fix: This is could be achieved by dropping pins at locations that are causing that filter color so that users can have more information or giving more details upon zoom.

14. H3 User Control & Freedom / Severity 2 / Found by D
I noticed that when the user starts wandering, they lose the option to show the filters or not (even within the wander boundary). Although this works for the medium-fi prototype where the map is clearly segmented into different filters, in actuality, there may be areas that are both shopping and food areas.
Fix: Retain the functionality of the filters even after users have started to wander.

15. H4 Consistency and Standards / Severity 1 / Found by A
When the user hits edit after the trip is already started, the confirm button still says "Go!". It might make more sense to have "Update" or "Done" at that point.
Fix: Change the wording of the button

16. H4 Consistency and Standards] / Severity 3 / Found C, D
Task 2: Although the eraser function wasn't utilized in this prototype, I wonder in what setting would one need an eraser button and an undo button. I think one or the other (probably the undo button) would be enough.
Fix: Remove one button

17. H5 Error Prevention / Severity 2 / Found by A
The user might have their notifications muted or not have enabled notifications for the app. Not sure how they would know when they go out of bounds or into an unsafe area.
Fix: Have a check for notifications muted or not enabled and force the user to enable before they start their journey.

18. H5 Error prevention / Severity 3 / Found by C
An error I anticipate, though this was not fleshed out in the medium-fi prototype, is that a user may attempt to draw a wander boundary that is not a closed loop.
Fix: To prevent this, the initial "draw wander boundary" task may start with an adjustable circle on the map rather than let the user freehand their boundary.

19. H5 Error Prevention / Severity 2 / Found by B, D
There is an issue with UI flow. When I select the options for notifications of "Enter unsafe error," I get the notification that I am "Out of boundary" and when I select the options for notifications of "Out of boundary," I get the notification that I have "entered an area with safety concern." Similarly, if I select no notifications, I get a notification regardless and get rerouted to the boundary-drawing page. This is likely an issue with just the mid-fi

prototype, and something to be fixed moving forwards.
Fix: Send the proper notification for appropriate choice

20. H5 Error prevention / Severity 1 / Found by B
User can't set alert preferences prior to setting off for their destination, leading to possible errors with unwanted notifications, or a lack of notifications where they may have wanted one.
Fix: Make alert preferences available before pressing "Go!".

21. H5 Error prevention / Severity 2 / Found by B
If I say that I don't want alerts for going out of bounds, and then return to the map, I will immediately get an alert that I have gone out of bounds. I should be able to tell the app that I don't want these and have it respond to that by not giving me more of these errors.
Fix: Don't send these notifications to users that don't want them.

22. H6 Recognition rather than recall / Severity 2 / Found by B
On the main screen before picking an area or path, I found myself needing to keep looking back and forth between the map and the icons at the bottom of the screen to remind myself what each color signified.
Fix: Put a small icon on each area of that color to remind users.

23. H6 Recognition not Recall / Severity 3 / Found by C, D
After I select my destination, all the areas outside of my wander boundary have lost their filters. Currently, if a user wandered out of boundary into an unsafe neighborhood, it would be on their memory to remember that it was unsafe.
Fix: Leave those markers (particularly the unsafe areas) so that if a user wanders out of the boundary, they still know the environment that they are in.

24. H6 Recognition rather than Recall / Severity 2 / Found by A, B
The button to set location seems like an unnecessary step the user would have to remember each time they use the app. On most map apps, there is a bar across the top already open to search the location so that might be more intuitive.
Fix: Include a location search bar already open when the user gets to the map screen

25. H6 Recognition rather than recall / Severity 2 / Found by C
After the user selects the location they are mapping to, there is a pin dropped on the map, but the name of the location is not displayed.
Fix: Displaying the name of location would help the user remember where the are going instead of having to recall their destination.

26. H6 Recognition rather than recall / Severity 2 / Found by B

On the main screen before picking an area or path, I found myself needing to keep looking back and forth between the map and the icons at the bottom of the screen to remind myself what each color signified.
Fix: Put a small icon on each area of that color to remind users.

27. **H7 Flexibility of Use / Severity 1 / Found by A**
For users who want to go to the same place multiple times (maybe they want to explore on their way home from work or something), it could be cool to have a favorites list of places recently/frequently traveled to with boundaries saved so they don't have to redraw them every time.
Fix: Include some extra feature for power users

28. **H7 Flexibility and efficiency of use / Severity 3 / Found by B**
After selecting a destination, you make me draw a wander boundary before I can say "Go!", but you make me manually go to the page to set a wander boundary.
Fix: Once users select a destination, automatically take them to the draw a boundary screen, or even suggest one for them.

29. **H7 Flexibility and efficiency of use / Severity 2 / Found by B**
Intuitively, I would love to be able to just click outside of the alert preferences box to close it and return to viewing the map. Instead, I found that I had to click specifically on the alert icon in order to close it.
Fix: Close box on a click outside of it.

30. **H8 Aesthetics and Minimalist Design / Severity 1 / Found by A**
The "Notify me when out of bounds" option seems like it wouldn't really be unclicked ever since the whole point of the app is being able to explore within a boundary.
Fix: Remove that option

31. **H8 Aesthetics and Minimalist Design / Severity 1 / Found by A, D**
Once navigating, the location button seems like it would be obsolete. Maybe remove it after the user already chose their destination. You could also then have the navigating map be its own screen and the exit button could be changed to a small x in the upper corner. If the user decided to cancel their trip it could take them back to the pick a location screen.
Fix: remove the location button and make the exit button smaller in the corner (as an x)

32. **H8 Aesthetic & Minimalist Design / Severity 1 / Found C, D**
When a user taps the pencil button on the top right hand corner, text appears on the screen that says "Draw wander boundary." However, it is difficult to see because it is in gray text over a gray background and does not particularly stand out. For a first-time user, the text won't be immediately noticeable and a user may get confused as to what the tasks are.

Fix: Placing the text on a white background may add more contrast and draw the user's eye.

33. **H9 Help Users Recognize, Diagnose, and Recover from Errors / Severity 3 / Found by A, B, C, D**
The notification that shows up on the screen only says what the issue is. It would be best if it could have a suggestion for how to get back on track or reset the original boundary.
Fix: Use the notification title for the issue and the body for the solution (i.e. "head in x direction to get back on track")

34. **H9 Help Users with Errors / Severity 2 / Found by D**
What happens when a user tries to draw a boundary that does not include their final destination?
Fix: It would have been useful to see how your prototype deals with human error because I think it is bound to happen.

35. **H9 Help users recognize, diagnose, and recover from errors / Severity 2 / Found by C**
After the user has been notified that they have exited their wander boundary, the map view should help users recognize this error in app,
Fix: Have the screen tint red or have a dismissible message across the top of the screen to help.

36. **H10 Help and Documentation / Severity 1 / Found by A, C**
For users who don't completely understand the purpose of the app, it might be helpful to have a help button (just a question mark probably) at the boundary drawing stage (or even the filtering stage). This could also be a good thing to add in onboarding.
Fix: Include a help button or a walkthrough for first time users

3. Summary of Violations

Category	# Viol. (sev 0)	# Viol. (sev 1)	# Viol. (sev 2)	# Viol. (sev 3)	# Viol. (sev 4)	# Viol. (total)
H1: Visibility of Status	0	2	3	1	0	6
H2: Match Sys & World	0	1	1	1	0	3
H3: User Control	0	1	3	1	0	5
H4: Consistency	0	1	0	1	0	2
H5: Error Prevention	0	1	3	1	0	5
H6: Recognition not Recall	0	0	4	1	0	5
H7: Efficiency of Use	0	1	1	1	0	3
H8: Minimalist Design	0	3	0	0	0	3
H9: Help Users with Errors	0	0	2	1	0	3
H10: Documentation	0	1	0	0	0	1
Total Violations by Severity	**0**	**11**	**17**	**8**	**0**	**36**

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
sev. 0	-	-	-	-
sev. 1	64%	18%	27%	36%
sev. 2	29%	47%	35%	30%
sev. 3	38%	50%	88%	50%
sev. 4	-	-	-	-
total (sev. 3 & 4)	38%	50%	88%	50%
total (all severity levels)	42%	39%	44%	36%

5. Summary Recommendations

Our main recommendations for the user interface of wanderlust focus on providing users more information, flexibility and error recovery. Overall, we like the aesthetic and simple design of the app and thinks it helps users to avoid unsafe places and be immersed with their environment really well.

We think the task flow for finding interesting new places could be more descriptive and flexible to empower users to use the app to fit their individual needs. Additionally, the finding interesting places task would be augmented by giving users the tools to see which locations in particular are responsible for the colors they are seeing. Adding an initial onboarding experience and perhaps labeling or choosing different icons for the filter buttons would lower a user's barrier to entry and help them start exploring their location more effectively, more quickly. Navigation of the app felt slightly forced — it had the feeling of being designed to complete your tasks in sequential order, and did not have many good ways to go back, or choose a new destination, which would definitely be good to have in later iterations of the project.

There was almost zero error checking and prevention of things that might become an issue when navigating. There are a number of things that could go wrong (notifications being silenced/not enabled, user not drawing a closed boundary, user choosing a destination outside the boundary, user changing the boundary after navigation starts and putting themselves or the destination outside the bounds, etc.). For the hi-fi prototype, we think you should think about how to handle user errors.

Outside of the violations, there is a slight air of mystery about how exactly the app is classifying certain areas as "unsafe". Obviously this is a medium-fi prototype and much of the the implementation for the categorization is still in the works, but future design of the app should be conscientious about making sure users know how the definition of "unsafe" is derived and possibly allow users to set their own tolerances for safety. This metric in particular can have very strong political and emotional reactions, so trust between the app and its users should be established

through transparency and customizability. Overall this app has a great core mission and a strong design - future work will just need to focus on strengthening the find places functionality and concentrating on implementation.

Heuristics

H1: Visibility of System Status
- Keep users informed about what is going on

H2: Match Between System & Real World
- Speak the users' language
- Follow real world conventions

H3: User Control & Freedom
- "Exits" for mistaken choices, undo, redo
- Don't force down fixed paths

H4: Consistency & Standards

H5: Error Prevention

H6: Recognition Rather Than Recall
- Make objects, actions, options, & directions visible or easily retrievable

H7: Flexibility & Efficiency of Use
- Accelerators for experts (e.g., gestures, kb shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

H8: Aesthetic & Minimalist Design
- No irrelevant information in dialogues

H9: Help Users Recognize, Diagnose, & Recover from Errors
- Error messages in plain language
- Precisely indicate the problem
- Constructively suggest a solution

H10: Help & Documentation
- Easy to search
- Focused on the user's task
- List concrete steps to carry out
- Not too large