

Heuristic Evaluation of Parbon

1. Problem/Prototype Description

We evaluated the medium-fi prototype of Parbon, which is an app designed to enable users to track, share, and act on their carbon usage.

2. Violations Found

*Ordered by who presented the error, with the first letter marking who presented the error (C -> B -> A -> D)

1. **H1: Visibility of System Status / Severity: 2 / Found by: C, A**
 - a. Problem Description: Lack of post confirmation (Task 3)
 - b. Rationale: After Jiwon shares his usage, the user is taken back to the feed screen without confirmation of whether the post was successfully uploaded
 - c. Suggested Fix: Include a bottom sheet like the one that appears after purchasing an offset to confirm that an update was posted
2. **H1: Visibility of System Status / Severity: 3 / Found by: C, A, B, D**
 - a. Problem Description: It's unclear how the upper limit of carbon usage is determined (since it varies per person based on the information shown in the feed posts)
 - b. Rationale: Carbon usage depends on numerous factors, so providing clarity on how the upper limit is determined (be it something users determine for themselves or otherwise) would give the user more insight on how to moderate carbon usage
 - c. Suggested Fix: Add a screen after clicking on the carbon usage graphic where a user can toggle their maximum carbon usage amount
3. **H1: Visibility of System Status / Severity: 3 / Found by: C, A**
 - a. Problem Description: It's unclear who is on the feed that posts are being shared to and how they get there (Task 3)
 - b. Rationale: After Jiwon shares his usage, the post is uploaded to a feed of other posts, but it's unclear who the viewers are in relation to Jiwon
 - c. Suggested Fix: Include a feed label (like "Share to Friends") to clarify who usage information is being shared with
4. **H1: Visibility of System Status / Severity: 3 / Found by: C, D**
 - a. Problem Description: Lack of clarity on which commute is being presented on the "Share Your Usage" screen
 - b. Rationale: It is not communicated how the commute that is being shared to a post is selected
 - c. Suggested Fix: Add a selection dropdown of commutes that a user can select as the one the post is about
5. **H1: Visibility of System Status / Severity: 4 / Found by: C, D**
 - a. Problem Description: Lack of connection between Task 2 and the rest of the design
 - b. Rationale: It's unclear how purchasing carbon offsets interacts with the steps of creating a commute and aggregating carbon form various commutes

- c. Suggested Fix: Modify the message at the “Act” screen to describe the intended use case in connection to existing user activity with Task 1
- 6. H2: Match Between System and the Real World / Severity: 1 / Found by: C, B, D**
 - a. Problem Description: Seconds option for time traveled input (Task 1)
 - b. Rationale: Seconds are rarely used in the real world to describe how much time someone spends commuting
 - c. Suggested Fix: Remove seconds as a field in the input
- 7. H2: Match Between System and the Real World / Severity: 2 / Found by: C, A, D**
 - a. Problem Description: Having users manually enter distance traveled
 - b. Rationale: Users often don’t know off hand how far they traveled, so this type of input may lead to inaccurate information or deterrence of use in general
 - c. Suggested Fix: Implement a map feature where the user can input start and end locations to have the distance automatically calculated for them
- 8. H3: User Control and Freedom / Severity: 1 / Found by: C, A, D**
 - a. Problem Description: User can’t undo a like on a post
 - b. Rationale: After pressing the heart symbol on a post on the feed, a user can’t remove a like in case it was an accident
 - c. Suggested Fix: Add functionality such that selecting a filled in heart symbol will undo the fill (essentially “liking” an already liked post will “unlike” it)
- 9. H3: User Control and Freedom / Severity: 3 / Found by: C, B***, D**
 - a. Problem Description: Difficulty navigating from post drafting to “Share” tab
 - b. Rationale: When “Share Your Usage” is selected, a user is unable to navigate back to the “Share” tab in case it was an accident
 - c. Suggested Fix: Add a back button to the post drafting screen
- 10. H4: Consistency and Standards / Severity: 3 / Found by: C, A, D**
 - a. Problem Description: Styling for two different categories (“Destination” when sharing a post and “Walking” when logging a commute)
 - b. Rationale: The method of traveling input is a yellow box on the “Commute” screen, but the same styling is used to note where a person traveled to when they’re sharing their carbon usage. This can be confusing since there isn’t a clear visual difference to indicate to users that they’re two separate input types
 - c. Suggested Fix: Use different button colors or stylings for the two categories of inputs when sharing a post (for example, black text for “Destination”)
- 11. H4: Consistency and Standards / Severity: 3 / Found by: C, A, B, D**
 - a. Problem Description: “Destination” present as an option when sharing a post but not when logging a commute
 - b. Rationale: “Destination” seems to be relevant to tracking the commute as well, so this should be a category included when logging a commute
 - c. Suggested Fix: Include “Destination” as an input when logging a commute
- 12. H4: Consistency and Standards / Severity: 3 / Found by: C, D**
 - a. Problem Description: “Track Commute” versus just “Commute”

- b. Rationale: “Track Commute” implies that the user will be taken to a screen where all commutes can be viewed to track carbon output progression, which does not align with “Commute”
 - c. Suggested Fix: “Track Commute” can be changed to “Input Commute”
- 13. H5: Error Prevention / Severity: 2 / Found by: C**
- a. Problem Description: Purchasing offsets over current carbon amount
 - b. Rationale: It doesn’t really make sense (with regards to the outlined objectives of Parbon) for a user to purchase more carbon offsets than their current carbon usage
 - c. Suggested Fix: Add a line of text to tell the user how much their current carbon usage is and that an offset purchase cannot exceed that amount
- 14. H6: Recognition Rather than Recall / Severity: 2 / Found by: C, B, D**
- a. Problem Description: Purchasing offsets for current carbon amount
 - b. Rationale: A user is not shown how much their current carbon offset amount is, so they may forget what the right amount of offsets to purchase is
 - c. Suggested Fix: Include at the top of the screen how much the current carbon usage is
- 15. H7: Flexibility and Efficiency of Use / Severity: 2 / Found by: C**
- a. Problem Description: Standard ordering of offset purchase options on the “Act” screen
 - b. Rationale: Users likely already have initiatives that they care about and would have preference for selecting those as their main offset purchase option. Rather than having to scroll to find it, it would be nice for a user’s preferred option to appear first
 - c. Suggested Fix: Allow users to input issues they care about so that the offset page is ordered based on their preferences for easier use
- 16. H7: Flexibility and Efficiency of Use / Severity: 3 / Found by: C, A, B, D**
- a. Problem Description: Users have to input commutes every time they make it, as opposed to the implementation of a schedule
 - b. Rationale: Even if a user regularly commutes along the same route using the same method (i.e. going to work), they still have to manually upload all details for the commute
 - c. Suggested Fix: Allow a user to save a commonly traveled route to upload on the “Commute” screen
- 17. H8: Aesthetic and Minimalist Design / Severity: 1 / Found by: C**
- a. Problem Description: “Track Commute” screen seems a bit empty
 - b. Rationale: The “Track Commute” screen has a lot of white space that seems like more of a content amount issue (not that there should be anything more) rather than an intentional design choice
 - c. Suggested Fix: Introduce a grid design for users to select how they traveled to take up more of the screen space
- 18. H8: Aesthetic and Minimalist Design / Severity: 1 / Found by: C**
- a. Problem Description: Information pop up for “Act” screen
 - b. Rationale: The examples in the information pop up are redundant given that the same options are clearly visible in the main screen
 - c. Suggested Fix: Remove examples of a carbon offset

19. H10: Help and documentation / Severity: 3 / Found by: C, D

- a. Problem Description: It's unclear where the information on carbon usage is coming from
- b. Rationale: The homepage displays Jiwon's carbon usage for the week, however it's unclear how that is calculated from the various input types (can lead to users feeling blocked from information)
- c. Suggested Fix: The inclusion of a brief description to summarize how the carbon usage is determined for each travel type

20. H11: Accessible / Severity: 2 / Found by: C

- a. Problem Description: Lack of clarity on "Share" screen
- b. Rationale: Colors and small text size on the "Share" screen can be difficult to read clearly
- c. Suggested Fix: Increase text size and contrast between text color and background color

21. H11: Accessible / Severity: 2 / Found by: C, D

- a. Problem Description: Difficult to access nested information on "Act" screen
- b. Rationale: For a user to understand the purpose of the "Act" screen, they must click on the small information symbol to read the pop up, which is easy to overlook
- c. Suggested Fix: Create a more obvious way for users to be directed to information about "Act," such as a screen that precedes the actual selection of a project

22. H12: Fairness and Inclusion / Severity: 1 / Found by: C

- a. Problem Description: Heart symbol to like a post
- b. Rationale: Other cultures may have different interpretations of the heart symbol that would lead to less understanding of its intended purpose
- c. Suggested Fix: Include a brief label (i.e. "Love" or "Like") to explicitly indicate the heart's purpose

23. H12: Fairness and Inclusion / Severity: 4 / Found by: C, D

- a. Problem Description: Money required to "Act"
- b. Rationale: Having users pay money to "Act" in response to their carbon output excludes users that don't have access to those resources
- c. Suggested Fix: Include alternative methods of acting that are less dependent on a user's explicit finances, such as eating less meat for the day

24. H13: Value Alignment / Severity: 4 / Found by: C, D

- a. Problem Description: App seems too targeted to having users make some payment with the current "Act" screen
- b. Rationale: The goal of the app is to make users more aware of their carbon usage in a positive way such that they will take actions to decrease their carbon output. With the final "Act" screen, the app seems to deviate from this value by presenting a purchase plan that gives Parbon the image of prioritizing money
- c. Suggested Fix: Include more positive/encouraging messaging on the "Act" screen to make purchase options seem less compulsory (for example, "Feeling like you overdid it? Try giving back with an offset!")

25. H11: Accessible / Severity: 2 / Found by: B

- a. The icons to indicate how you travel are very clear to most users, but to a visually impaired person, the icons themselves might not be enough to indicate which method of travel to indicate.

- b. Fix: include small captions indicating what each method of travel is (ex: car).
- 26. H5: Error Prevention / Severity: 1 / Found by: B, D**
- a. Once a user clicks their method of travel, there is no way to change to another method of travel. If the user mistakenly clicks the wrong method, there is no way to change their selection.
 - b. Fix: Allow for the user to continually edit their selections once they have been made.
- 27. H1: Visibility of System Status / Severity: 2 / Found by: B, A**
- a. Once a user logs their commute, they are taken to the home page, but beyond the popup that their commute was logged, there is no persisting evidence that the user's commute was logged and how it affected their overall carbon emissions.
 - b. Fix: On the home page, add a section to show the commutes logged that day. Also, add an animation for the carbon emissions circle to show how the emissions increase or decrease after inputting a commute.
- 28. H12: Fairness and Inclusion / Severity: 1 / Found by: B**
- a. When logging commutes, this does not allow for the option to commute by plane. There may be some users that travel a lot for their job, which probably contributes a lot to their carbon footprint. There is no way for them to log their carbon emissions for this form of travel.
 - b. Fix: Include an option to commute by plane.
- 29. H10: Help and Documentation / Severity: 3 / Found by: B**
- a. The user may be confused about what exactly is meant by logging one's "commute". Does it refer to only their travel to work or all travel from one point to another? Can there be multiple commutes to log in one day?
 - b. Fix: Add a quick caption or info popup like you do in *task 2* to help the user fully understand the purpose of logging their commute and what you are asking of their input.
- 30. H9: Help Users Recognize, Diagnose, and Recover From Errors / Severity: 2 / Found by: B, A, D**
- a. If a user tries to submit before all of the fields are filled in, nothing happens because they are unable to submit without filling out all of the fields. Though the button is gray to indicate that the button is unclickable, this may not be enough to inform the user that they must fill out all the fields before submitting. There is no information supplied to the user as to why they are unable to submit their commute information.
 - b. Fix: When attempting to click the submit button early, bring up an error message that informs the user that they must first fill out all the fields before submitting and highlight the fields that must still be filled out to draw the attention of the user.
- 31. H2: Match System and Real World / Severity: 1 / Found by: B**
- a. The title associated with the task in the toolbar is "act" which does not immediately indicate to the user that "acting" entails purchasing offsets to their carbon emissions.
 - b. Fix: Changing the "act" title to something more indicative of the task, while still maintaining the minimalist aesthetic of the title. Perhaps "offset"?
- 32. H2: Match System and Real World / Severity: 1 / Found by: B**
- a. The language of the subtitles of the Offset Purchase Options suggest that there will be multiple options within each singular option by using plurals. For example, "Protect and

enhance existing *forests*” suggests that there will be multiple forests to help protect and enhance, but upon clicking into that option only the Amazon forest appears as an option.

- b. Fix: Supply the user with multiple options to donate to within each major category. Or, tweak the language to be more specific to the given option (ex: “protect and enhance an existing forest).
- 33. H7: Flexibility and Efficiency of Use / Severity: 3 / Found by: B, D**
- a. There is no ability for the user to select how many offsets the user would like to purchase. If a user would like to purchase 5 times as many carbon emissions as you offer, they would have to make 5 separate purchases rather than just one at a time.
 - b. Fix: Add a feature to allow for the user to input how many offsets of a particular type they would like to purchase. Or, create a cart so that the user can add their offset and quantities to allow for mixing and matching of offset types they purchase.
- 34. H5: Error Prevention / Severity: 3 / Found by: B, A**
- a. The user is not protected from making accidental purchases.
 - b. Fix: Bring up a popup to confirm that the user actually intends to make their purchase.
- 35. H3: User Control and Freedom / Severity: 2 / Found by: B, D**
- a. Once purchasing, the interface only supplies the option to go home. They cannot choose where they would like to go within the app from there, whether that is to purchase more offsets, go home, or share.
 - b. Fix: Don’t have the popup take the user home. Perhaps, just have a button to close the popup so that the user will still have freedom about where to navigate from the app, while maintaining the option to remain where they are.
- 36. H1: Visibility of Status / Severity: 2 / Found by: B, D**
- a. After purchasing the interface does not indicate to the user which offsets they have purchased. This could be an issue to the user because they could buy more or less than they mean to if they don’t correctly remember how much they have bought.
 - b. Fix: After purchase, add an icon to illustrate to the user that they purchased that offset.
- 37. H13: Value Alignment / Severity: 3 / Found by: B, D**
- a. When looking at the descriptions of the different offset options provided, the value of *transparency* is not fully realized. In the slides, it is stated that there is a value placed upon “the level of contribution” that different activities have on the user’s “carbon footprint”. Though it seems that the main goal is recognizing the effect of commutes, I think this value is also very applicable in offsets also. The descriptions of the different offset options are particularly vague, giving the user a short paragraph about what each offset will do, leaving the user with an incomplete picture of how their purchase of different offsets will affect the environment/carbon emissions.
 - b. Fix: Add a link that the user can click to learn more that will take them to a more full description of the offset. Perhaps the link would take them to the website of the group with which your company is hypothetically working (if it is not you directly controlling the offsets as well).
- 38. H4: Consistency and Standards / Severity: 1 / Found by: B, A**
- a. In the slides, it is stated in the appendix that there is the intention to add additional home screen card visuals with different colors to make it more clear to the user whether their

emissions are good or bad. This same color visual would be helpful on the circles to indicate carbon emissions on the share page to make it easier for users to understand carbon emission levels.

- b. Fix: Maintain the same color scheme of green/yellow/red on the sharing emissions page.

39. H5: Error Prevention / Severity: 1 / Found by: B

- a. The caption box is relying on the user to intuit that by clicking the box, they will be prompted to type their caption. This would be clear to most users upon first glance, but it may be confusing and unclear to some users.
- b. Fix: Eliminate the “Caption your post!” title and add text inside of the box along the lines of “type your caption...” to indicate to the user that that box is to type the caption inside of it.

40. H3: User Control and Freedom / Severity: 1 / Found by: B, A, D

- a. The user is forced to post a caption when sharing their emissions, though they might not have anything they particularly want to say to accompany posting their emissions.
- b. Fix: Allow for the emissions to be posted without a caption.

41. H3 User control and freedom / Severity: 2 / Found by: A

- a. Users can choose a form of transportation; however, they can't choose more than one mode of transportation
- b. Fix: Allow users to select multiple forms of transportation

42. H4 Consistency and Standards / Severity: 2 / Found by: A

- a. The terms usage and emission are confusing. Especially in the home screen, the level of emission is judged upon its efficiency of usage. However, right below this area, there is information about my emissions. It's unclear what usage exactly is and how it compares to emissions.
- b. Fix: change the terms used for evaluation of carbon emission by centering it more around the term emission (low emission, high emission etc).

43. H11: Accessible / Severity: 1 / Found by: A

- a. The contrast of the colors is not high enough - especially the golden-brownish color that is used as background for some graphics does not have high enough contrast with white that the graphics are hard to see or don't stand out. Similar thing happens with the different shades of green that was used on the Act page. Also, the green that the active tab gets turned into makes seeing the graphics and the tab name difficult. The gray that is used for the info icon or sub heading of each offset purchase is difficult to read.
- b. Fix: change the colors so that there is higher contrast between white and the colors.

44. H10: Help and Documentation / Severity: 0 / Found by: A, D

- a. There is no clear way to receive help (no customer service, help menu etc) and the only button that can lead to extra description about a page is the info button in the act tab. However, it is really difficult to see since the color contrast is low and it's so small. Therefore, there are not many ways that users can receive help or learn about the app
- b. Fix: create a FAQ section, make the info button more visible

45. H4: Consistency & Standards / Severity: 1 / Found by: A

- a. There are up-down arrows to adjust distance when tracking your commute whereas there are no arrows for time. To input time, users must type rather than adjusting it with other buttons. It doesn't seem like there is any explicit reason why this is the case.
 - b. Fix: add up-down arrows to the time input box as well.
- 46. H8: Aesthetic and minimalist design / Severity: 1 / Found by: A**
- a. The graphic that is used with the dark purple color which is currently a shape of bus is unclear whether it stands for just buses or all of public transportation (subway, train, ferries for some regions, etc.).
 - b. Fix: If it's supposed to only represent buses, then add graphics for other mode of transportation or justify the reason why they are not needed. If not, then make it more clear that it is standard for all forms of public transportation.
- 47. H12: Fairness & Inclusion / Severity: 3 / Found by: A**
- a. There is no option for carpooling even though that is one of the most commonly used way to decrease carbon emission. Moreover, people in regions that do not have a strong public transportation infrastructure might only have carpooling as an option
 - b. Fix: include carpool as a mode of transportation
- 48. H13: Value alignment / Severity: 3 / Found by: A**
- a. Their two values - sustainability and accountability can be conflicting as it might intimidate people from sharing their usage after seeing their friends'.
 - b. Fix: Implement a way to make people feel encouraged or accomplished if their own usage has gone down relatively.
- 49. H1: Visibility of System Status / Severity: 3 / Found by D**
- a. Clicking the heart but navigating to a different screen and back resets the filled heart and number of likes change. Users might not realize that they've clicked the button previously.
 - b. Suggested Fix: Maintain consistency after switching windows
- 50. H2: Match between System and World / Severity: 2 / Found by: D**
- a. The third example for understanding emissions doesn't seem like something users would have much understanding of unless they somehow burned coal on a daily basis.
 - b. Suggested Fix: Get rid of the coal burning example or replace with something more commonly understood
- 51. H2: Match between System and World / Severity: 1 / Found by: D**
- a. A default week setting to track carbon usage is odd. The app's nature of sharing or tracking one or a few commutes at a time focuses users on their day-to-day output rather than a longer timeframe.
 - b. Suggested Fix: Switch to a default day setting when the app is opened
- 52. H3: User Control & Freedom / Severity: 3 / Found by: D**
- a. There's no ability to select different types of specific transport methods. For example, within different models of cars, there are huge differences in output
 - b. Suggested Fix: Add a feature to enable users to select what vehicle they had used would be really effective in better representing carbon output

53. H4: Consistency & Standards / Severity: 1/ Found by: D

- a. The use of the separation line on the share tab between the content and the navigation bar is inconsistent with the other pages, where no separation line exists.
- b. Suggested Fix: Get rid of the separation line on share or add to other windows

54. H4: Consistency & Standards / Severity: 1 / Found by: D

- a. Minor, but most clickable buttons are indicated using black text, green background, except for the bottom navigation bar.
- b. Suggested Fix: This could be made more consistent with selected pages on the navigation bar getting the same green background on the black text.

55. H4: Consistency & Standards / Severity: 2 / Found by: D

- a. The My Emissions section looks like a pulled-up window because of the shading over the main page of the top/middle section created by it, similar to the successfully track or offset window which pulls up when either of those actions are done. However, this My Emissions window specifically seems like just a default part of the app that you can't get rid of.
- b. Suggested Fix: change shadowing/shading on this window, maybe just separate with a line divider

56. H4: Consistency & Standards / Severity: 1 / Found by: D

- a. This green check mark design is not consistent with the check marks in the Act (offset) tab, which have a gray background and white fill.
- b. Suggested Fix: Either change the gray and white check marks in the offset page to be green or the green ones to gray and white

57. H4: Consistency & Standards / Severity: 2 / Found by: D

- a. There's a difference from the main page (blue and gray) chart versus here (green and gray), which users might interpret as meaning different levels/characterizations of output.
- b. Suggested Fix: If the change was made because of the green background on the home page, different background/emotional colors to track progress should be used to maintain chart consistency

58. H4: Consistency & Standards / Severity: 1 / Found by: D

- a. Minor, but the DWMY bar options are not consistent with the same, full-width bar on the main page. They are far more compressed, but it is not clear why since there is enough space for them to cover the whole length of the page.
- b. Suggested Fix: Make the DWMY bar full width of the screen

59. H5: Error Prevention / Severity: 3 / Found by: D

- a. It's not clear how you're supposed to view other users' comments, in the given UI. Users might, for example, click on the comment option (which likely is for creating their own comment), or the small area above which says how many people previously commented.
- b. Suggested Fix: Make a more clear button to see others users comments or simply include them as part of the scrolling main page so no button has to be clicked to see the top comments

60. H7: Flexibility & Efficiency of Use / Severity: 2 / Found by: D

- a. If the top three lines are interpreted to be a settings feature of some sort, based on similar features being used in other apps, users might want to access it at all points in the app.

- b. Suggested Fix: 3 Lines Button present multiple pages (Share, Act, etc...) to reduce navigation time
- 61. H8: Aesthetic & Minimalist Design / Severity: 2 / Found by: D**
- a. There is little user value in the Track Commute button because of how close it is to the bottom bar which navigates to the exact same page.
 - b. Suggested Fix: Put the button closer up the page or closers to the first location a user views when pulling up the app
- 62. H8: Aesthetic & Minimalist Design / Severity: 2 / Found by: D**
- a. The logging of biking/walking seems unnecessary because they don't produce significant amounts of carbon and would add to your total.
 - b. Suggested Fix: Remove these options and focus more on fuel burning and carbon-emitting methods of transportation
- 63. H8: Aesthetic & Minimalist Design / Severity: 3 / Found by: D**
- a. The fixed screen for this pull-up window is unnecessary. The valuable information provided by this window is that you have successfully performed some action, which can be communicated to users more effectively.
 - b. Suggested Fix: A shorter animation or notification which users should see but don't have to directly address/interact with
- 64. H10: Help & Documentation / Severity: 2 / Found by: D**
- a. It's not clear that the top bar indicates different time frames (Day, Week, Month, Year). I imagine many users, especially older or technology experienced ones, would struggle to initially draw that connection.
 - b. Suggested Fix: A tutorial or walkthrough when setting up the app about how that bar is supposed to indicate different time periods
- 65. H10: Help & Documentation / Severity: 3 / Found by: D**
- a. Even with the information page, it's not clear the context of the terms "CO₂ emissions" or "carbon storage." Why would carbon be stored? How do you "reduce" emissions by funding separate projects?
 - b. Suggested Fix: Make a more detailed information section
- 66. H10: Help & Documentation / Severity: 1 / Found by: D**
- a. The pictures displayed on these pages don't seem to relate to the investment of offsets and are relatively unnecessary to the user experience.
 - b. Suggested Fix: The space could be more effectively used in maybe a video format to show the specific work you're investing in, i.e. an explanatory video describing the project of rainforest conservation.
- 67. H11: Accessible / Severity: 3 / Found by: D**
- a. It's really hard to read the black text on the dark green background for many of the buttons. Many users with visual impairments would struggle with reading them.
 - b. Suggested Fix: Change to a more distinct color palette for buttons (green and white maybe)
- 68. H11: Accessible / Severity: 4 / Found by: D**
- a. There's a lack of any audio options for an entirely visual app. Users who are blind or visually impaired would be unable to use this app.

- b. Suggested Fix: Add a narration or audio-based interactivity feature indicating where users are on the screen, include alternative text which can be read aloud for actions

69. H11: Accessible / Severity: 1 / Found by: D

- a. The spacing between Distance, Method, and Destination text and icons are too close together, possibly confusing users about the differences in the features.
- b. Suggested Fix: Provide more spacing in between them

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	0	3	4	1	8
H2: Match Sys & World	0	4	2	0	0	6
H3: User Control	0	2	2	2	0	6
H4: Consistency & Standards	0	6	3	3	0	12
H5: Error Prevention	0	2	1	2	0	5
H6: Recognition not Recall	0	0	1	0	0	1
H7: Efficiency of Use	0	0	2	2	0	4
H8: Minimalist Design	0	3	2	1	0	6
H9: Help Users with Errors	0	0	1	0	0	1
H10: Help & Documentation	1	1	1	3	0	6
H11: Accessible	0	2	3	1	1	7
H12: Fairness & Inclusion	0	2	0	1	1	4
H13: Value Alignment	0	0	0	2	1	3
Total Violations by Severity	1	22	21	21	4	69

Note: check your answer for the green box by making sure the sum of the last column is equal to the sum of the last row (not including the green box)

4. Evaluation Statistics

Severity / Evaluator	Evaluator A	Evaluator B	Evaluator C	Evaluator D
Sev. 0	100%	0%	0%	100%
Sev. 1	27%	36%	23%	50%
Sev. 2	29%	29%	33%	62%
Sev. 3	38%	38%	43%	76%
Sev. 4	0	0%	75%	100%
Total (sevs. 3 & 4)	32%	32%	48%	80%
Total (all severity levels)	30.4%	31.9%	34.8%	63.8%

*Note that the bottom rows are *not* calculated by adding the numbers above it.

5. Summary Recommendations

Overall, great work with the medium-fi prototype! The design is aesthetic with high usability, without being too cluttered. There is limited guidance given to the user as to how to navigate the app. The set-up is very familiar and each task has very limited ways for the user to navigate through it and make errors, streamlining the process of understanding how to use the app. This does pose a slight threat because there is a strong assumption that the user will intuitively understand everything that is going on in the app without much guidance from the UI to explain. There also seem to be some assumptions of user knowledge of carbon emissions before use, which is likely not the case. From the beginning, there's the block of users understanding how their carbon usage is calculated from their commute. Is it purely distance and vehicle type, or does location play a role as well (since unavoidable environmental factors can impact carbon output)? There also seems to be a lack of connection between Task 2 and the rest of the app. For example, There's no way the app links offset purchasing to your own, specific output over a certain timeframe, and the only option is to buy in 100kg chunks. Your offset purchases also don't affect your social media posts, which maybe your friends would like to see. Users might not see the value in offset purchasing because of this lack of connection.

There were numerous features of your app that we really enjoyed, and some that we thought could use improvement. The overall layout of the feed for commute posts was a highlight, in addition to the feature of "My Emissions" where carbon usage is translated into everyday units. Purchasing carbon offsets, on the other hand, felt disconnected from the other two tasks. In some ways, it almost seems like an entirely different app. Connecting it back to existing screens could be a beneficial way to counteract this. We would emphasize straying away from enforcing the idea that buying offsets is a need for the user, since this greatly limits inclusion. Presenting non monetary alternatives that can have equally good impact may be worth investigating.

Really good job overall! We are super excited to see your future steps.

Severity Ratings

- 0 - not a usability problem
- 1 - cosmetic problem
- 2 - minor usability problem

3 - major usability problem; important to fix

4 - usability catastrophe; imperative to fix

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

- Words, actions, and UI elements should be consistent across the entire platform
- Follow platform and industry conventions

H5: Error Prevention

- Minimize error-prone conditions
- Remove memory burdens, support undoing, and warn your users when necessary

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, keyboard shortcuts)
- Allow users to tailor frequent actions (e.g., macros)

H8: Aesthetic & Minimalist Design

- No irrelevant information. Focus on the essentials.

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

H11: Accessible

- Users can interact with the system using alternative input methods.
- Content is legible with distinguishable contrast and text size.
- Key information is upfront and not nested for screen readers.
- Purely visual or auditory content has text-based alternatives for users with low vision and low hearing.

H12: Fairness and Inclusion

- Users shouldn't feel that the design is not made for them.
- The design should meet all users' needs equally and prevent the reproduction of pre-existing inequities.
- It should not create additional burdens for members of disadvantaged populations.

H13: Value Alignment

- The design should encode values that users can understand and relate to.
- Conflicting collateral values should not emerge when the user interacts with the product.
- Encoded values should match users' values in a broad set of use-contexts.