OnTrack

Introduction

The goal of this project was to develop an interactive system that monitors, encourages, analyses and supports population health in relation to the current COVID-19 pandemic. OnTrack is a web application that is used to improve public knowledge of COVID-19 in the user's local area. It is an interactive website, which allows users to book appointments with their GP as well as view upcoming and previous appointments. When booking, users can make use of our speech to text functionality, which helps to increase the accessibility of the website, especially for users who experience difficulty when using keyboards or other types of input devices. The website also allows you to attend GP appointments virtually using the built-in Zoom and Skype functions. Finally, using the postcode search feature, users can find the most recent information about local restrictions in their area.

Design Concept

OnTrack is extremely valuable during the current pandemic, as it allows those who are vulnerable or isolating to attend their routine appointments with their GP via Zoom and Skype. In the current climate, GP appointments are hard to come by, so, by using our website, the user is able to view all availability and book their appointments in advance. Also, with the continuous changes to current coronavirus restrictions, OnTrack helps the user keep up to date with the latest restrictions in their area, as well as check the restrictions in other areas if they need to travel.

Design Process

As a team, we decided one of the best ways to begin designing the website was to look at the type of users that are likely to benefit from an app of this nature through user personas (figure 1).

Having the user persona information collated in a visually consistent way allows for easier comparison between the personas, letting us see how different, or similar, they are to each other. Starting from the user personas, rather than developing them later on in the process gives group members something to refer to when making design or implementation decisions, always tying important decisions back to the potential users of the app. We designed three user personas, all from a range of different backgrounds, to give the most diverse network of people who we believe would be the main users of OnTrack.

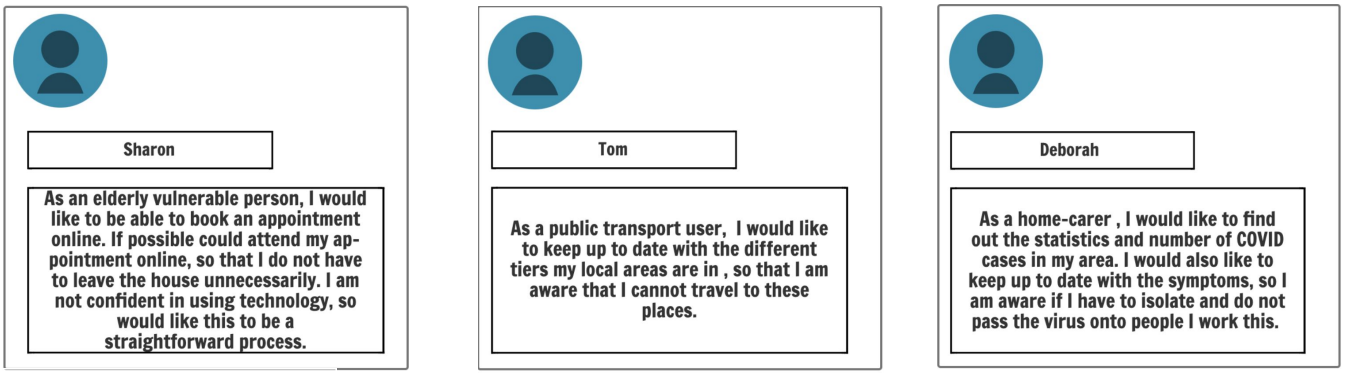

Figure 1 – User personas.

Following on from the user personas, we came up with three different ideas for the website, each with different functionality so that the user can have the best user journey possible. After discussing among the team, we narrowed the ideas down to two and from this, we created wireframes (figures 2, 3 and 4). After the completion of the wireframes, we began to ask family members and work colleagues about the ideas to help us get a better understanding of who our target audience would be and what type of features they would most likely use on a website such as OnTrack. Due to current restrictions in our own areas, we were unable to ask fellow students, so, we decided it would be best to ask our household members and work colleagues to complete think-aloud evaluation using the wireframes we had created.

Figure 2 – Wireframes for idea 1.

This idea allows us to collate patient's appointments across all districts and services so that users can log into their account and check upcoming appointments, available space and also book appointments.

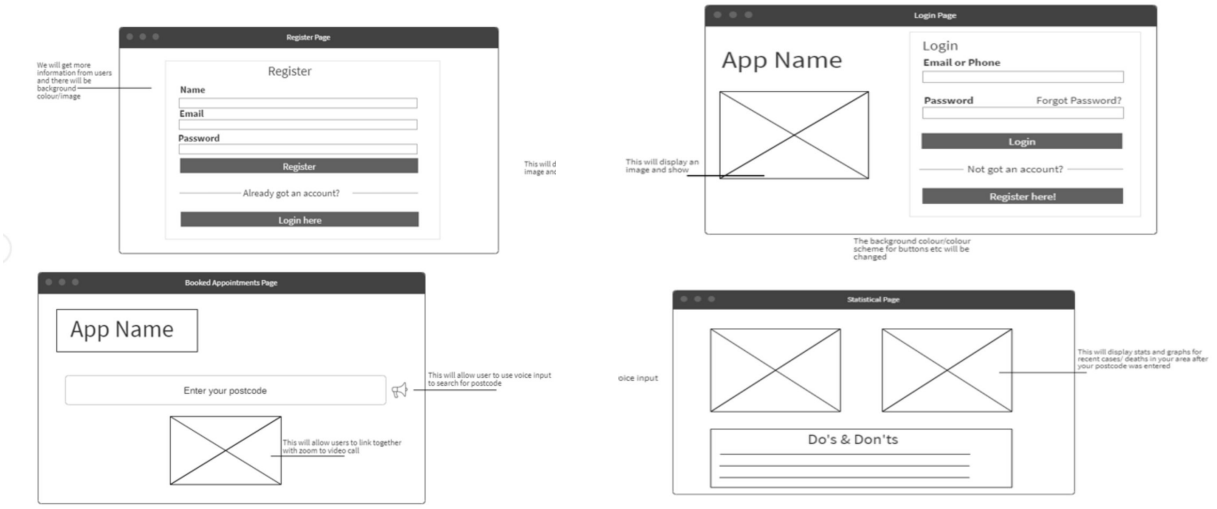

Figure 3 – Wireframes for idea 2.

A website where users can log in, enter their postcode and view local COVID-19 restrictions/do's & don'ts in their area as well as being able to view trends of cases/deaths in their area.

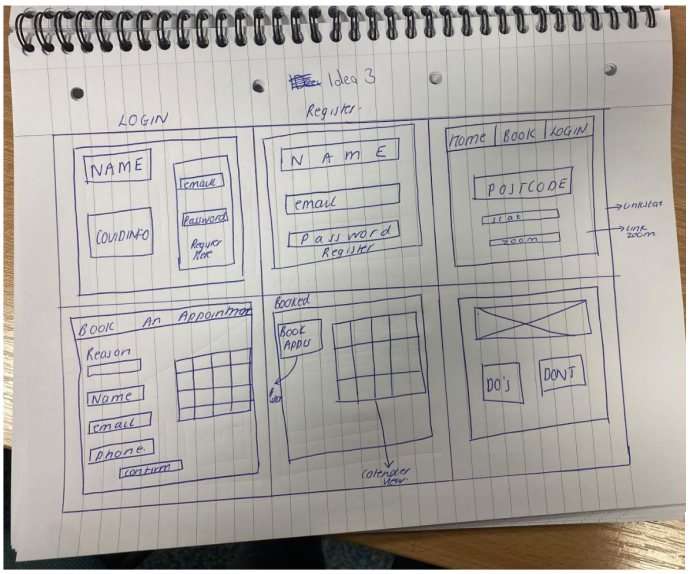

Figure 4 – Wireframes for idea 3.

A website where users can log in, enter their postcode and view local COVID-19 restrictions/do's & don'ts in their area as well as being able to view trends of cases/deaths in their area. Users can also log into their account and check upcoming appointments and book appointments as well as attend virtual appointments through Zoom or Skype.

Implementation

As a group, we decided to implement our website using Python, Django, HTML, CSS and JavaScript as we were all familiar with these and felt as though it was not feasible to learn a new language and produce a high-quality website in the short time available.

To start with, we thought it would be best to design this as a web application using the Django framework as it is a rapid application development system which we are all familiar with. Starting from the very basics of Django, we used the Django documentation to create a singular webpage that allows users to register and log in. Once we had this section working, we looked back at previous assignments where we used Django and we managed to add more web pages using the model-view-controller pattern.

Once we had created all the required pages and mapped them to the correct model using the Django URL resolver library, we were able to start working on the layout of each of the web pages. Using the wireframes as a guide, we managed to implement much of the functionality fairly quickly. However, as it had been a while since we used HTML/CSS, this part took longer than expected as we had to relearn a lot of the syntax for CSS. After overcoming this hurdle, we quickly realised that the background colours and layout we initially had in the wireframes did not seem professional enough for a public health website. So, once we had implemented all the functionality for each of the pages, we decided to use the base template to change the background colour and style to create a more professional look for the website.

Due to time constraints and other factors, we were not able to implement all the functionality that we would have liked. For example, the Zoom and Skype buttons do not function as we would expect, but instead, they are just there as a placeholder on the website to demonstrate how we would embed this in the website. This was also not implemented as we were unable to create a Zoom developer account as one of the requirements is that you must have Zoom Professional or Zoom Enterprise to be able to become a developer. However, not having the functionality of being able to Zoom or Skype your GP would have taken away from the user interaction and experience, so, we thought it was best to implement the buttons to show the functionality rather than taking this feature away completely.

Evaluation

Due to current coronavirus restrictions, we were unable to speak to other people who are in the course and test out our prototypes. As a team, we decided to come up with the idea of a Google Form Survey to ask for feedback on the website we had created. We created a walkthrough of OnTrack (figure 5), hosted it on YouTube and linked it at the top of the survey (figure 6). This let the respondents view the website for themselves whilst also being shown its capabilities and experience the customer journey virtually.

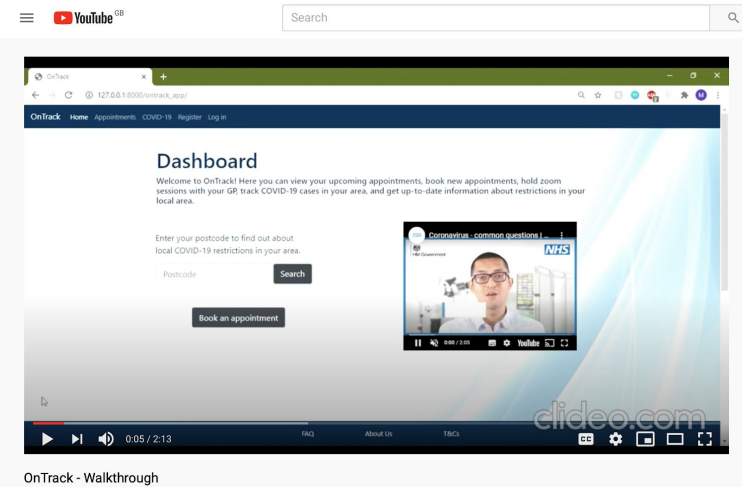

Figure 5 – Screenshot of walkthough.

Originally, we had planned to allow respondents to download this from GitHub but as the project requires the installation of Django and Python, we quickly realised that this may be too confusing for our family and work colleagues as none of them have a computing background. By having the walkthrough, it meant that all of the respondents got the same initial user experience of the website. Providing the walkthrough rather than GitHub details also limited the bias of the survey results, because if someone found the process of getting the website on their machine difficult, then they may have put this in their evaluation as “How easy did you find the OnTrack website to use?”. This would have told us the actual OnTrack website was hard to use when it may have not been.

In our survey, we used both open and closed ended questions within the Form. The closed ended questions allowed us to ensure that the data collected was easily comparable

between respondents. The use of open ended questions gives the participants an opportunity to tell us their true opinion about the website, without limiting or influencing them with predefined answers.

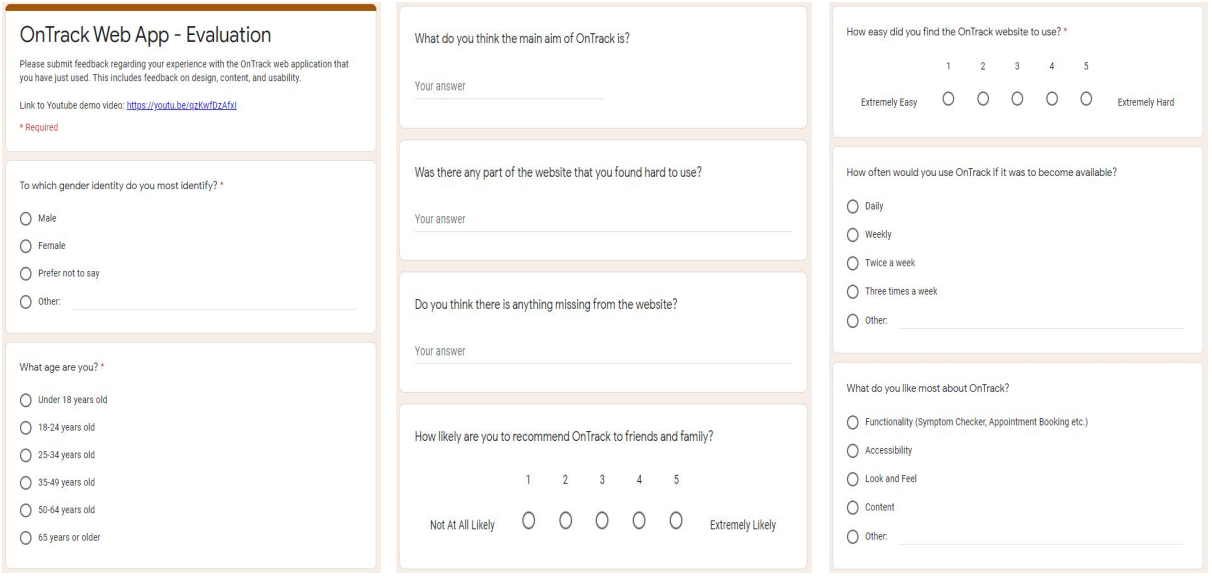

Figure 6 – Screenshots of the user evaluation survey.

The feedback showed that over 90% said that the OnTrack website was easy or extremely easy to use (figure 7). This was great to know as we tried to make the website as user friendly as possible to ensure everyone can use it as we feel it is an extremely beneficial tool to have during the current pandemic.

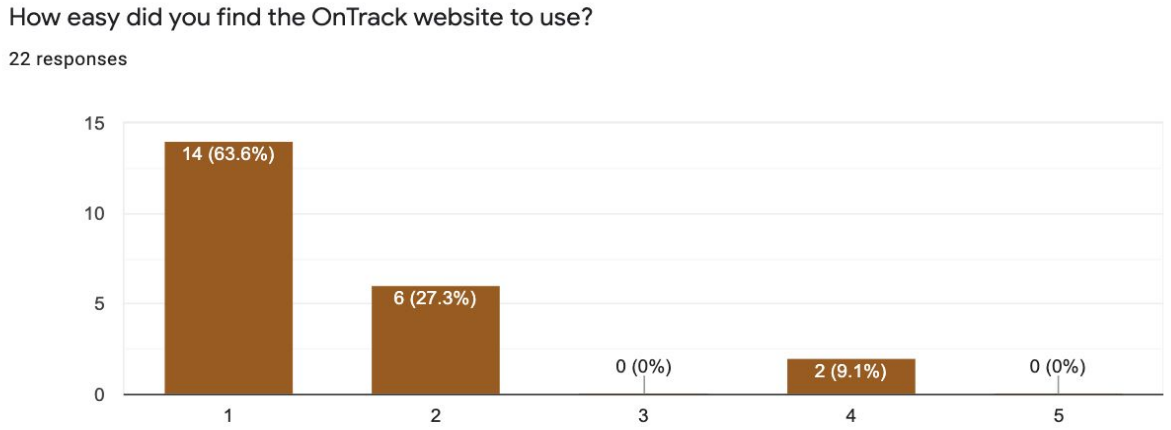

Figure 7 – Results from the question "How easy did you find the OnTrack website to use?" in the user evaluation survey.

We also found that people liked the speech to text function (figure 8) that can be used to write a message to their GP when booking an appointment, especially those who were older and may not be able to use input devices as well as other users. We were extremely glad to know that our website is easy to use and accessible to those who may have additional needs.

The users also seemed to really like the postcode functionality, where they could look up and check the COVID-19 cases and restrictions in their area (figure 8).

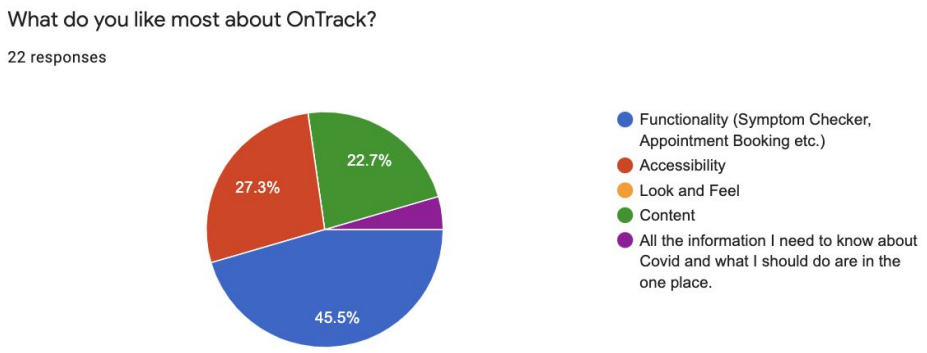

Figure 8 – Results from the question "What do you like most about OnTrack?" in the user evaluation survey.

Our results also showed that a large percentage (41%) of the respondents were in the age category 18-24 (figure 9). If we had more time to work on this project, we would try to vary the subject group more to help improve the evaluation and analysis.

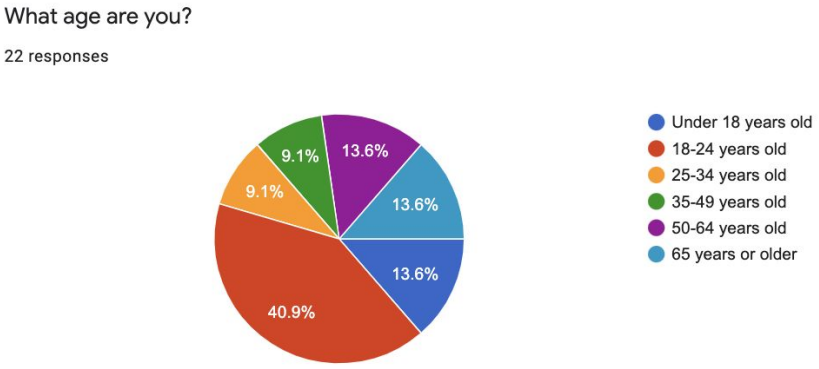

Figure 9 – Results from the question "What age are you?" in the user evaluation survey.

Conclusion

In conclusion, OnTrack is an interactive system that monitors, encourages, analyses and supports population health in relation to the current COVID-19 pandemic. It provides several types of user interaction including speech to text functionality for users to provide a message to send to their GP when they book an appointment as well as viewing their previous and future appointments, attend appointments virtually via Zoom or Skype, check restrictions and view graphs showing trends of coronavirus cases in their area using their postcode.

In the future, we would want to implement features that we were not able to implement due to the time constraints. In the case of the Zoom SDK, we would like to implement the full functionality of this, with on-screen pop-ups instead of only having to include the buttons. This would increase the functionality and accessibility of our website as it means we would appeal to a larger market and the customer journey would be improved.

One of the other additional features we would like to implement is allowing users to login with their CHI number. This would make the GP's life easier to identify and monitor exactly who is booked in for an appointment as the NHS already uses this to identify people on their health records. Also, this number is available on documents patients receive from the NHS meaning that users who may find it harder to remember multiple usernames should always have access to a letter with their CHI number on it. In addition to this, we would like to allow GP surgeries to have admin accounts so they too can book appointments for patients which would then be displayed in that patient's account. The admin accounts could also let surgeries view and delete their patients' appointments so they would have an overview of all appointments on the website.

In closing, we believe that our website, OnTrack, is invaluable during the uncertain times we currently find ourselves in. That may be for use of the postcode finder so that users who are not able to work from home can find out more information about restrictions in places where they have to travel for work. Or, it could be used by an elderly and vulnerable person who is not able to attend their routine GP appointments in person. All of this shows that, no matter what your personal situation is, we all must help and educate each other in order to get through this pandemic as safely as possible, and that is what OnTrack aims to do.