Bournemouth Blind Society is a local charity that helps those who have limited or no vision to live independent lives, and give them freedom they wouldn’t have otherwise, because of the unique needs of the people who rely on this charity, we have been tasked with created an application that addresses what we feel are the key points.

It needs to provide crucial non visual guidance to assist the blind and partially sighted with the navigation of large buildings and the challenges that arise in them.

It needs to support users who are attempting to navigate a location for the first time, while also providing assistance for those who are revisiting.

And finally it shouldn’t just be available to be implemented at Chaseside, this solution should be extendable and adaptable for other locations where the more commonly used GPS solutions aren’t viable.

To develop our app we started by deciding on our development approach, we chose the agile method of scrum as it would give us the ability to break up the work, monitor and track our progress effectively. We used this in conjunction with an online burn down list to track what we wanted to achieve and our progress throughout the development cycle.

When opening our app, 4sight, the user will have the ability to setup the app by answering questions about their personal needs. Once set up these settings shouldn’t need to be changed, therefore allowing the user to start up the app whenever and have it ready to use. These options are taken to personalise how the app works and responds to certain situations.

When entering a new building the user will be able to check into the reception desk, where they can place their phone on a programmable NFC chip, or Bluetooth device for those who still use older devices. All the data they will need to set up the app for this location will be loaded, guest Wi-Fi details to allow free download of the maps and keep them updated, and the reception contact number to allow an SOS feature to be used in case of emergency. Once the map is downloaded the app will pick a route based on pre-selected user preferences.

The guidance preferences allow the user to choose whether they want to take either the quickest or safest route. Safe routes take into account the number of obstacles and the amount of people estimated to be using it, while the quickest route will get them there in the shortest amount of time.

The maps we use will be a combination of floor plans and a heat map made from data collected from CCTV cameras, Wi-Fi tracking, and triangulation using iBeacons. From this we can learn about obstacles by seeing what areas people start avoiding and update the maps accordingly. Heat patterns can also be used to find out possible new routes by which routes are most popular, allowing the app to be accurate without having to be manually updated constantly.

The guidance menu allows a user to input a location via a search function, and the Points of Interest menu allows you to find important locations such as reception, the toilets, or an emergency exit.

To navigate the app will notify the user using a combination of audio and vibration cues, but these are fully customisable in the settings menu if the user only wants to use one.