**Team Brain Rot**

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**Overview:**

Our application, ZeroWaste, aids users in avoiding distractions as you work on your job or tasks. It is an application that allows you to choose when distractions, such as social media, messaging with friends, or entertainment, become limited with a push of a button. Not only is ZeroWaste simple to use, but you may modify its functionality to suit your needs. With ZeroWaste, say goodbye to time wasting and say hello to new productivity!

**Solving The Problem:**

In ZeroWaste, the user is given the choice to choose what apps to lock and how long they want to lock it for, they are given a timer (eg. 30 Minutes, 1 Hour, ETC.) and the user may freely choose how long they want an app to be locked for to prevent the user from being distracted easily.   
   
ZeroWaste manages to shut down any chosen app completely, so there won’t be any background data or processes being run, saving time and efficiency for the user.

**The Application:**

* **Application Name: ZeroWaste**

* **What it is:**

ZeroWaste is an application that allows users to lock or time out apps that make the user become distracted while trying to focus on tasks or work. This application is designed more for people that tend to be busier than usual, such as students or working individuals.

**Features:**

* **App Lock**

App Lock allows the user to choose an app in their phone to lock or time out while trying to focus on doing work. This stops the user from becoming distracted as the apps are not allowed to be used while this feature is enabled.

* **Time Limiter**

Time Limiter is what allows the user to choose how long they want the chosen app to be locked or timed out for. Users are given any choice to the time limit.

* **Minimal Data Usage**

The app will be a lightweight and simple app to use, stopping any app that is locked from running any data or processes in the background, allowing the user to save memory, performance, and efficiency.

**Questions about the Application:**

* **Who are the potential users?**

The potential users for ZeroWaste are students or working individuals. Understanding the target audience, the app will remain as simple and lightweight as possible.

* **What tasks do they seek to perform?**

The potential users for ZeroWaste aim to perform tasks without having any distractions or any other disturbances that might cause them to be sidetracked and prevent them from finishing anything due.

* **What functionality should any system provide to these users?**

ZeroWaste aims to provide a distraction-free environment to users as the app will allow users to lock and timeout any applications that might get in the way of any task or work.

* **What constraints will be placed on your eventual design?**

The main constraint that is placed on ZeroWaste is simplicity. ZeroWaste is mainly focused on essential features. This means that advanced functionalities that might be useful to users, might be excluded to prevent overworking or confusing users. The requirements needed to run ZeroWaste are very minimal, making it able to run on almost any phone.

* **What criteria should be used to judge if your design is a success or not?**

The criteria used to judge the success / no success of our design will be determined through the feedback of our users. After the user’s time set is done and the apps that were locked, become unlocked, the user will be the amount of hours that were saved from distraction, and the user may input their feedback in a simple 5-star rating system, 1 meaning very distracted, and 5 meaning no distractions at all. This will allow us to know how effective our application will be towards our users, and we may take this feedback and incorporate other things that may help satisfy users in the future.

**PROJECT DESCRIPTION**  
The goal of this project is to create an intuitive application that will assist users in avoiding distractions when completing tasks or working on a job. Designed with a range of user demographics in mind, including professionals and students, the software provides easy-to-use tools for cutting down on distractions including social media, friend messaging, and entertainment. Time-wasting is minimized and productivity is maximized with the app's adjustable features and streamlined layout.

**REQUIREMENTS SUMMARY**

We have to ensure the app:

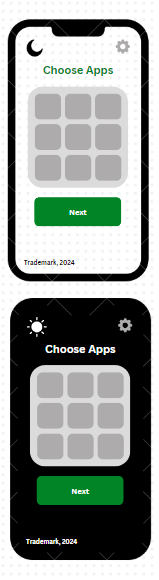
* Is easy for the users to understand and utilize.
* Provides a clean interface to lessen user error.
* Locks apps by blocking their notifications and usage.
* Can cancel app locking early based on user input.
* Notifies the user when the timer is completed.
* Can work on multiple mobile devices.

**PROTOTYPE**

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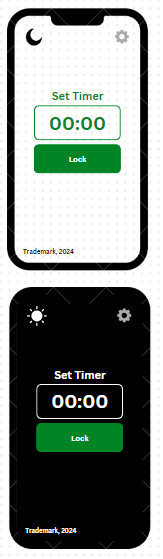
***Figure 1***

***Figure 1*** shows the draft homescreen of ZeroWaste. It provides the user with a simple start button to get the app to work, and there is the settings button at the top right. The application can also be customized in terms of theme, light and dark. All assets in this screenshot are the first ideas that we came up with as a group. (Logo was not finalized at the time).



***Figure 1.2***

***Figure 1.2*** shows what happens once “START” is pressed. The user will be given this GUI, where they can choose any apps that they want to lock/disable to focus on work/studies. Once again, the settings button is on the top right and the app can be used in light or dark mode.



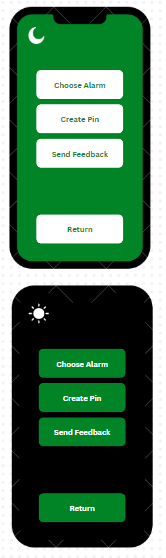
***Figure 1.3***

***Figure 1.3*** shows the screen in which the user can select the amount of time that the selected applications can be locked for, this is completely up to the user as to how long they want the time to be set. Settings are on the top right, and the light and dark theme feature remains on the top left.



***Figure 1.4***

***Figure 1.4*** shows the screen in which the time is fully selected and the timer is now ticking down until finished. The user is given the option to manually unlock the apps in case where there was an error in inputting the timer, or where they accidentally selected an app.



***Figure 1.5***

***Figure 1.5*** shows what the settings screen would look like, there are 4 simple buttons with their own individual functions; Choose Alarm for choosing what alarm sound the user may want played once the timer is done (The sound can be a custom one, or a default one that comes with the phone already). The Create Pin button is designed so that the user can input a PIN when opening the application, by entering the pin, this unlocks full access to the application. The Send Feedback button allows the user to send direct and honest feedback to the developers of the application to give their own insights on the application, whether it's positive or negative feedback, this allows the developers to know what’s right and wrong and what to take into consideration. The Return button is to simply allow the user to go back to the main screen.

**REQUIREMENT CHANGES**While creating ZeroWaste, we became aware of how crucial it was to make sure the program worked properly offline. Based on comments from users who viewed the app, we concentrated on keeping the UI straightforward and easy to use. They helped shape these changes by letting us know what they liked and didn't like.

**Project Description**

ZeroWaste is a straightforward mobile app designed to boost productivity by allowing users to lock or time out distracting apps like social media and messaging. Ideal for students and professionals, it features customizable timers to prevent interruptions during work or study sessions. With minimal data usage and a user-friendly interface, ZeroWaste helps users manage digital distractions effectively, promoting focused tasks and improved productivity.

**Requirements Summary**

| **MINIMUM REQUIREMENTS** | Processor Cores | Single Core |
| --- | --- | --- |
| OS | Android 4.4 (KitKat) |
| RAM | 2 GB |
| **RECOMMENDED REQUIREMENTS** | Processor Cores | Quad Core |
| OS | Android 8.0(Oreo) |
| RAM | 4 GB |
| **OTHER REQUIREMENTS** | Permissions | Notifications and Storage |

Table 1. System Requirements

The application would not have intensive resource requirements, so any device should suffice to run the app.

**Prototype Description**

The application prototype was made in Figma:

https://www.figma.com/design/OTjfuWBIMMtAlO3q4iMPia/Zero-Waste-Prototype?node-id=1-14&t=KLIIxuVpUdvvQPiF-1

**User Scenario**

Michel is a busy university student who has a lot of homework due and a test soon. While studying at home, she often gets sidetracked by messages from social media and messaging apps. Michel chooses to use ZeroWaste to remain concentrated and productive. Using the time limiter function, she opens the app on her smartphone and chooses which apps she wants to lock for the next two hours. ZeroWaste blocks access to these distractions with one tap, enabling Michel to focus only on her study materials. Michel uses the app's feedback section to rate her productivity using a 5-star rating system, providing valuable input for the developers and for her future study sessions.

**Prototype Design**

Screens screenshot of a phone

Description automatically generated

A screenshot of a phone

Description automatically generated

Screens screenshot of a phone

Description automatically generated

A screenshot of a phone

Description automatically generated

The first screen welcomes the user to the app and prompts the user to press a button in order to get started (The application can also be used in dark mode, hence the sun on the top left). The user will then be directed to “Choose Apps” screen, in where they can choose what apps to lock/disable. Once the the apps have been selected, the application will move on to the next screen. After choosing the apps, the user is given the option to set a timer, the timer can be set to however long the user desires to have the applications locked for, once this timer has been set, the user presses “Lock” to start the timer. The application then moves on to the next screen, which shows the how much time is left on the timer. In the case that the user presses on “Unlock”, the application will ask “Are you sure you want to unlock your apps?”, allowing the

user to have manual control over the application (in the case of a mistake in choosing the wrong app or setting a wrong amount of time).

A green sign with white rectangles

Description automatically generated

A screenshot of a phone

Description automatically generated

A screenshot of a login screen

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A screenshot of a phone

Description automatically generated

A screenshot of a phone

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A screenshot of a black background

Description automatically generated

A screenshot of a login box

Description automatically generated

A screenshot of a black screen

Description automatically generated

The screens presented above are what the settings window would look like if the user were to enter the settings menu via clicking the icon on the top right. If the user were to press “Choose Alarm”, the user will be given the choice to select a preloaded alarm (EX: Over The Horizon), or a custom one (EX: SoundEffect.mp3). If the user presses the “Set Pin” button, the user will be given the chance to enter a pin to prevent others from being able to tamper with the app, essentialy, only the owner of the phone would be able to start/stop the function of apps with the timer. Finally, if the user were to press on “Send Feedback”, the user would be given the chance to input their personal review and feedback on the application, whether it be positive or negative, depending on the experience while using the app too. This feedback would be crucial for the developers as they would know what to integrate and what to remove based on the users thoughts/opinions/comments.

**Rationale**

The main goal of ZeroWaste's development was to give users an easy way to successfully manage digital distractions. The app's design places a high value on usability and simplicity, making it easy for users to time out or lock distracting apps. ZeroWaste seeks to increase user productivity without the need for intricate interactions or setup processes by optimizing the process to just a few taps.

**Changes to requirements**

At first, the integration of a complex screen interface right into the device was taken into account. But after more analysis, it was clear that this kind of design would not be in line with the user's desire for simplicity and usability. Rather, using a mobile application interface turned out to be the best course of action. This strategy makes it easier for people to engage with ZeroWaste through their cellphones and offers a more user-friendly and convenient way to control app distractions.

**Initial Evaluation Plan**

For the application to cater better to the users of the device, testing and feedback from the users will be accepted in order for the team to find out what needs to be added and changed from the interface in order to create a seamless interaction between the user and the device.

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Table 1. System Requirements

To cater to low-end android models, the application will have at most a minimum of 1 Core, 2 GB worth or RAM, and Android version 4.4 or KitKat as its OS. The app itself is not at all demanding, hence our team has settled on lower requirement specs.

**Overview**

We conducted a remote usability evaluation of the ZeroWaste prototype with 15 college student participants. The evaluation consisted of task-based usability testing, heuristic evaluation, and user surveys. The goal was to assess the effectiveness, efficiency, and user satisfaction of the prototype, and identify areas for improvement.

**Method of Conducting Prototype Tests**:

The team will conduct this evaluation through online social media platforms such as Discord. This is to ensure that the pair will still be able to see a live feed of what is currently happening in the prototype.

The Evaluation section is split into three separate parts: Usability Specifications, Heuristics Evaluation, and Participant Survey and Feedback. Below is a table describing each technique.

| **Technique** | **Description** |
| --- | --- |
| Usability Specifications | Usability Specifications is the technique used to evaluate the level of usability that the Prototype has. It consists of tasks that will be done by Participants. Furthermore, the Technique will contain timing the speed of the participants at a given task. The tasks will be split into 3 Sections: Start Menu, App Selection Task, Timer Setting Task. This task is chosen to properly identify what flaws are seen when the user interacts with the prototype and how easy it is to use said prototype. |
| Heuristics Evaluation | Heuristics Evaluation will assess the UX design of the ZeroWaste prototype against industry-standard usability principles. This technique is chosen to provide a quick and accessible way to evaluate the validity of the prototype's design, particularly when time or resources are limited. |
| Participant Survey and Feedback | After interacting with the prototype, participants will be given a survey. The survey will contain quantitative questions interpreted on a 5-point Likert Scale and qualitative questions in the form of open-ended feedback. This approach ensures that no designer bias influences the results of this evaluation. |

The tasks will be split into three sections: Main Menu Task, App Selection Tasks, and Timer Setting Tasks. Below are some of the tasks that the selected participants will be asked to perform for each Section to showcase the Prototype’s functionality:

* **Start Menu Task**

Participants will navigate the start menu and press the “Start” button to get started with the application.

* **App Selection Tasks**

Participants will select various apps to lock and manage distractions, testing the intuitiveness and efficiency of the selection process.

* **Timer Setting Tasks**

Participants will set timers to lock selected apps, assessing the ease and clarity of the timer functionality.

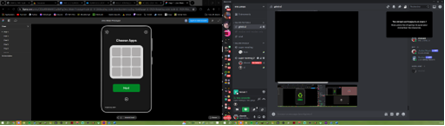
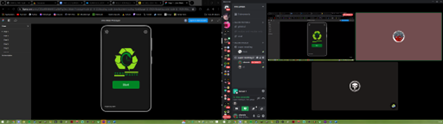
The previously mentioned tasks were designed in a specific way to accommodate the user in terms of:

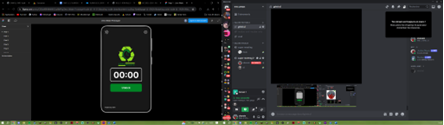
**User Friendly UI**

* Ensuring that the interface is intuitive and easy to navigate.
* Using clear and simple icons and labels for better understanding.

**Simple App Mechanism**

* Simplifying the process of selecting apps and setting timers.
* Minimizing the number of steps required to complete each task.





**DISCORD CALL**

**Data Presentation**

**Data Analysis**

**Usability Specifications**

Based on observations made by Team Brain Rot, users of the ZeroWaste application have been interacting with it successfully throughout the testing stage. A majority of the users demonstrated a natural comprehension of the app's functionality by finishing their assignments with ease. The app's navigation was easily mastered by users, who discovered that it was easy to use and had a good distractibility reduction impact. Nevertheless, some participants experienced issues with the app lock feature, meaning that some apps did not lock as intended. These issues seem to be minor bugs that can be fixed to increase the app's dependability. ZeroWaste has a lot of promise in helping consumers increase their productivity because of its capacity to lessen distractions.

| **Task** | **Mean** | **Interpretation** | **Classification** |
| --- | --- | --- | --- |
| Start Menu Task | 0.16 Minutes | Highly Acceptable | Successful |
| App Selection Task | 1 Minute and 30 Seconds | Highly Acceptable | Successful |
| Timer Setting Task | 0.5 Minutes | Highly Acceptable | Successful |

Table 3. Tasks and Results

Table 3 shows the results while the online testing was done. The data shows that each participant was able to successfully accomplish each task.

* **Heuristic Evaluation**

The ZeroWaste prototype will be evaluated within each type of heuristic evaluation.

* **Visibility of System Status**

The prototype effectively informs participants about the current status and ongoing processes within the prototype. Clear indicators and feedback mechanisms are in place to keep users informed.

* **Match Between System and Real World**

The prototype uses simple, clear English that is easily understood by participants of all ages. Words and phrases are chosen to be relatable and easily comprehensible.

* **User Control and Freedom**

The prototype includes fail-safes such as a back button to allow participants to correct mis-clicks or exit tasks they do not understand. Back buttons are also implemented as an additional safety measure.

* **Consistency and Standards**

The prototype maintains a high level of consistency, although there are minor issues such as the inconsistent positioning of back buttons and unclear tapping locations that need to be addressed.

* **Error Prevention**

The prototype incorporates mechanisms to prevent errors, although minor errors do occur and affect the user experience. These issues are noted and will be addressed in future iterations.

* **Recognition Rather Than Recall**

Options, objects, and actions are clearly visible and accessible, reducing the need for users to recall information from memory during interactions.

* **Flexibility and Efficiency of Use**

The prototype is designed to be easily understood and used proficiently by both experienced and inexperienced users. Its straightforward interface supports quick and efficient use.

* **Aesthetic and Minimalist Design**

The prototype features a sleek, modern, minimalist design. Unnecessary information is omitted to keep the interface clean and focused on essential functions.

* **Help Users Recognize, Diagnose, and Recover from Errors**

While the prototype indicates when users click on non-interactive areas, it lacks comprehensive support for helping users recognize, diagnose, and recover from errors in plain language.

* **Help and Documentation**

Users can access help or assistance from the present team members, although formal help and documentation are limited and should be improved.

* **Heuristics Conclusion**

Overall, the ZeroWaste prototype meets most heuristic evaluation criteria with some issues that need to be addressed. These findings will guide future improvements to enhance the prototype's usability.

***Participant Survey and Feedback***

| SECTION 1 | | | |
| --- | --- | --- | --- |
| Question | Mean | Interpretation | Classification |
| On a scale from 1-5 how would you rate your experience with ZeroWaste? | 4.81 | Highly Acceptable | Successful |
| On a scale from 1-5 how would you rate the UI design of ZeroWaste? | 4.45 | Acceptable | Successful |
| How easy was it to follow the provided tasks/navigate ZeroWaste | 4.02 | Acceptable | Successful |
| SECTION 2 | | | |
| Start Page | 4.69 | Highly Acceptable | Successful |
| Choose Apps Page | 4.01 | Acceptable | Successful |
| Set Timer Page | 4.76 | Highly Acceptable | Successful |
| Unlock Apps Page | 4.66 | Highly Acceptable |  |
| Settings Page | 3.90 | Moderately Acceptable | Neutral |
| Choose Alarm Page | 4.12 | Acceptable | Successful |
| Set PIN Page | 4.32 | Acceptable | Successful |
| Send Feedback Page | 4.51 | Highly Acceptable | Successful |

Table 4. Data Interpretation

Two sections of the table display the findings from user assessments of the ZeroWaste application. Section 1 covers overall experience, UI design, and task easiness, each assessed on a scale of 1 to 5. These aspects typically received scores around 4, classed as "Acceptable" and "Successful." Section 2 evaluates individual pages, such as the Start Page, Choose Apps Page, Set Timer Page, and others. All pages had an average score of 4.33, indicating overall success. The scores ranged from 3.90 to 4.81, with most pages being evaluated as "Highly Acceptable" and "Successful," except for the Settings Page, which was rated as "Moderately Acceptable" and "Neutral."

**Feedback**

While most of the feedback was overwhelmingly positive, some participants highlighted a few issues. Common concerns revolved around the Settings Page of the ZeroWaste application. These issues raised concerns that navigating and utilizing the Settings Page was somewhat difficult to follow. This feedback indicates a need for refinement in this area to ensure a more seamless user experience.

* **Does your prototype need to be altered to address the results of the analysis, or was it completely successful?**

It was completely successful. From the data gathered, the participants were satisfied with what was given to them, meaning that there is no need to alter/change the prototype.

* **What improvements could be made to the design to address any shortcomings?**

Improvements could be made by enhancing the quality of the Settings Page to make it more visually appealing and user-friendly.

* **Did you discover any major flaws that would suggest a completely different type of design?**

No major flaws were discovered that would suggest the need for a completely different type of design for ZeroWaste.

**Critique & Summary**

**What were the advantages and disadvantages of your evaluation?**

The evaluation came with a number of advantages and disadvantages. In a positive way it offered thorough feedback on a range of application characteristics, highlighting its strong points, including functionalities that are easy for users to use and efficient features. This feedback verified that the main idea and design strategy were successful in lowering distractions and brought up particular areas for improvement, such as the Settings Page. But there were also certain drawbacks. The evaluation's narrow focus may have prevented it from addressing certain user scenarios or particular demands because it did not include a wide range of demographics.

**What would you have done differently knowing what you know now (both design wise and evaluation-wise)? Given more resources, what could you have done that would have produced significantly more insightful evaluation results (again, whether this is an improved prototype or a different evaluation path).**

With the knowledge we currently have, we would have prioritized improving the Settings Page's usability and simplicity right away, taking feedback from users into account early in the design phase. We would have employed a more varied set of participants in the review process and combined quantitative and qualitative techniques, such in-depth interviews, to obtain deeper insights. With greater investment, we could have created a more sophisticated prototype with interactive elements and carried out more rounds of user testing to guarantee a polished and user-focused finished result.

**Summary of the Project**

With ZeroWaste, users can lock or set time limits on distracting apps like chat and social networking, which helps users increase productivity. With programmable timers to avoid disruptions during work or study sessions, it is designed with professionals and students in mind. ZeroWaste successfully lowers digital distractions, encouraging concentrated work and increased productivity with its simple layout and user-friendly UI.

Based on our ZeroWaste usability test results, we recommend adding continuous user feedback channels to tweak and improve app features as user preferences change. Increasing collaboration with educational institutions and productivity specialists will widen app integration options and improve support services. To assist users in increasing productivity, we advocate developing accurate user education programs.