Tackling Singaporean Screen Dependency Through Gamified Productivity

College of Humanities and Sciences Case Competition Preliminary Round Submission
by the **DIGIDETOX** Group

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Abstract/Executive Summary

The mass integration of technology caused by a long period of global quarantine has caused a critically positive increase in the *screen dependency* of the Singaporean population in a post-pandemic era, from the reliance on technology for communication across different settings to everyday entertainment purposes. This dependence has caused several issues, to mention reduced *productivity* and quality management of time, poor physical health, and social isolation. To address this issue, the authors of this case study have examined the leading causes of screen dependency, methods to *reverse* the effects of screen dependency in a sustainable and efficient manner, as well as the designing of an app that *gamifies* productivity.

Keywords: screen dependency, productivity, reverse, gamify

Project Rationale

Singaporeans have been found to spend more time on the Internet than residents of any other country only second to India, indicating a long-standing issue of unhealthy dependency on digital devices. The process of understanding the causes of internet addiction is complex but can be simplified by examining *personal elements* and *environmental factors* that exert crucial influence on the level of digital dependency.

Personal elements are a key factor in internet addiction. Factors such as low self-respect, obsessive-compulsive tendencies, and high sensitivity contribute to an accelerated dependency on internet devices. Poor emotional management leads to internet addiction, and there are strong associations between digital dependency and other disorders such as depression, anxiety, stress, and behavioral problems.

The authors of this case have chosen to focus on the *personal elements* of digital dependency to allow for the solution to be more applicable and individual to the key audience.

Cognitive Behavioral Therapy (CBT) could be a possible solution to Internet addiction. CBT holds that a person's situation, emotions, physical sensations, and thoughts are all logically related. There are three main therapeutic strategies in the practice of CBT:

1.) cognitive restructuring – the use of support groups in compensating for social interactions
2.) behavioral exercises – the use of actionable, achievable goals often with the use of *external stoppers*
3.) exposure therapy – the use of different activities as a form of abstinence

external stoppers: devices such as alarm clocks that act as physical prompts

Competitor Analysis/Existing Solutions

Social media applications are designed to maximize user retention, often occupying users with user-generated content in a similar manner to casinos – with little indication of time – and often a very accessible method of moving on to different content (AutoPlay, swiping).

Attached below is a table of existing solutions to reducing screen dependency in favor of productivity. Mentioned applications such as the *Pomodoro Timer* and *Forest App* are easily accessible on both the Internet and common app stores/galleries often with many iterations of the same-functioning app.

EXISTING SOLUTIONS

Features	Pros	Cons
Pomodoro Timer	Aids Focus	Relies on User Intention
"Forest" App	Incentive through Gamification	Lack of Personal User Development
Parental Control	Controlled by Assumed Reliable Party	Case-to-Case Effectiveness Varies
Education	Factual, Similar Format to Usual Knowledge	May Be Perceived Poorly/Ineffectively
Self-Discipline	Customizable and Encourages Self-Control	Requires Significant Individual Commitment
CBT	Long-Term Psychological Treatment	No Easy Access, Financial Burden

FIG 1 - PRO/CON TABLE OF EXISTING SOLUTIONS

Project Summary

Our solution targets people aged 12 to 30, who are most likely to suffer from phone addiction. This group of people is assumed to have moderate self-awareness and self-control for the sake of the case. They are moderately aware of the harms of screen dependency.

DigiDetox is a productivity app that helps users overcome phone addiction by providing them with personalized insights, goals, and rewards. The app uses the principle of *gamification* to motivate and engage the users and acts as a "lock" for the users' applications. The app aims to help users become more conscious of their phone usage habits and encourage them to achieve their goals in real life.

Below is the flowchart for the mobile *DigiDetox* application. You may refer to the **Appendix** for more.

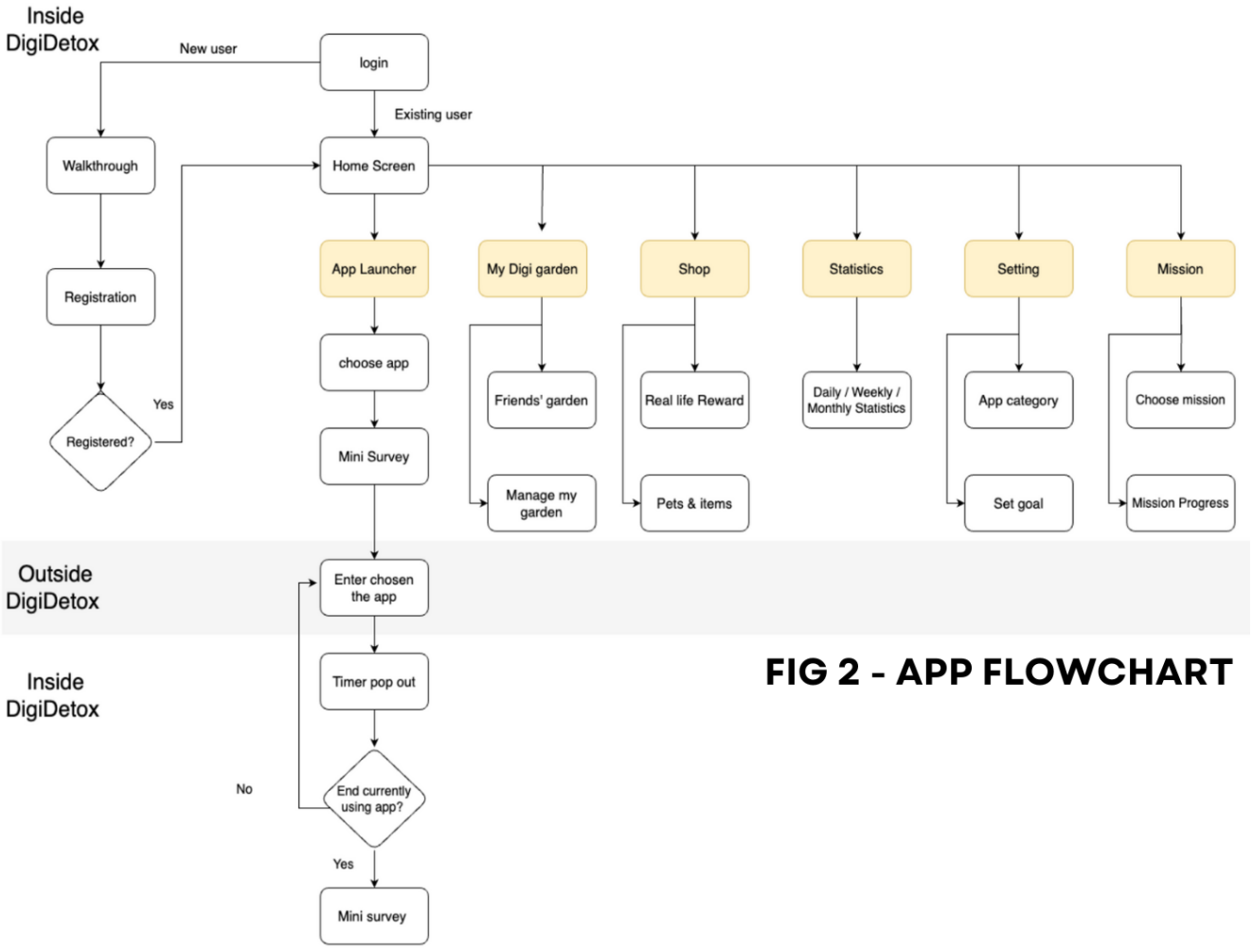

FIG 2 - APP FLOWCHART

1.) App Manager

This feature tracks and records the user's app usage patterns upon being given restricted permission. This tracks the time spent on different apps, the frequency of notifications, and the impact of phone usage on mood and well-being. The user can choose which apps they would like to "lock" from the app drawer, which can be customized in the app manager section.

• Mini Survey: This feature aids the user in becoming more aware of their emotions while using certain apps, to improve on user mindfulness of screen usage. The survey results are stored, analyzed, and displayed by the app to show the user how their phone habits affect their productivity, health, and happiness.

• Timer: This feature helps the user reduce their phone usage by setting a time limit as specified by the user and analytics. The timer notifies the user when the time is up, and guides them back to the *DigiDetox* application. The timer also provides feedback and encouragement to the user along the way, by way of goal reminders, incentives, and progress reports.

2.) Mission

This feature helps the user improve their productivity, health, or happiness by giving them missions to complete in real life. The user can choose up to three missions at a time from a list of available missions. The missions have different criteria, difficulty level, duration, and rewards.

An example mission could be to "lock" certain applications for the next hour in exchange for a small in-app currency reward of X coins, which can then be redeemed in the shop.

3.) Shop

This feature allows the user to use their coins to buy items for their DigiDetox or real-life benefits.

- Virtual Items: include pets and decorations that can enhance the user's experience, satisfaction, or motivation.
- Real-life benefits: e.g. discount coupons for shops that can support the user's goals or interests, such as gym class or music show.

4.) Garden

This feature is a virtual garden, and main screen where users can display and manage the items they purchase from the shop. The DigiDetox reflects the user's achievements and can be customized according to their preferences. The user can also visit their friends' gardens and interact with them by sending gifts.

5.) Statistics

This feature shows the user's phone usage activity, including metrics on time and other parameters questioned in the survey. The user will also be able to see the tasks they have set in the survey.

Product Operation

1) User Impact Analysis

Using in-app data wrangling for groups of users incentivized to provide their data anonymously for collection while also selecting different groups of individuals to use the application for a set period of time, we will examine the potential users' usage habits and the general attractiveness of the app for further improvements and bug fixes. A diverse audience of individuals will be necessary, and a dynamic feedback mechanism will be in place throughout the entire operation process.

2) Explore the Possibility of Tripartite Cooperation

Parents and educational institutions are crucial parts of integrating the app into users' daily lives especially given the target age range of the *DigiDetox* application. We will explore partnership opportunities with third-party institutions to allow for better incentivization and integration of the app. In addition to this, product partnerships and sponsorships will be beneficial for the operation of the application.

3) Promotion Phase

We will promote our app primarily to secondary schools and universities, offering several key benefits to students and parents. By understanding the rationale behind the DigiDetox project and advertising the in-app currency-based incentives provided by the mobile application, we hope to be able to further expand the app.

Business Model

Early Stage: Free-for-Download

During the initial stage, our app will follow a freemium model to attract a larger user base and gather valuable feedback. Users will have the opportunity to try the app's basic features for free.

Growth Stage: One-Time Purchase (OTP)

Once our app and its style have gained acceptance in the market and among our target users, we plan to transition to a one-time purchase model. By offering the app at a low price, we aim to capture a larger market share and promote healthy screen time habits.

Other income resources could include in-app advertisements by partnering companies or third-party advertisers.

Product Effectiveness

The previous solutions to screen dependency faced challenges in inspiring consistent app usage due to personal inhibitions and an overreliance on the users' capability to go forward with their productivity and self-improvement. Discussed in this section are several reasons for which the *DigiDetox* application is more effective for the current market.

1.) Tackling the Root Cause
DigiDetox allows users to visit each others' gardens that have added one another as friends. This allows for mutual user accountability and lessens the fear of missing out. Real-life incentives also provide further motivation for app usage.

2.) Attacking the Psyche: CBT
DigiDetox's design is based on the Cognitive Behavioral Therapy (CBT) method of psychological intervention. Features such as statistics, surveys, and external stoppers allow for exposure therapy, and cognitive restructuring to prevent them from addiction.

3.) Overcoming Previous Limitations

OVERCOMING PREVIOUS LIMITATIONS

Limitations	Solutions with Said Limitations	DigiDetox
Reliant on User Motivations	Pomodoro, "Forest", Self-Discipline	Provides consistent real-life user incentives
Does Not Take Account of Leisure	Pomodoro, "Forest"	Activates even during usage of "leisure" apps
Limited Personal Development	Pomodoro, "Forest"	Incorporates real-life positive habits
Requires Guidance	CBT, Parental Control	Mutual support system
Time and Money Consuming	CBT	Free/Low-Cost
May be Perceived as Boring/Ineffective	School Talks, Parental Control	Incorporates the principle of gamification

FIG 3 - TABLE OF LIMITATIONS FOUND IN PREVIOUSLY EXISTING SOLUTIONS AND OVERCOME BY DIGIDETOX

Product Limitations

1) Questionnaire Design Diversity

The selection of questions may not be applicable to all user demographics, so the app's survey feature needs to maintain a balance of improving according to user feedback and keeping the original functions of the application regardless of the reached audience.

2) Target User Suitability

Our app's demographic of target users varies in age and profession to name two parameters, so the different groups of users may have their own preferences when they decide to use this app. In terms of game design, the game environment and gamification aspect are based on the currently popular design methods that may not be as attractive to older demographics. The authors intend to solve this by conducting tests and implementing further in-app user customization.

3) Sustaining user engagement with *DigiDetox*:

Similar to other productivity apps or habit-building tools, maintaining long-term user engagement will be a challenge. Users may find the app frustrating or the missions too difficult, leading them to halt their use of the app. *DigiDetox* aims to address this issue by providing incentives, fostering a sense of community/mutual peer support, and flexibility in usage by allowing for temporary access to their apps.

Feasibility

1.) Technical

With "Forest" and app launcher already established and widely adopted, we are able to confidently develop and launch DigiDetox using a proven and scalable framework. The technical similarities between these apps provide valuable insights and good practices, mitigating potential technical challenges.

2.) Data privacy

The *DigiDetox* app would employ stringent data encryption measures, adopt a minimal data collection approach, and utilize anonymized analytics. We prioritize obtaining user consent before sharing any data, and our secure infrastructure ensures protection against unauthorized access. Our transparent privacy policy aligns with regulatory requirements that prioritize user safety.

3.) Financial

The initial funding required for DigiDetox is anticipated to range from $14,500 to $23,000. This amount is considered affordable as we plan to secure funds through various channels, including competitions, angel investors, and potential partnerships with government entities or NGOs.

FINANCIAL PROJECTIONS

Usage of Budget	Estimated Cost (S$)	Frequency
Market Research	2000 - 3000	One-Time
App Development	5000 - 8000	One-Time
Marketing and Promotion	1500 - 2000	One-Time
App Maintenance	3000 - 5000	Per Annum
Management and Labor Costs	3000 - 5000	Per Annum
Total Cost (Initial)	14500 - 23000	

FIG 4 - TABLE OF FINANCIAL PROJECTIONS FOR INITIAL LAUNCH AND UPKEEP OF APPLICATION ONWARDS

Conclusion

DigiDetox is a mobile application that serves as a multi-functional tool to aid productivity and reduce screen dependency in a revolutionary and feasible way using the principles of Cognitive Behavioral Therapy (CBT) in a manner that surpasses previous limitations. As screen dependency is found to stem from aspects of social isolation, a fear of missing out, and a lack of incentive, *DigiDetox* has applied multiple fixes to these issues to better aid user motivation for the usage of the application.

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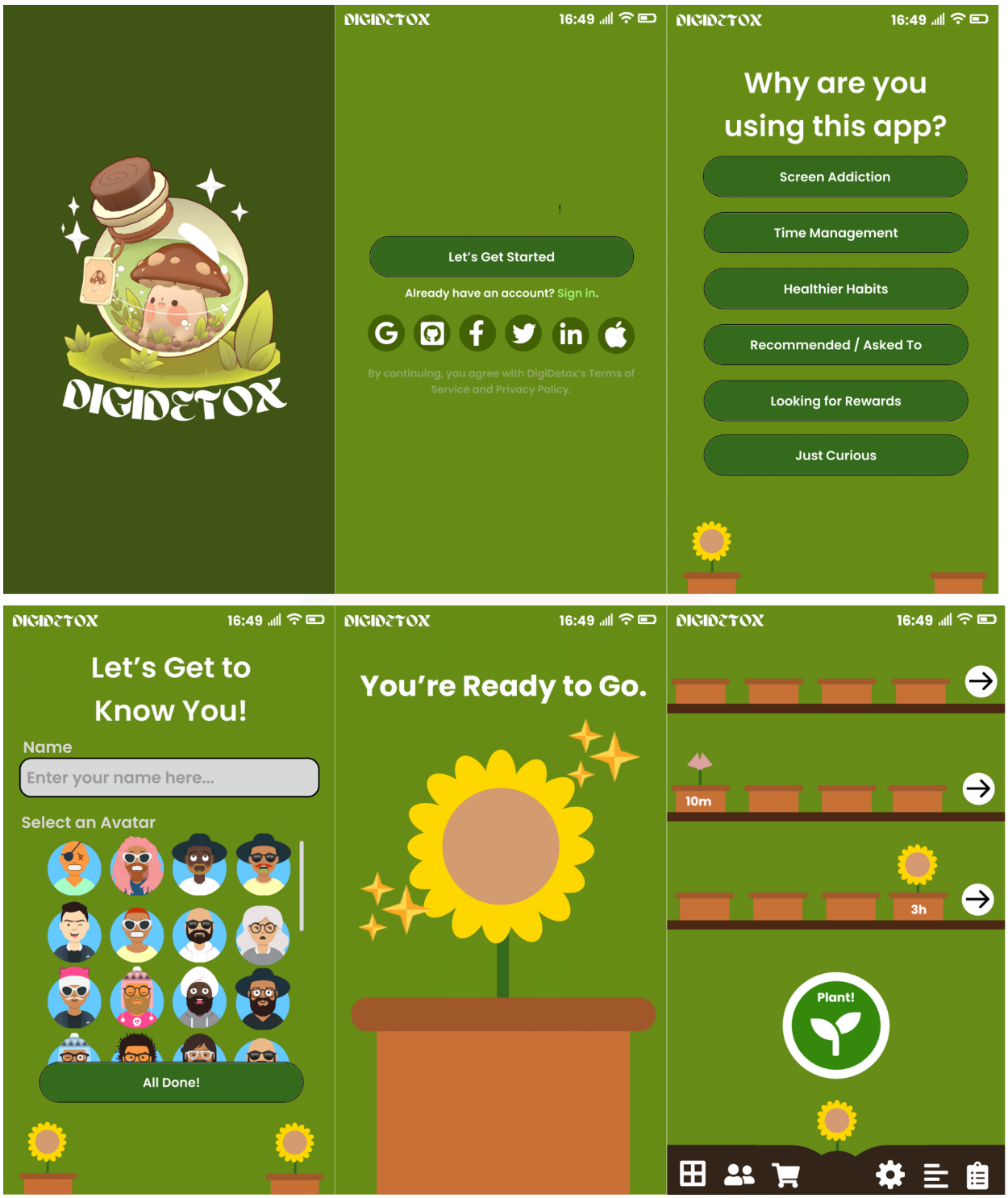
Appendix

Figma design for the *DigiDetox* mobile application
provided by Jason Matthew Suhari


DIGIDETOX
DIGIDETOX 16:49
Let's Get Started
Already have an account? Sign in.
By continuing, you agree with DigiDetox's Terms of Service and Privacy Policy.
DIGIDETOX 16:49
Why are you using this app?
Screen Addiction
Time Management
Healthier Habits
Recommended / Asked To
Looking for Rewards
Just Curious
DIGIDETOX 16:49
Let's Get to Know You!
Name
Enter your name here...
Select an Avatar
All Done!
DIGIDETOX 16:49
You're Ready to Go.
DIGIDETOX 16:49
10m
3h
Plant!


DIGIDETOX
16:49
App Manager
1. Allow the DigiDetox app to manage your app permissions.
DIGIDETOX
16:49
Your Friends
Jason Matthew
"Tending my garden!"
Sisca Parakeet
"Does anyone know who invented the telephone?"
Dumpster Diver
"If life gives you dumpsters..."
BeardBro
"When the bro is bearding, the beard is broing."
Tragic McTragicson
"I lost my eye in the war!"
Scan my QR!
DIGIDETOX
16:49
Shop
100
FastFood COUPON
SPECIALS - BOGO - $10 OFF
FLAT 10% OFF
ON CROMA ELECTRONICS
USE CODE: CRMADMIGSH
GROCERY COUPO
0 OFF
n GROCERY PURCHASES
GAME VOUCHER
DIGIDETOX
16:49
Settings
Limit app time to
30
m
Parental Lock
Disable coins
Allow time limit notification
Productivity survey
DIGIDETOX
16:49
Statistics
M
T
W
T
F
S
S
Time-Use This Week
Most-Used Apps:
DIGIDETOX
16:49
Quests
Spending Some Time Off
Spend the next 2 hours locked from your social media.
15
Hey There Neighbor!
Visit and leave a comment on a friend's garden.
30
Survey Time
Finish a productivity survey!
5
Plant A Plant
Plant a productivity plant for the next hour.
20


DIGIDETOX
16:49
Entry Survey
1. What tasks are you planning?
2. How long are you planning on making this session?
3. How are you feeling?
0 Happy 100
0 Angry 100
0 Bored 100
0 Tired 100
ENTER
DIGIDETOX
16:49
Exit Survey
1. What have you accomplished?
2. Are there any tasks you have yet to finish?
3. How are you feeling?
0 Happy 100
0 Angry 100
0 Bored 100
0 Tired 100
EXIT