

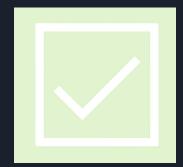
Lewis, Max, Michelle, Peik Xin, Thomas

Introduction

Problem: A majority of patients admitted to the hospital have acquired brain injury and this massively affects their cognitive abilities hindering their daily lives. The main effect brain injury has on patients is fatigue. Managing fatigue and improving the impact it has on daily life is difficult due to the unpredictable nature of it.

Solution: Develop a smart-phone app to aid patients the ability to gain a greater understanding of their fatigue levels and learn how to manage them. As a result this could improve the impact that fatigue has on their daily lives.

- Previously...
- Implemented the design from Figma
- Environment for app development; android studio, Git repo
- Results weren't collected yet
- Login page; integration with google and facebook
- Dashboard
- Testing Ethics
- Accomplishments
- Implementation of notification system
- Reaction time tests
- Integration with FitBit
- Dashboard, daily summary
- Testing the app.



User Surveys

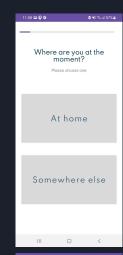
The user surveys are the backbone of our app's data collection. We designed them based on the structure given by our customer and aimed to implement a clean user interface/experience.

This was achieved by providing a dynamic system that wasn't just a series of buttons but provided sliders, a progress bar and a battery visualisation.

The survey results are collected by the app and stored within the app itself. This data is then passed over to the dashboard. Finishing the survey also sets up the next survey notification.







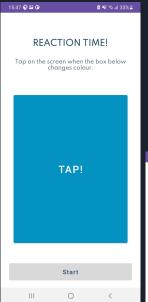


Reaction Time Tests

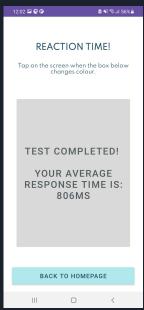
We implemented a 3 minute reaction time test that objectively measures the time it takes for the user to respond to a particular stimulus. Since fatigue from insufficient sleep adversely affects the vigilance and attention of a person, the reaction time test is able to capture that.

When participating in the reaction time test, users will be presented a stimulus every 2-10 seconds. We have chosen the stimulus to be a colour change. When this occurs, the user will tap on the screen and his/her response time will be displayed.

This will continue for 3 minutes, and the user average will be shown at the end and saved to the database.





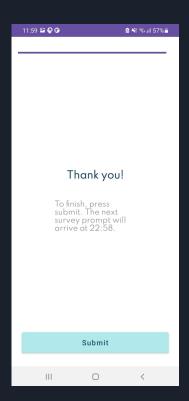


Notifications

We use regular notifications to alert the user to complete their brain fatigue surveys. These surveys build trends over time but that only works if they are done frequently and throughout the day. We use high-priority notifications that users cannot simply dismiss to grab their attention.

We also implemented an emergency notification system to detect intense volumes. This was designed to get impromptu brain fatigue results at the most exhausting part of their days.

We also use a notification alert the user to when their daily summary of results is available.



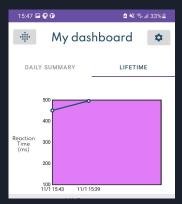
Dashboard

The <u>data dashboard</u> is a key area of the application as it allows users to review their responses to previously taken surveys.

It contains two tabs - one for the user's <u>daily</u> <u>summaries</u> and one for the user's <u>lifetime</u> data.

Each section contains <u>graphs</u> of the user's data over time, as well as a list of all <u>past responses</u>.







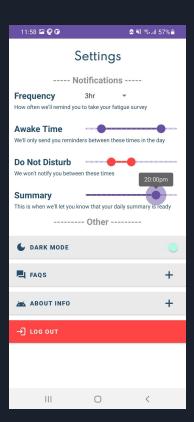
Fitbit Integration

Settings

The <u>settings page</u> was implemented in order to meet our goal of allowing the user to <u>customise</u> their experience with the application.

Crucially, the user has <u>control</u> over the alerts that they receive. This includes adjusting the <u>frequency of notifications</u> and the time windows in which they <u>can</u> and <u>can not</u> be sent alerts.

The settings page also includes the things that a user would expect to find, like an <u>FAQs</u> section and a <u>log out</u> button.



Login Page

User Feedback

Review of Project Objectives



Technical Objectives:

1. Daily summaries of survey data	
-----------------------------------	--

4. Implement user customisation

2. Implement a reaction time test

5. Make the UI and UX user-friendly

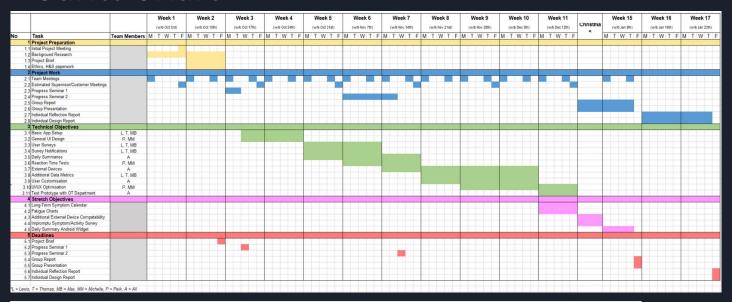
3. Data collection from external devices

6. Test a prototype of the app on OT students

Stretch Objectives:

- 1. Implement a long-term calendar
- 2. Implement charts for long-term trends
- 3. Further compatibility with external devices
- 4. Implement a survey for impromptu recordings
- 5. Create an Android widget to display data

Gantt Chart



			Week 1 Week 2		Т	Week 3			Week 4			Week 5			Week 6			Week 7			leek 8	\neg	Week 9			Week 10			Week 1	1		П	Week 1	15		
			(w /b Oct 3rd)		(w/b Oct 10th)			(w/b Oct 17th)		(w/b Oct 24th)			(w/b Oct 31st)			(w/b Nov 7th)			(w/b Nov 14th)			(w/b Nov 21st)			(w/b Nov 28th)			(w/b Dec 5th)			(w/b Dec 12th)		Christmas		(w/b Jan 96	(m)
			70710000					М							A CONTROLLEY		MTWTE					E M						MTWTE		Omisanas		MTWT				
No	Task Technical Objectives	Team Members	MIWI	F 0	M I	W	F M	I W	I F	M	T W	I F	M I	W	1 1	M 7	TWT	F	M I	W	+ 1	M I	W T	F M	I W	1 1	M	M.	l F	М	I W	l F		M	1 W	1 1
				-	_		-		_	-	_	_		_	_		_		_	_		_		-	_	_	-	_	_		_	_				
	Basic App Setup	A		_																																
	General UI Design	A																																		
	User Surveys	T, MM, P																																		
	Survey Notifications	T																																		
3.5	Daily Summaries	L, T																																		
3.6	Reaction Time Tests	MM, P																																		
	External Devices	MB																																		
	Additional Data Metrics	A																																		
	User Customisation	L																																		
	UVUX Optimisation	A																																		
	Test Prototype with OT Department																																			
4	Stretch Objectives																																			
	Long-Term Symptom Calendar	L																																		
	Fatigue Charts	L, MB																																		
	Additional External Device Compatability																																			
4.4	Impromptu Symptom/Activity Survey																																			
4.5	Daily Summary Android Widget																																			
"L = Lewis,	T = Thomas, MB = Max, MM = Michelle, P = Peik,	A = All																																		+

Conclusion

- Met all the technical objectives except for testing with the OT department
 - improved UI design, reaction time test
 - login options with Google/Facebook
 - dashboard as a form of feedback to users
 - settings page; more robust notification system; caters to an individual's daily routines
 - integration of data from FitBit
 - user feedback from students

- Future ideas/work
 - -surveys to provide accessibility support
 - -reaction test customisation
 - -extending integration with external devices
 - -stretch objectives; android widgets, display long-term fatigue progress and trends



References / Video / :)