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MyMemory

Custom Assistive Application for Alzheimer's Patients

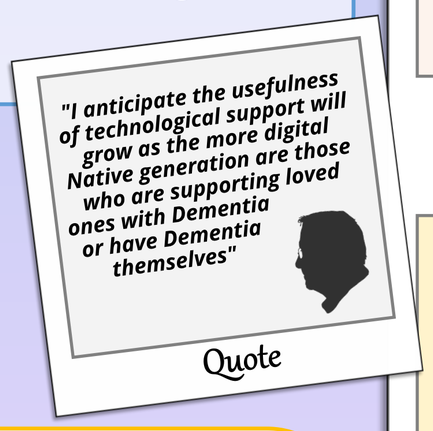
Aim: To explore how technology can assist Alzheimer's disease patients and how personal applications can assist in reminiscence

1. The Problem

In the UK, 850,000 people suffer from Dementia – 60% of cases being from Alzheimer's Disease, this includes 1 in 6 people over the age of 80.

As well as 1 in 3 people being affected as a close family member or carer for someone with Dementia, which will become an increasing issue in the UK and many developed countries due to an ageing population *[1].*

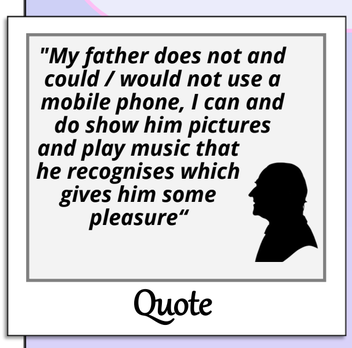
Most current existing technologies are aimed at assisting the physical symptoms of ageing and Alzheimer's. There are limited digital applications and existing applications are often broad and impersonal to individuals, so the large and increasing market will require new technologies to assist and help our loved ones stay independent for longer.



2. The Objectives

Objectives:

1. Research some of the current methods and existing technologies for AD and the elderly.
2. Develop some ideas for an application's functionality and methods to assist AD with their memory and reminiscence.
3. Reach out to relevant organisations and people with experience with AD on what they think helps them and what they would like to see.
4. Design and develop a prototype for the application with core functionality that allows users to have personalisation and progress checking.
5. Explore the ethics on collecting data and technology's usage for research through existing case studies and views.



3. The Research

I have taken a HCI approach to working with the intended users through carers and family of Alzheimer's patients to gather their views on what they believe helps them, what they would like to see, and opinions on possible functionality for an application aimed at assisting with Alzheimer's.

This research has allowed me to create user personas and stories that I have continuously used throughout the development of my application, including the designs and core functionality of the app.

In addition to looking at traditional methods and existing technologies used to assist patients, I will be attempting to build on past research in this area, and consider design rules such as Nielson's Heuristics and standards for an elderly target audience.

Dissertation Survey Results
St James' Over 50s Club

Completed by 14 Carers & Family of People with Alzheimer's

General Opinions on Current & Future Technology

- **50% Positive** — Helpful / Exciting / Enjoyable / Useful
- **14% Negative** — Confusing / Frightening / Uninterested
- **36% No Opinion**

Technology Used to Assist with Alzheimer's

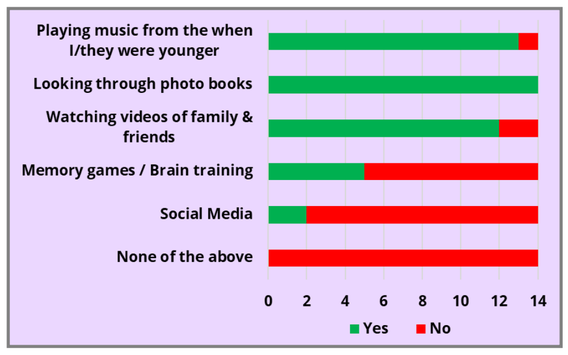
From the 10 technologies listed, people had used:

Number of Products	People
None	4
1	3
2	1
3	2
4	3
5	1

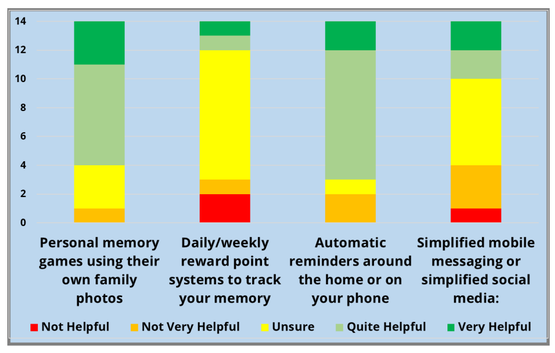
Most Popular
Mobile / Tablet Apps
Healthcare Websites
Dated Pill boxes / Dispensers

Least Popular
Voice Assistants
Smart Home Tech
Telecare Systems

Which of the following methods do you think are helpful?



How helpful do you think the following ideas could be?



4. The Application

From my research and survey results, I designed an application that is personal to users by using their own photos to build a gallery of memories including their family, friends, life events, and places important to them to assist reminiscence.

An input form is used to upload photos and information, which is then converted to be displayed in a natural, readable format. These personal photos can then be used in optional memory games to remember the correct relation, name, and other personal information.

I used the React-Native JavaScript framework to develop the app and Firebase' real-time database to store the user's data and locations of their photos.

5. Future Development

- Additional settings to customise interface (font and icon size, colours, and more)
- Account creation for secure data-access and offline availability
- Ability to chose what information to be tested on, with difficulty levels (e.g. multi-choice vs typed and relaxed vs timed)
- Family/Friend accounts with permissions to add entries to a user's account from their phone
- Facial tagging so photos of multiple people are identifiable
- Allow photos to be enlarged on touch and ability to crop to fit views

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Application Screenshots

[1] 2019. Alzheimer's Society Facts for the media. *[ONLINE] Available at: https://www.alzheimers.org.uk/about-us/news-and-media/facts-media*