eyeKon

CSC8608 Individual Portfolio
180308107

TEAM

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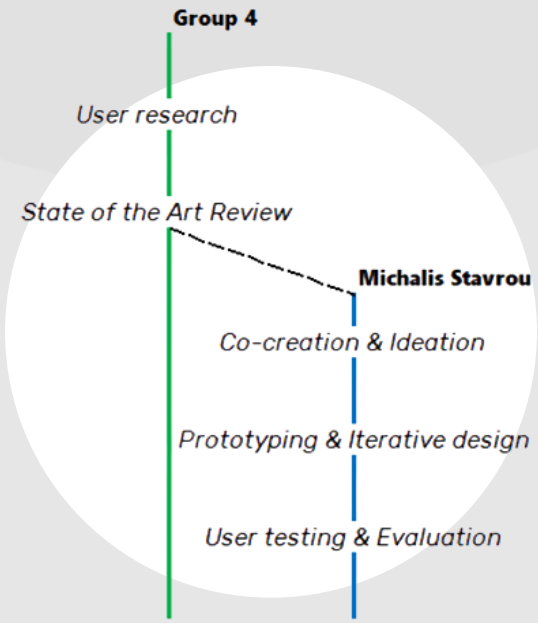
PLAN



CONTENTS

INTRODUCTION

The collective members were interested in the development of a near-future technological intervention that would **combat screen time usage by people** and **promote a healthier lifestyle**.

Such an intervention would be responsible for overseeing and moderating accordingly an individual's screen time, improving the overall experience by diminishing any issues deriving from extensive usage of technological devices.

USER RESEARCH

SECONDARY RESEARCH

The COVID-19 pandemic contributed to an increase in adoption rates of new technology, with an equivalent increase in screen time, with many developing eye related issues. [1]

Attention economy promotes competition in capturing the utmost attention from people. [2]

Screen time has increased by 30% from 2019 [3], with figures predicting that half of the population will necessitate glasses by year 2050. Today, 64% of the adult population uses glasses. [4,5]

USER RESEARCH

FIELD RESEARCH

A survey was conducted to better understand the desired user group, focusing on individuals devoting a considerable amount of time in front of a screen. The different approaches individuals take towards controlling screen time were explored.

PERSONA

DEMOGRAPHICS

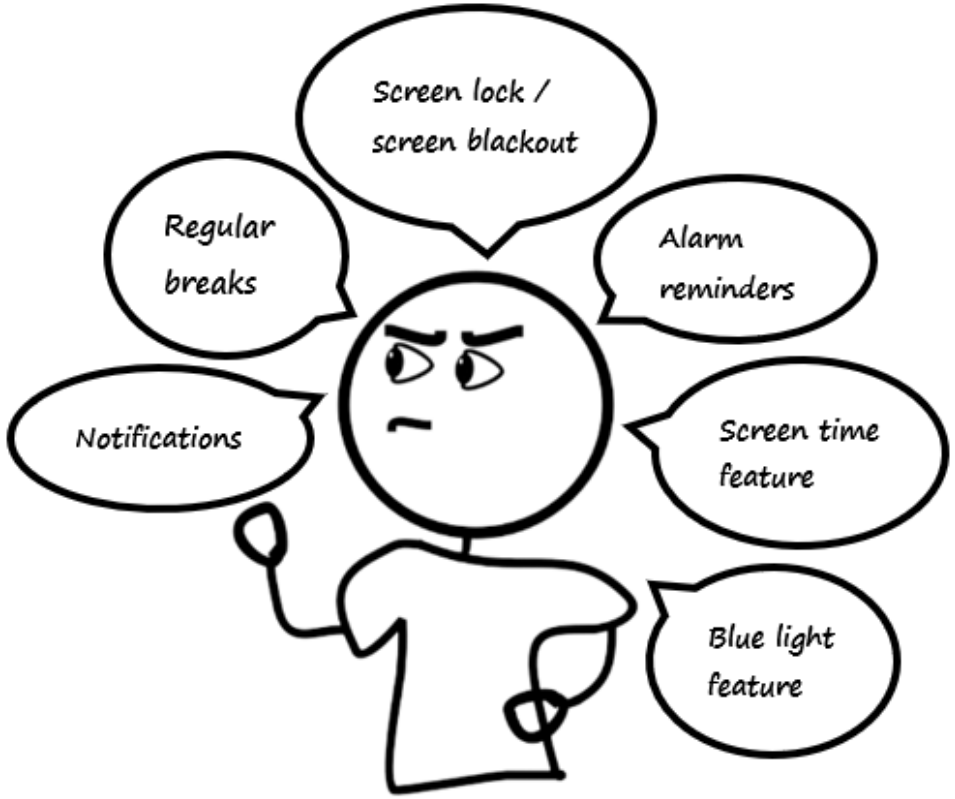
Jake Baker
24
Web Developer

DEVICE USAGE

10% 23% 67%

BACKGROUND *Jake is an individual that lives with his parents and fiancé in Waverly, a rural area in the UK, and is currently employed as a web developer in a big company. The majority of his day-to-day routine demands his presence in-front of a computer screen, and rarely hangs outside due to the intense schedule upheld. Subsequently, he has been recently feeling his eyes to be uncomfortable, often observed to be blurry which substantially influences his productivity whilst working. This has led Jake to attempt different ways to relief his eyes, but has been unsuccessfully.*

PARTICIPANT RESPONSES

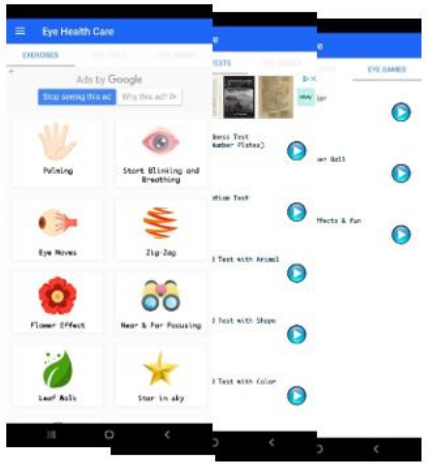


STATE OF ART REVIEW

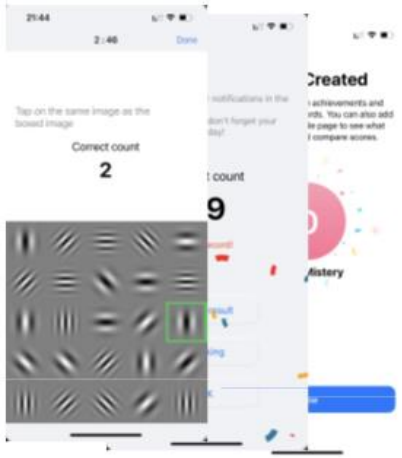
Existing applications in the space were explored and observed to incorporate at most two functionalities, offering hardly any incentive to extensively use them.

EYEYE EYESIGHT TRAINER

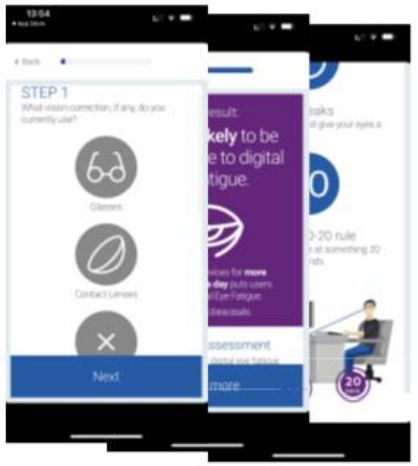
EYE HEALTH CARE



GABOR PATCH EYE TRAINING



DIGITAL EYE FATIGUE INDICATOR



Offer general advice and suggestions

Relaxation (eye relief)

Improving contrast, visual focus and sensitivity

Limited time usage

Limited functionality

Boring to use for extended period of time

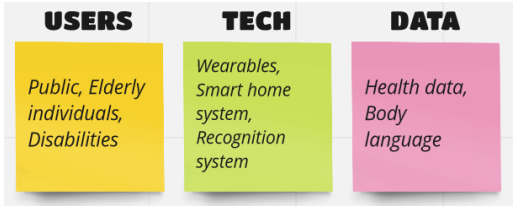
CO-CREATION AND IDEATION

IDEATION CARDS

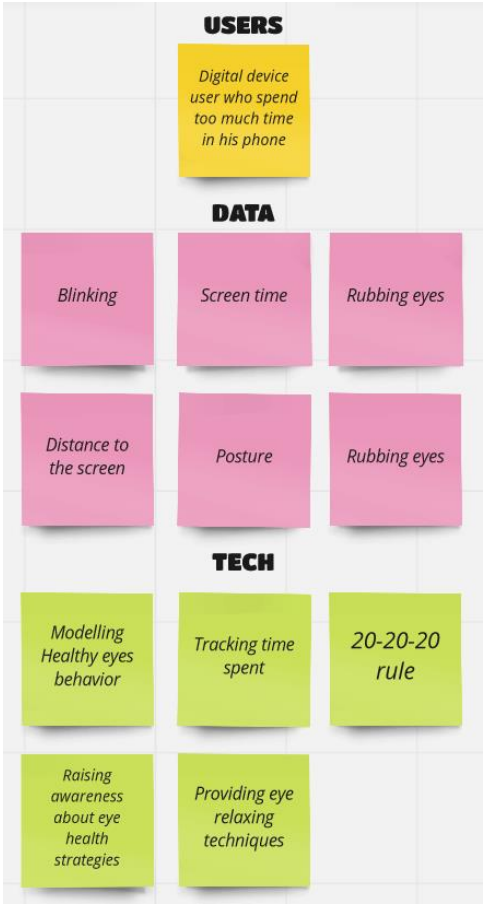
Employed the ideation card technique to break down the concept.

Revamped the initial team vision, seeking out means of encouraging engagement with the intervention.

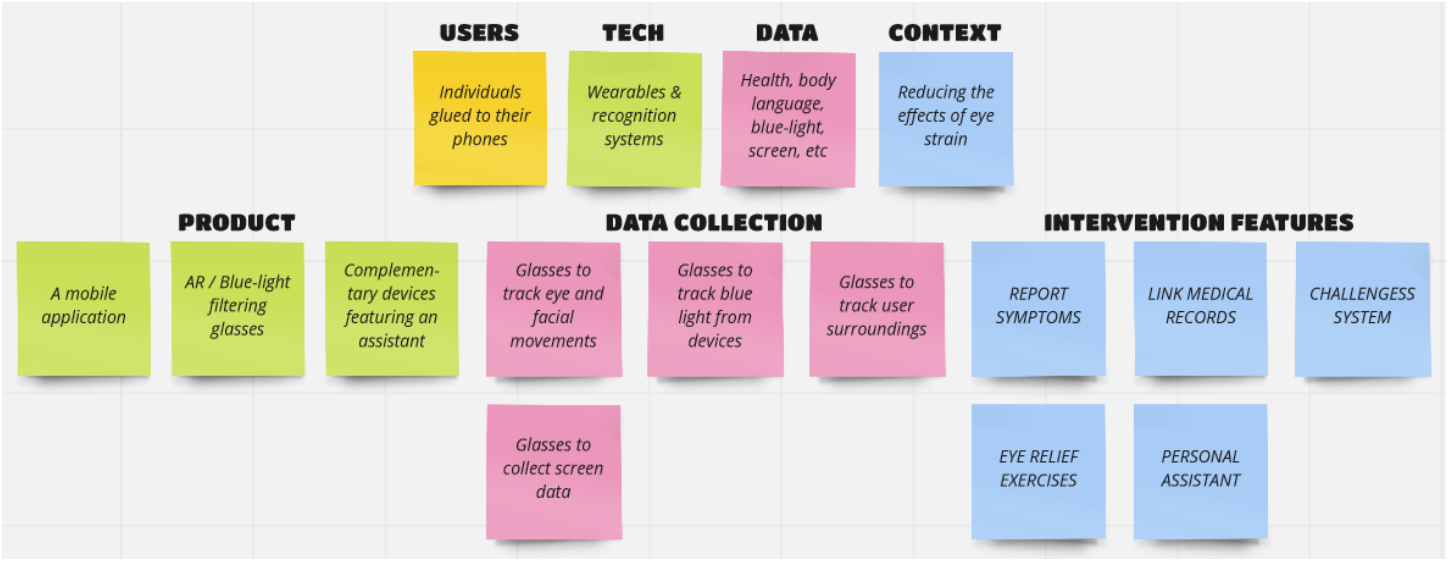
TEAM BRAINSTORMING I



TEAM BRAINSTORMING II



INDIVIDUAL BRAINSTORMING



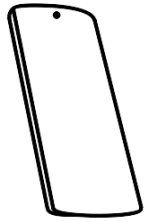
CO-CREATION AND IDEATION

CONCEPT SKETCHING

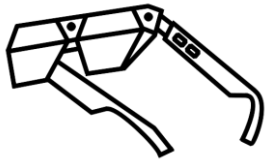
The intervention concept encompasses of composite components that operate independently.

To envision how these components communicate, the painting tool Krita was employed to synthesize a concept.

MOBILE APP



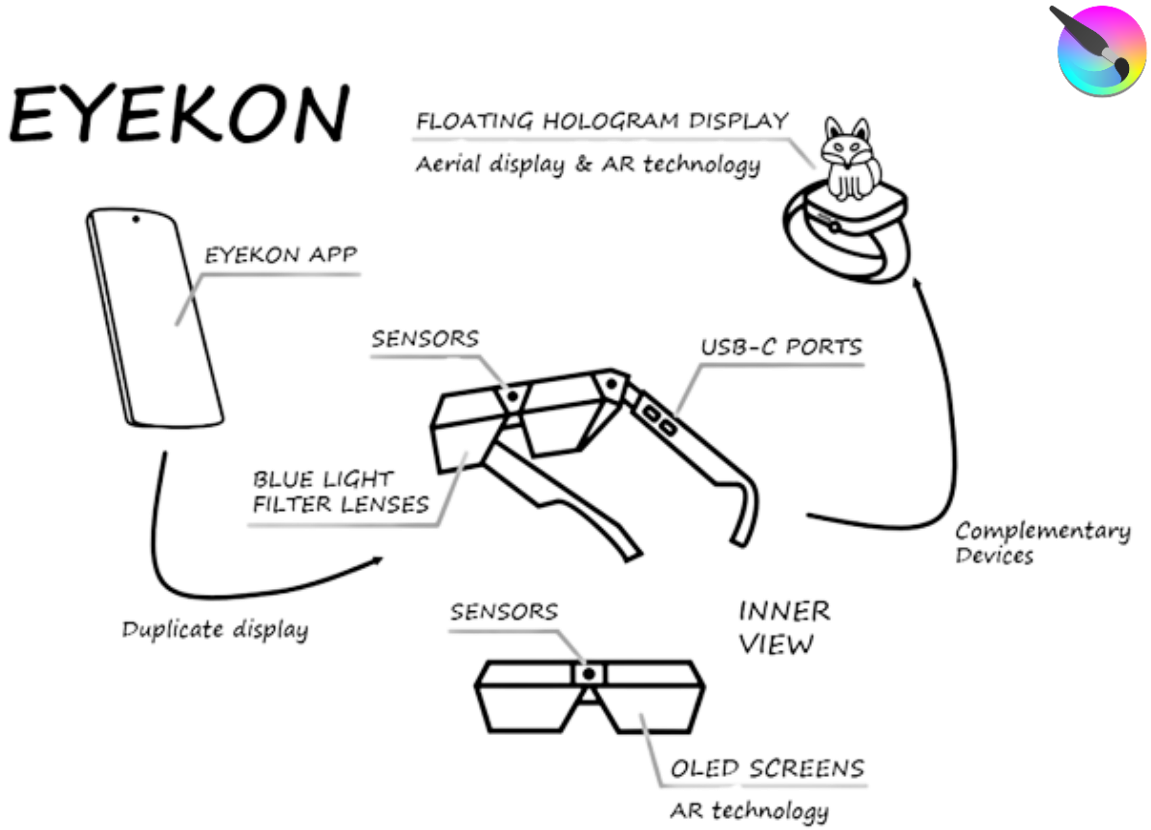
BL-AR GLASSES



REFERENCES

OTHER WEARABLES

CONCEPT SKETCH

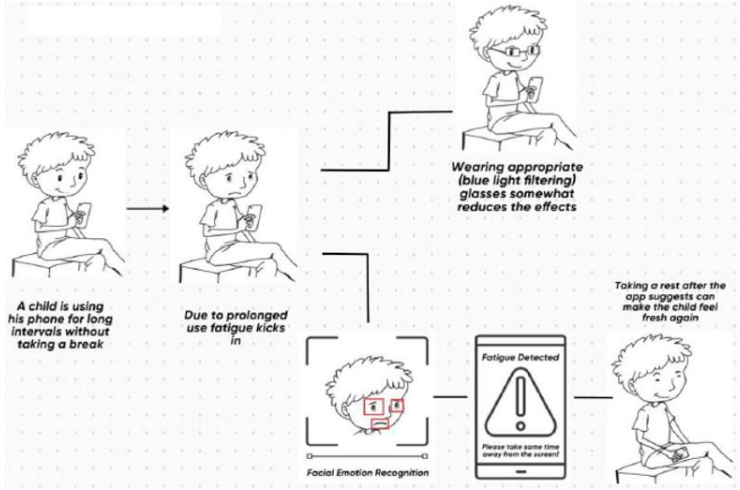


CO-CREATION AND IDEATION

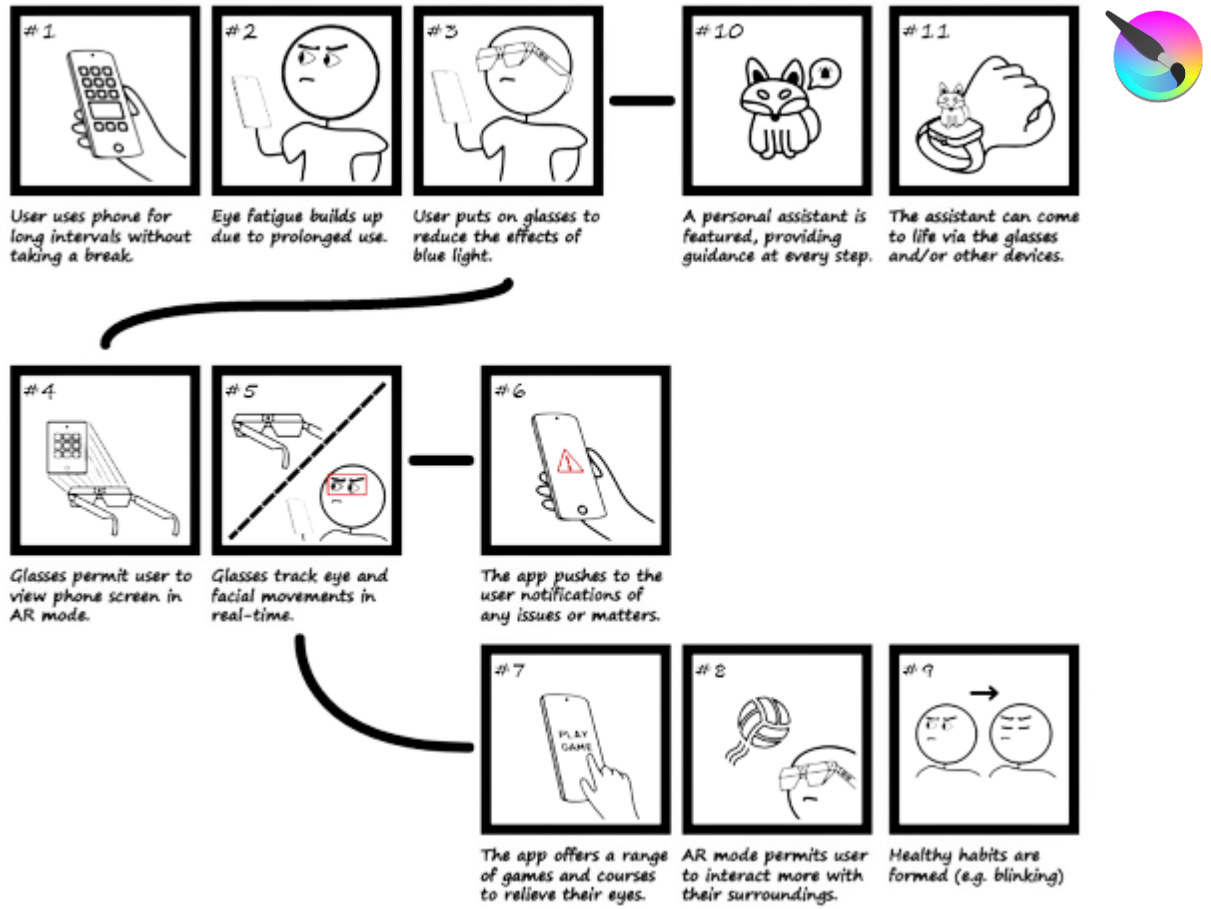
CONCEPT SKETCHING

A storyboard was also produced, to indicate further functionality, and how the intervention gathers, processes and yields data.

TEAM STORYBOARD



INDIVIDUAL STORYBOARD

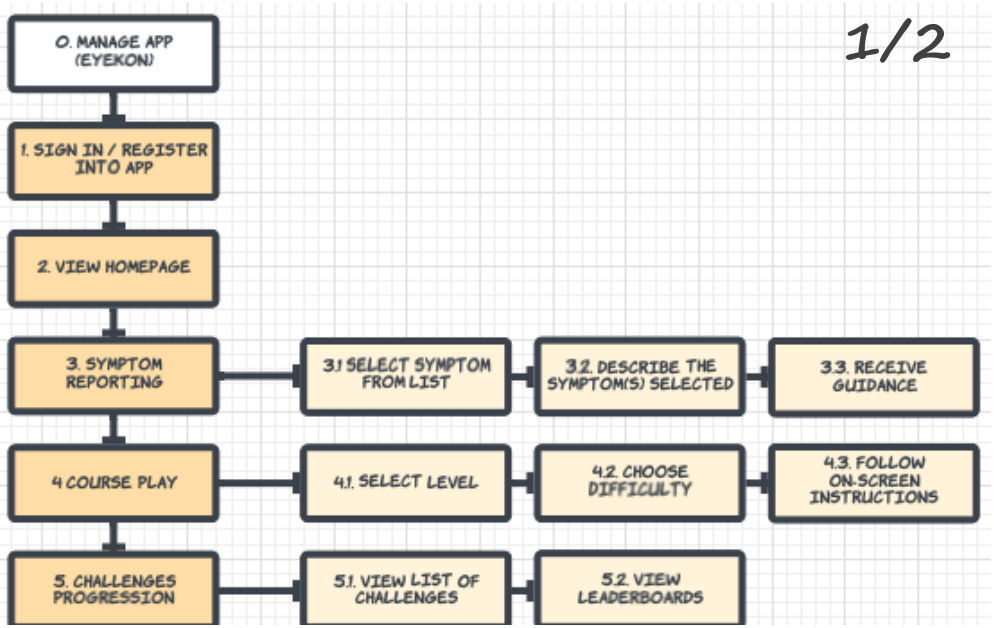


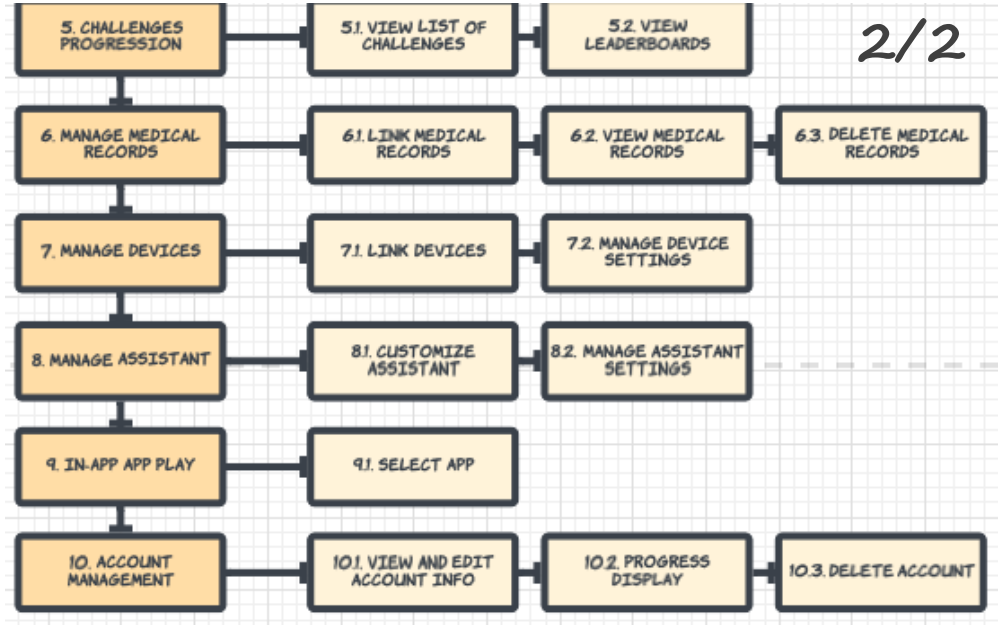
PROTOTYPING

PROTOTYPING APP

The artefact structure was mapped to permit comprehension of vital functionalities and features to be implemented. Only high-level operations were outlined.

HTA DIAGRAM





PROTOTYPING

CREATING ASSETS

An interactive high-fidelity artefact was decided to be produced using the prototype design tool Adobe Xd, due to previous familiarity and expertise. By passing subsequent development steps, the process would be sped to realize the requirements.

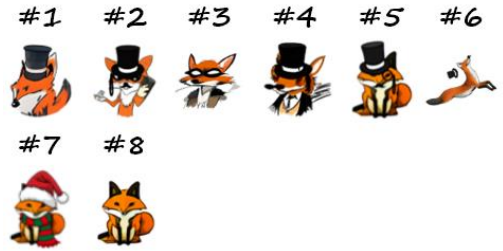
A sequence of online tools were employed, to generate the necessary assets for the artefact.

- **AI art generator tool. Available:** https://dream.ai/
- **Photo editor. Available:** https://www.befunky.com/
- **Stock images. Available:** https://www.vectorstock.com/

To develop a well-grounded and recognizable brand, emphasis was placed on developing a solid theme, as well as incorporating playful interactions, expanding upon the gamification aspect of the intervention.

LOGO

ASSISTANT



BACKGROUND

DEVICES

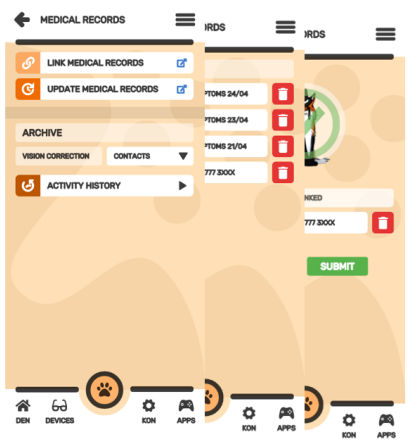
PROPS

PROTOTYPING

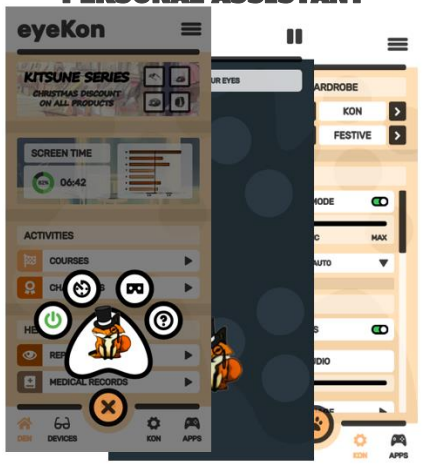
HIGH-FIDELITY PROTOTYPE

HOMEPAGE N' ACCOUNT

MEDICAL RECORDS

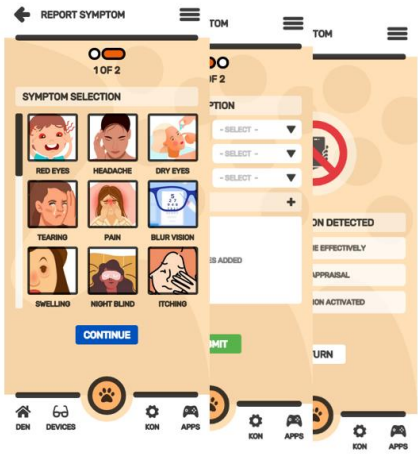


PERSONAL ASSISTANT

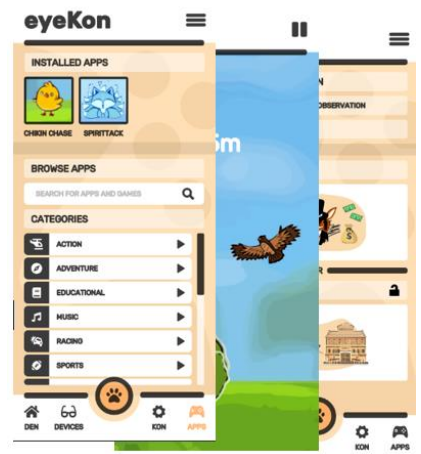


CHALLENGES SYSTEM

SYMPTOM REPORTING

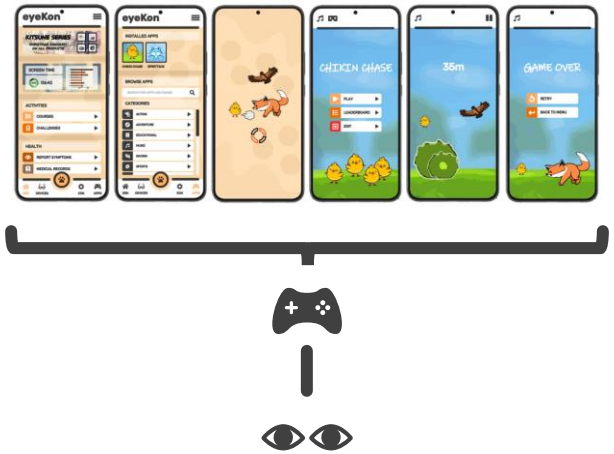


EYE-RELIEF EXERCISES



Artefact full access:
https://xd.adobe.com/view/74e45bdc-20ca-4053-9eb3-c39eeddd507a-21b7/?fullscreen&hints=off

The EyeKon application is designed to provision guidance and support for relieving eyes from prolonged screen time.



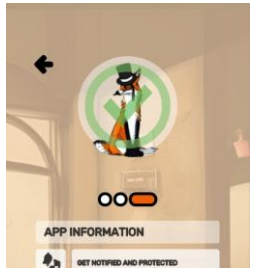
USER TESTING AND EVALUATION

EVALUATION PHASE I

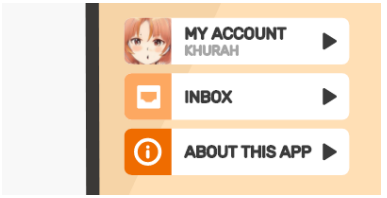
Conducted a heuristic evaluation, to identify and highlight potential issues relating to usability.

Due to urgency and unavailability of an expert, researcher participation was demanded.

ISSUE A



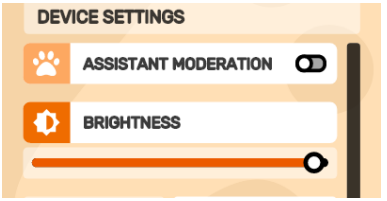
Confusion generated by clustering of options and elements



An **about this app button** was introduced to the side menu bar.

ISSUE B

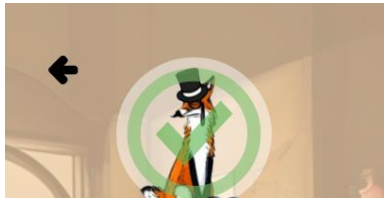
Cannot re-access app information



Additional space was added in-between options.

ISSUE C

Cannot traverse backwards



A **traversal button** was added was introduced.

USER TESTING AND EVALUATION

EVALUATION PHASE II

Conducted a cognitive walkthrough to assess the ease with which operations can be carried out by a new user.

A potential user was recruited and provisioned with the copy of the artefact to carry out a sequence of operations, recording the satisfaction level experienced.

SAMPLE TASK

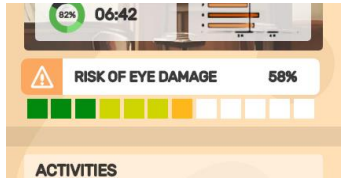
GOAL B3: Report an eye related issue – dry eyes

- Navigate to the homepage (if not already)
- Press the "REPORT SYMPTOMS" button
- Select the "DRY EYES" labelled image
- Press the "CONTINUE" button
- Fill in the symptom description fields
- Press the "SUBMIT" button
- Review the recommended suggestion

KEY FINDINGS

FEEDBACK 1

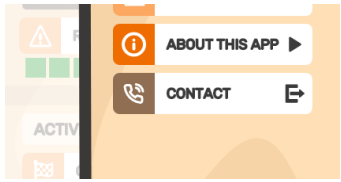
"Shouldn't the application display at all times to the user the likelihood an individual harming their eyes after constant device usage"



Integrated a **risk score bar** in the homepage.

FEEDBACK 2

"I cannot help but feel like there is a lack of relevant resources to inform and assist the user, rather than letting the application do all the work"

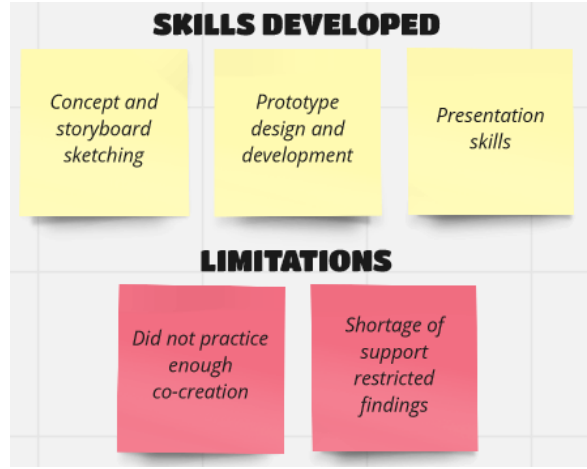


A contact (TeleHealth) button was introduced to the side menu bar.

CRITICAL REFLECTING

The familiarity and nature of the cooperative project enabled relatively great flexibility and solidity over the entirety of the process. Previous HCI background from my BSc Computer Science course, permitted me to immediately make suitable considerations and decide upon the tools, methods and structure to be employed.

Despite everything, the development of an innovate physical technology presented a challenge originating from my inexperience with the employment of a collection of digital tools to prototype new type of experiences.



Overall, I believe to have successfully enhanced my creative skillset, in addition to meeting the preliminary aim and vision declared for the project.

REFERENCES

1. Agarwal S., Bhartiya S., Mithal K., Shukla P., Dabas G. (2021). “Increase in ocular problems during COVID-19 pandemic in school going children- a survey based study”. National Library of Medicine. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7942070/

2. Kane L. (2019). “The Attention Economy”. Nielsen Norman Group. https://www.nngroup.com/articles/attention-economy/

3. Wakefield J. (2022). “People devote third of waking time to mobile apps”. BBC. https://www.bbc.co.uk/news/technology-59952557

4. (2023). “What percentage of the population wears glasses in the world?”. The Healthy Journal. https://www.thehealthyjournal.com/faq/what-percentage-of-the-population-wears-glasses-in-the-world

5. Agnew M. (2020). “Common Glasses Statistics”. Vision Magazine. https://blog.eyeglasses.com/vision-magazine/glasses-statistics/