Research.

# Interface:

When considering UI designs the group took particular care when considering font, size, location and accessibility. When considering the functionality of the app it is better to keep the interface as simple as possible, even if this means lowering functionality. There is no point having loads of functionality and a busy interface if only a few buttons are ever used.

Back button is a good idea especially if it does exactly as you expect.

Set Up of the App:

Having a personalisability feature is very important. This includes at first the size of buttons but more importantly how long the app ‘listens’ to a press, how it judges accidental pushes and how long it waits for a double click. Given the wide variation in the older generation and the possibilities for physical limitations it is likely that a large number of people using the app would not ‘click’ touchscreen displays as a younger person would. If a user has a tremor for example it is important that a longer press is needed to activate a button. For most users this would slow the experience too much to be enjoyable but given that with a tremor on a normal app the likelihood of mistaken presses is high having the button take longer to register a press means less mistakes will be made leading to a better user experience. (Culen & Bratteteig, 2013)

During first use of the app it’s a good idea to add a ‘WelcomeWizard’ highlighting which buttons can be pressed and what they do. This enables older users to engage confidently with the app. Alternatively a help button which is constantly available on every page is also useful as it enable users to confidently find somewhere to touch base. Exploration is a common part of younger persons’ use of apps however older users often avoid exploration for fear of breaking the app.

Colouring:

Use weaker colours throughout. The need for advertising will be handled through the USPs rather than through garish colours which are common to the app market. Weaker background colours make text easier to read and for buttons to be highlighted. (Isakovic, Sedlar, Volk & Bester, 2016)

# Energy Use:

When it comes to energy saving it can be difficult to save energy cheaply. Most tips and tricks can only take someone so far. Often issues are rooted in the building such as a lack of insulation that can be very expensive to fix. Rather than giving out tips such as this which may cause stress to the user if they are unable to fix these problems or unaware if the issue is one they have the app will focus on fixes which they can do in a short space of time.

A good example is the use of windows. A smart home could monitor if windows are open or closed. Advising the user on closing them if using the heating or closing the curtains if the outside weather is hot (this helps stop rooms from overheating).

Turning appliances off at the wall stop ‘phantom energy’ waste. However, if the user is unable to easily bend down it may be better to avoid such a tip for use every time. The app could be built to monitor use of appliances over much longer periods of time. In this way it could recommend to users which appliances to turn off at the plug that they rarely use.

Smart thermostats are easy to install and common in smart homes. It is likely our user would have one. Enabiling them to use the heaters efficiently, only turning them off when they would be home – warm only the rooms you are using

Tips and Tricks (switch to LED lights, Wash at lower temperatures, Buy more efficient products)

Recycle

# Exercise:

The NHS recommends that older adults (65+) partake in two different types of activity every week. Strengthening and aerobic exercises. There are four key guidelines specifically for older adults provided by the NHS. These are older adults should take part in a multi-component physical activity (including balance, aerobic and muscle-strengthening activities), they should carry out exercises relative to their fitness level, those with chronic conditions must seek understanding of how their conditions effect physical activity and when not possible to do the suggested amount of exercise due to health conditions, older adults should do as much as they can (pg68).

Brisk walking is a commonly thought of form of aerobic exercise but given the movement limitations found in the personas used during this design process a different kind of exercise had to be found.

The group discussed the possibility of Tai Chi. Originally developed as a martial art in 13th century China it is now practiced around the world for its health benefits (NHS a guide to tai chi <https://www.nhs.uk/live-well/exercise/guide-to-tai-chi/> ). There is evidence that practicing Tai Chi can help older adults to reduce stress (Sandlund & Norlander, 2000), improve posture and balance leading to lower risk of falls (Lomas-Vega, Obrero-Gaitan, Molina-Ortega & Del-Pino-Casado, 2017). Most importantly for those with mobility issues or who are unable to stand Tai Chi can also be practiced sitting down, bring about much the same health benefits as when done standing up (<https://dailycaring.com/seated-tai-chi-for-seniors-3-simple-routines-improve-flexibility-and-well-being-video/> ). Most importantly, Tai Chi completes one of the NHS key guidelines of a multi-component activity.

Due to these varied benefits and the ability to tailor the exercise to varying levels of mobility it was selected to be included in the app.

For strengthening exercises there are various options for those with mobility issues such as the seated row, seated tummy twist, overhead arm raises, hand squeezes, inner thigh squeeze, knee lifts, and knee extensions. These exercises

# Medicine:

The NHS uses blister packs when clients are on prescription medication. This approach works very well

often comes in blister packs when a

# Cosmo:

The developer guidelines made clear that Cosmo was deaf so voice commands were out of the question. It was decided to integrate the functionality through the app. Allowing the user to create buttons through which they could ask Cosmo to fetch items around the house. Due to the robots’ small size and limited movement capabilities these items will be restricted to small items on the same surface as Cosmo. Such as TV remotes, place mats, mobile phones and the like.

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Isakovic, M., Sedlar, U., Volk, M. & Bester, J. (2016) Usability Pitfalls of Diabetes mHealth Apps for the Elderly. *Journal of Diabetes Research 9.* https://doi.org/10.1155/2016/1604609

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