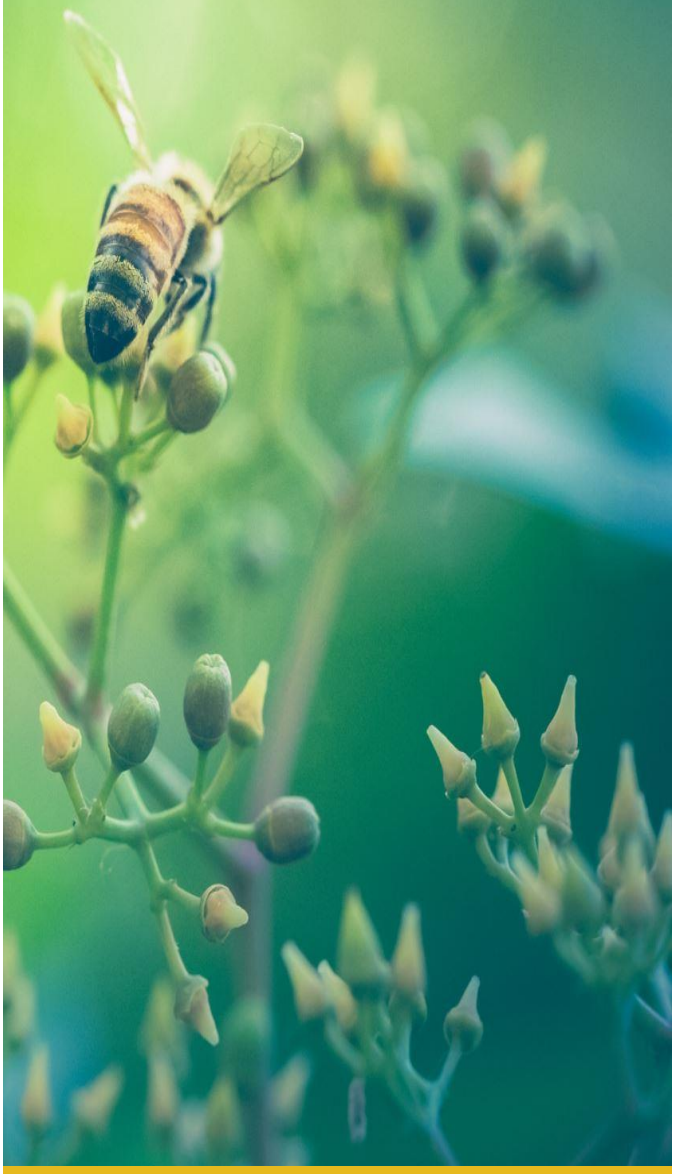
Photo Synthesis



STAGE 4 -
HEURISTIC EVALUATION REPORT

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Project Repository:
https://github.com/zhichaodou/CPSC481_Project_TeamI
Project Portfolio:
https://zhichaodou.github.io/CPSC481_Project_Portfolio/

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Project Idea

Our mobile application called “Photo-synthesis”, is an AR application which would engage younger demographics with a fun and creative way to learn about plants. Cartoon-figures will provide step-by-step assistance, helpful tips and positive feedback when the user accomplishes a task. Additionally, the app would also contain several features which would commonly require accessing a web-browser. This includes doing plant research, explanations on plant care processes, product shopping, etc. It would also include a settings menu where you would have the ability to filter out the kid-friendly features. The app will use the camera to detect and identify plants in real time, and then provide the user with the plant’s species, current condition, and a link to a wiki page on the plant and its condition

Prototyped User Tasks

Vertical Tasks:

Scan the plant to determine its species. Provide additional statistics based on the plants current condition. Additionally, the scanner function checks for optimal sunlight levels.

After a plant is detected, the app would be able to detect what the plant is - it’s species and common name. After identifying the plant, the user will be provided with the plant’s current condition, which includes its hydration level and any health concerns it has (like pests and diseases or dehydration).

Game-like plant caring process, along with guidance through successfully raising a plant with easy-to-understand instructions and reminders.

Users who use the cartoony graphical-gamified version would experience something like ‘Tamagotchi’ or ‘Cooking Mama’, making it a fun and enjoyable experience. Additionally, step-by-step and easy-to-understand instructions would be provided throughout the setup and maintenance for each plant.

Read information on plants other than the ones that they scan.

If users are looking for a plant index or more information on plant species, soil, or tools, the user interface would contain a convenience wiki-like glossary.

View, shop or buy products through a common shop-system.

Browse plants or plant-caring tools, which are available for purchase.

Horizontal tasks:

Settings menu with custom features.

A settings menu is provided for those who want to change the color theme, have volume control or turn off the gamified features including various of other configurations.

Heuristic Evaluation Discussion

Process

In order to find issues with our high-fidelity prototype, we completed a heuristic evaluation among the members of our team. Three of us were evaluators and two were reviewers. The evaluators checked our prototype against the ten heuristics and pointed out what went well and what didn't. The reviewers then compiled all three of the separately completed evaluations and prioritized identified issues. We used three priority levels – must-fix, medium, and low priority. This prioritization helped us narrow down the tasks that needed to be discussed with the whole team first. After this was completed, the whole team had a meeting to discuss which issues we wanted to fix and confirmed how we wanted to fix them.

Findings

During the heuristic evaluation process, the evaluators discovered nine issues that did not meet the ten heuristics. After discussing with the whole team, we decided to fix six of the issues. Overall, the strength of our design was in the flexible navigation structure and good external consistency, which gives our app good error-preventing ability. The weakness was in the design of the UI widgets, like messages that looked like buttons, and externally inconsistent icons that would reduce the user's ability for recognition rather than recall and lead to user errors. See the appendix for the detailed heuristic evaluation reports from each of the 3 evaluators and the review report compiled based on both reviewers' findings.

Reflection

Performing the heuristic evaluation helped us improve the usability of the interface. Basing our evaluation off the ten heuristics gave us an alternative perspective and helped us consider usability issues that we may not have otherwise thought about. The evaluation went well as we were able to elicit a lot of issues, even though they were largely aesthetic in nature. Some of the concerns brought up by evaluators corresponded to the issues the designers thought could evolve into usability issues, suggesting that the findings from the evaluations were legitimate concerns. As a result of the heuristic evaluation discussion, we came to a consensus as a team about the improvements we wanted to make.

A challenge we faced was having to push back the deadline of our heuristic evaluations by half-a-day due to the high-fidelity prototype being incomplete. Had the prototyping work been split up better and completed according to our original plans, we would have had more time to write our report. Some of our group members also did not meet the evaluation deadline, which prohibited the reviewers from reviewing the findings properly. Overall, our group needs to get better at meeting self-set deadlines. This would also increase team members' confidence in the other group members' ability to complete tasks assigned to them.

Appendix

Evaluators' Findings

Ali's Evaluation

Rule of Thumb	Is this rule being applied? How so?	Is this rule violated? How so?	How can this rule further improve usability, utility and desirability?
1. Visibility of system status	Yes this rule is applied for instance scanning a, plant it is clearly shown on the screen when to process starts/ends.	This rule is not violated.	When system operations are displayed, users will clearly know what is happening, thus improving desirability.
2. Match between system and the real world	Yes is applied as many concepts such as AR scanning are taken from real world applications that are already implemented	This rule is not violated.	Using user's expectation and reducing cognitive strain can lead to improvement in desirability.
3. User control and freedom	This rule is not applied.	This rule is partially violated as in some instances there is no freedom of taking backward steps. (Scanning, Bear instructions, setting text color changes.)	If the intent of this application is to be a utility than the user control and freedom is essential.
4. Consistency and standards	This rule is not applied.	This rule is partially violated, everything is consistent, the only issue is the color scheme slightly changes throughout the app small white bar shows on the left of encyclopedia screen	Consistency throughout the application is needed for the user to become familiar and thus improvement is made in usability.
5. Error prevention	This rule is applied, in terms navigation, no errors can be made as all screens have clear direction.	This rule is not violated.	Error prevention helps improve usability as users don't like to be the guinea pigs for testing they use the app without any obstacles.
6. Recognition rather than recall	The cognitive load is reduced as many task have relevant icons and symbols, This rule is applied in the hamburger menu, the icon for environment scanning and for statistics.	This rule is not violated.	User would not like a lot of cognitive load when using a product, thus this helps improve desirability.
7. Flexibility and efficiency of use	This rule is not applied.	This rule is partially violated, as the app keeps track of Kid-Friendly Features setting, however it also has notice pop-ups every time you want to go from one section screen to a different screen.	User should be able to disable and tailor some interface feature towards their liking, if this is implemented then there would will be improvement in desirability.
8. Aesthetic and minimalist design	This rule is applied and used throughout the whole application,modern minimalistic design features are incorporated. Such as ease of use, clarity, and stylish look.	This rule is not violated.	Keeping clutter to a minimum and the display only showing necessary components can improve both usability and desirability.
9. Help users recognize, diagnose and recover from errors	This rule is applied, the language that is used in the application is easy to understand, user will not need to understand technical terminology to recover from errors, in the setting there is features that help the users. i.e Version #	This rule is not violated.	Error messages that are easier to understand, assures the users of the problems and helps them recover faster. Thus, this is an improvement in the usability of the application.
10. Help and documentation	This rule is not applied.	This rule is violated as their is no section to get support in the form documentation or human help such as customer service.	Users usually do not like to resort to documentation for help however it would be convenient when users need documentation help. Thus, this helps improve desirability.

Anastasiya's Evaluation

Rule of Thumb	Is this rule being applied? How so?	Is this rule violated? How so?	How can this rule further improve usability, utility and desirability?
1. Visibility of system status	Yes. Notices let the user know that t hey will be redirected to a different page.	Yes. No erroneous condition screens implemented. Erroneous clicks are ignored without further feedback.	Implement some common error conditin handling screens, if appropriate.
2. Match between system and the real world	Yes. Recogniseable icons are used. Wiki information is layed out in a logical heirarchy.	Clicking is required to get from the scanning finish screen to the next screen, which is inconsistent with similar apps.	Use a transitioning animation to get from the scanning finish screen to the next screen.
3. User control and freedom	Yes. User is presented with confirmation when being redirected to a new page. Users can use the hamburger menu or back button as an emergency exit.	No.	N/A
4. Consistency and standards	Yes. Hamburger menu, scanner detection square, and store and wiki layouts are consistent with other apps.	Yes. Buttons and info messages look the same	Design informative messages to look different from buttons
5. Error prevention	Yes. Buttons have names and icons that explain what they do. User is presented with confirmation when being redirected to a new page.	Yes. Only some AR popups are clickable, whereas one is not. Tempted to click on all quick status icons. The word 'Troubleshoot', as in the wiki, normally refers to technical things, whereas here it's about plants.	Make the whole quick status screen clickable. Make all AR popups clickable, moving informati- on on plant link into its scientific name poopup. Rename 'Troubleshoot' to something more plant-appropriate.
6. Recognition rather than recall	Yes. Icons for water and sunlight are recogniseable. Hamburger menu is recogniseable.	Yes. I think that the link icon is not widely used in apps and therefore not recognizeable	Change the link icon to look more like what other apps use to make it more recognizeable.
7. Flexibility and efficiency of use	Yes. Hamburger menu allows quick navigation for experienced users. No other shortcuts are needed.	Yes. Would be good to provide settings for turning off specific parts of the gamified experience, such as the jokes for experienced kid users.	Provide an option in the Settings page to turn off jokes when the gamified features are turned on. This would speed up interaction with the gamified character for experienced users.
8. Aesthetic and minimalist design	Yes. Icons are used either alone or with accompanying text.	Yes. "Learn more" panel on the main scanning screen takes up space and diverts attention from other features on the screen. Lots of features are present on this screen, making it look cluttered, especially with the gamified character turned on..	Attempt to declutter the main scanning screen. Can be done by moving the 'learn more' functionality into the plant species name.
9. Help users recognize, diagnose and recover from errors	No, no error messages present.	Yes, no error messages given to users.	Error messages indicating an erroneous navigation or action should be in layman-accessible terms.
10. Help and documentation	Yes. The wiki provides guidance on how to perform real-world steps requested by the app.	Yes. No documentation for navigating the app itself. Contact support option is not available (anymore?)	Provide a way for the user to look at the user's guide for navigating the app's features. Provide a 'contact support' option.

Perjot's Evaluation

Rule of Thumb	Is this rule being applied? How so?	Is this rule violated? How so?	How can this rule further improve usability, utility and desirability?
1. Visibility of system status	Yes, the bear character is very responsive and the hamburger menu indicates where the user currently is in the app.	Minimal response to incorrect inputs.	The user being more informed could improve the usability of the app.
2. Match between system and the real world	The AR portions make the app more immersive.	The user might want to go back while taking to the bear at times (perhaps during the joke).	The app will be more functional.
3. User control and freedom	Yes, the user has much control of the app with the settings menu and within the app with the hamburger menu and back button.	In some cases, the back button take the user back to a screen they were never on.	If the user finds themself somewhere they did not intend on being, it could be irritating. The application should function as expected.
4. Consistency and standards	Yes, most things are consistent throughout the interface.	The transitions between screens are inconsistent (shopping from hamburger menu vs. thee other 3).	There could be more consistency with the colours and icons within the layout can be changed to be more distinguishable.
5. Error prevention	Yes, the user is presented with a notice before being redirected to another page. This gives them another chance to go back to what they were doing rather than being redirected immediately.	There is no help text or error prevention measures in place.	The app should be more responsive to the user, enhancing the interaction.
6. Recognition rather than recall	The interface is self-explanatory with icons and text.	Some things could be more obvious.	Use more identifiable symbols that the user may have seen before.
7. Flexibility and efficiency of use	The hamburger menu makes navigation very efficient.	When the user proceeds 1 step within a certain section of the app, there are 2 ways they can get back to the main page of that specific section (back button and the hamburger menu).	The user may get confused with the different ways to navigate, giving them only one way would simplify their experience.
8. Aesthetic and minimalist design	The layout is aesthetically pleasing and simple.	The hamburger menu looks cluttered with the current selection presented and highlighted.	"Notice:" and "Menu" need not the pink background or to look like buttons; they should be text only.
9. Help users recognize, diagnose and recover from errors	If the user accidentally opens the hamburger menu, they can tap off of it and go back to what they were doing; they can do the same for notices.	The user may not be able to interpret the current error recovery cues, a lack of error messages.	Error messages with text could inform the user better.
10. Help and documentation	No, there is no documentation provided.	Yes, the app has no instructions to help the user get started.	Documentation on how to use the app or a help section could be added.

Reviewers' Findings

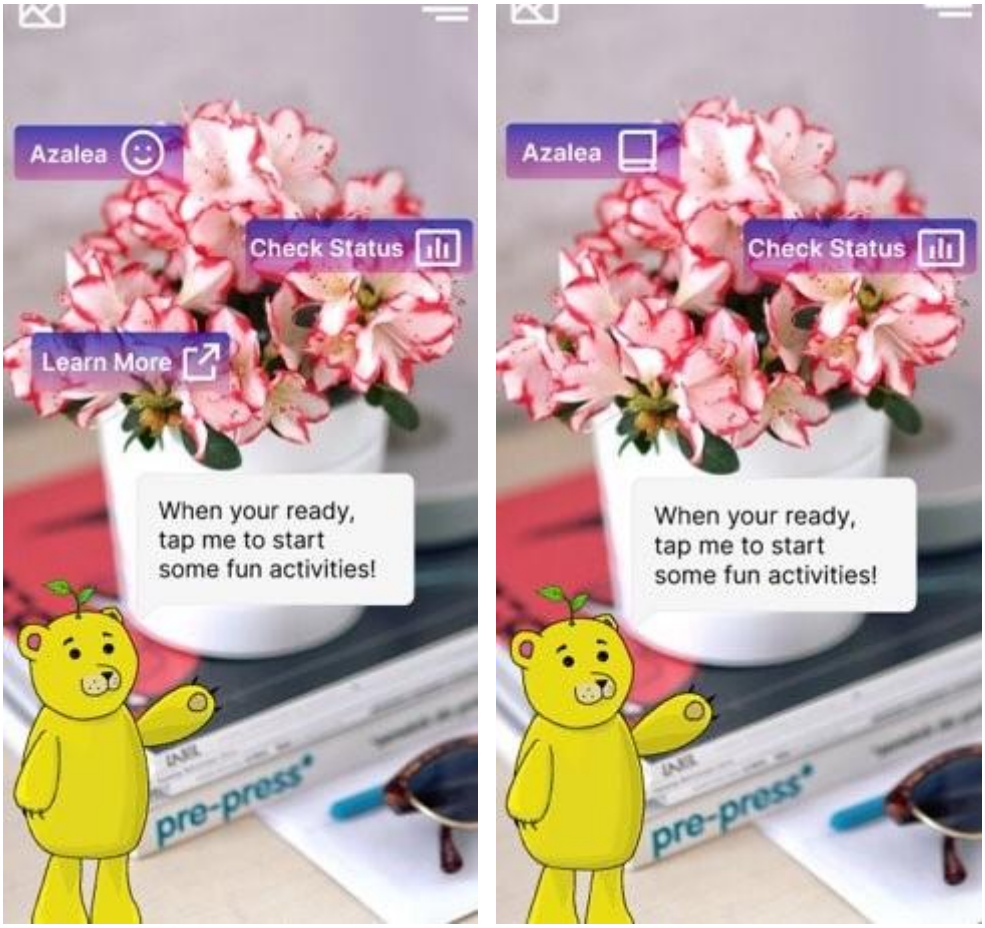
Issue or potential problems	Priority/Severity Rating	Course of action
Lack of the ability to return to previous dialogue is case of fast-click or mishap	High	Implemented a "back" button to return the previous missed dialogue
Option to remove the "Notice" pop-up to prevent annoyance	Low	Added a settings option dubbed "Notice toggle" to remove the "Notice" pop-up.
Buttons and non-buttons should be well distinguished on the hamburger menu and notices.	High	Remove round-edge squad background graphic from the no-interactable. Now both the "Menu" and "Notice" descriptions are just white text.
When in a specific category (encyclopedia, shop, settings, scanner) the hamburger menu should not have that particular tab.	Low	No actions taken.
The transition between the scan-successful vs post-scan screen is unclear.	Medium	Added in "Tap to see plant" button in the scan "successful" screen.
Lack of error messages to inform the user.	Medium	They only potential error case was the ability to access the hamburger/environment scanner icons during the initial scanning phrase, however instead of implementing an error screen, we just

		remove the two options having them only appear once the initial scan was complete.
All components of the quick status bar should be clickable, not just one icon in it.	High	We've changed it such that now we have two separate options. An independent back button and clicking ANYWHERE on the quick status bar can now bring out the extended version.
Learn-More button was taking up too much space.	Medium	Learn move button was removed. Instead, clicking on the plant name will return the same results as the Learn-more button.
The Learn-More-button icon should be replaced with a more common/familiar-one.	Low	We swapped out the original Learn-More icon and replaced it with the same icon as the Encyclopedia.
There should be an option to remove the gamified jokes in the character dialogue.	Low	A new toggle option in the settings menu just next to the "Kid-friendly" toggle
The "Troubleshoot" category in the encyclopedia should be renamed for the name sounds too much like a system-related issue.	Medium	After some discussion, the "Troubleshoot" name in the encyclopedia was agreed to be renamed to "Plant caring Tips."
Proposal to remove the back-button in the encyclopedia pages (specific plant/soil/tool page, etc.) for it might lead to confusion.	Low	No actions taken.
Need for a "contact support" option.	High	A "Contact-support" option was implemented in the settings menu.

Sample changes:

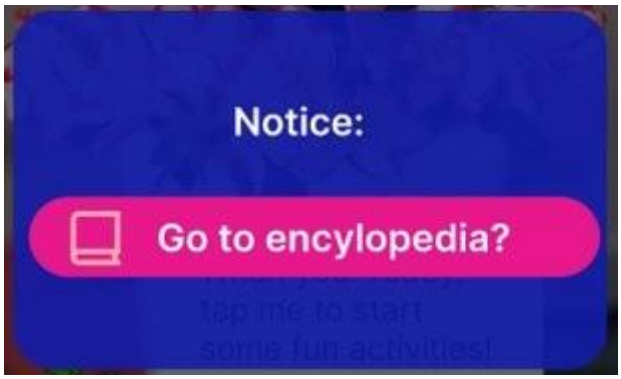
Changes to Quick stats bar (Before and After):

Remove/replace “Learn More” button (Before and After):



Added Back button for activities (Before and After):

Remade Notice and Hamburger Menu (Before and After):



Added additional settings to menu (Before and After):