Requirements For **Uni Navigation Interface**

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# Product Goal

The product goal is to create an AR application that will help prospective students on their induction or students once they have enrolled navigate around the university. The application will have 2 main modes. Mode One is Real life navigation. In this mode the user will be able to scan the skyline with their camera and if a **building of interest** is inside the frame, then a navigation dot will identify it. This Dot will be accompanied by a small information box that will give the user information that is relevant to this building. This will initially be Building name and what it does for the course. Mode Two will be map mode. This will consist of the user finding specific locations around the Uni and using their camera to scan images (QR codes) to get a virtual map. This map will again have **building of interest** displayed but also will have a ‘You are here’ position with the current building highlighted. The user’s location will be identified with a smaller marker so that the user can see exactly where they are in relation to the rest of the map. This application is being designed as an inclusive application that can help everyone with navigation but is also aimed at people with ADHD who can struggle with directions.

# Product Requirements

1. The application can use AR and GPS to find buildings of interest for the user.
2. The application will Display information to the user about the building they have scanned.
3. The product will have a welcome display so the user knows that the application has loaded
4. The welcome screen will let the user know how to use the app and the functionality that is provided.
5. The user can select the course specific to them to tailor the buildings of interest and not overload the information they have.
6. The application will be able to scan images to display a Map on the floor in front of the user in AR.
7. The Map will have building of interest highlighted.
8. The Map will have the current building the user is in highlighted.
9. The Map will have a point signifying where the user is in relation to the building.

# Design Requirements

1. Create User Stories.
2. Create Requirements from User Stories.
3. Create Wire Frame for application.
4. Create MoSCoW for the final product.
5. Create Design Specifications for symbols on the screen.
6. Create Flow charts and pseudo code for the application.

# User Stories

* As a visitor I found it hard to picture where i am in relation to the rest of campus. The campus being nestled inside the city is quite disorientating.
* There are so many exits and entrances it so easy to get lost on the induction days.
* I thought I was coming out the same way i came in but i was met with unfamiliar surroundings.
* As a tutor I am always bumping into lost first years looking for the buildings on a small map
* I try to point students in the right direction but know that no matter how well I tell them they will get stuck remembering with all the rights and lefts.
* It’s hard to picture a map in the real world. I was never very good with geography.
* All the noise and bustle can be very overstimulating and makes looking for the buildings I want hard.
* The maps show you so much but when you don't even know where you currently are they are useless.
* As a helper on open day there are so many courses to remember and which buildings they need to go to I worry sometimes I send them off to the wrong place.
* I think my time as an open day helper could be better spent giving course information instead of directions.

# MoSCoWs

## Design Team

Must have:  
 - User Stories  
 - Requirements for Full Product v1.0  
 - Symbol Requirements for prototype  
 - Class Diagrams

- A Level 2 set activities and requirements for them most functions in the prototype  
- Level 3 activity charts and pseudo code design for all main and most of the other functions in - the prototype

Should have:  
 - Set Code standards that we will work to  
 - Symbol Requirements for Full Product v1.0  
 - A Level 2 set activities and requirements for them all functions in the prototype  
 - Level 3 activity charts and pseudo code design for all functions in the prototype  
 - Good Research into the needs of people with ADHD and what can help them

Could have:  
 - Clear Documentation standards organised within a database  
 - Set Design standards that we will work to  
 - A Level 2 set activities and requirements for them most functions in the for Full Product v1.0  
 - Level 3 activity charts and pseudo code design for most functions in the for Full Product v1.0

Will Not have:  
 - Calculated Costs to implement the final product v1.0  
 - A Level 2 set activities and requirements for them all functions in the for Full Product v1.0  
 - Level 3 activity charts and pseudo code design for all functions in the for Full Product v1.0

## Product Team

Must have:  
 - Ability to scan the surroundings for buildings of interest.  
 - Show an information box saying what the building is called.  
 - Ability to scan QR images and show a map in real life.  
 - Information page to tell user how it works  
 - Have personalised information for some courses in the uni

Should have:  
 - Highlight specific buildings dependant on the users’ course.  
 - Show an information box saying what the building is used for in the student’s course eg Lecture theatre.  
 - Have personalised information for Majority courses in the uni  
 - Show the users location Building on the map model

Could have:  
 - Add information from the users timetable to the information boxes daily so they know where to go  
 - Have personalised information for All courses in the uni  
 - Show the users location Point on the map model  
 - Have the same information box on the screen in the Map model mode  
 - Options Menu

Will Not have:  
 - Have all the exits and entrances to buildings on the map model  
 - Ability to select 'next building' within the app and highlight it  
 - Show the Best route to the next building dependant on their needs  
 - Have an Arrow on the map directing the user to their next building

# Design Specification

# 

## 1.Home Screen

This is the page that will be displayed once the application has loaded.  This will be a way to let the user know the application is running and working properly.  It will also give the user information about the application and how to use it and the features.

### 1.1 Welcome Message

Description: This will be at the top of the screen and have the words ‘Welcome to (Product Name)’ written.  The box will be super imposed over the background Display (1.5)

Display Condition:  When the application has loaded up.

Blank Condition: When the done (1.4) button has been selected.

### 1.2 User Guide

Description: This will be underneath (1.3).  It will have information on the functions provided by the application and how to use this.  The information given needs to be clear and concise to make it easily understandable by everyone.  Images should be used when applicable.  The box will be super imposed over the background Display (1.5).

Display Condition:  When the application has loaded up.

Blank Condition: When the done (1.4) button has been selected.

### 

### 1.3 Course Selection

Description: This will be a box underneath (1.1) and will be a drop-down menu that will allow the user to select which course they are doing.  The box will be super imposed over the background Display (1.5).

Display Condition:  When the application has loaded up.

Blank Condition: When the done (1.4) button has been selected.

### 1.4 Done button

Description: This will be at the top of the screen The box will be super imposed over the background Display (1.5).

Display Condition:  When the application has loaded up.

Blank Condition: When the done (1.4) button has been selected.

### 1.5 Background Display

Description: This will be a live feed of the user’s camera display.

Display Condition:  When the application has loaded up.

Blank Condition: Will never blank

## 2.  Building Viewer

This is the skyline scanning functionality which will be able to scan and recognise buildings in the real world and then pop-up information relating to the building.

### 

### 2.1 Building of Interest Marker

Description: This will be a dot mark that indicates where the building of interest depending on the buildings in view

Icon : Icon 5.2 in Priority 1

Display Condition:  When in Building Mode

Blank Condition: When not in Building Mode

### 2.2 Mini Map Select

Description: This is a small button that allows the user to pull up a mini map that will be driven off of apple maps.

Image: Icon 5.1

Display Condition:  When in Building Mode

Blank Condition: When not in Building Mode

### 2.3 Mini Map

Description: This is a map that will be driven off google maps.  It will be a route planned using GPS navigation and preset routes that can be preset so specific movement issues can have tailored routes.

Image: Map taken from GPS

Display Condition:  When 2.2 is selected.

Blank Condition: When the user taps back onto the camera view.

### 2.3a Destination marker

Description: This will be a marker at the location on the mini map at the location of the selected building for the user

Image: Icon 5.2 in Priority 2

Display Condition:  When 2.2 is selected and a building is selected in 4.1

Blank Condition: When the user taps back onto the camera view.

### 2.3b Navigation Line

Description: see 4.3

Image: see 4.3

Display Condition:  When 2.2 is selected and a building is selected in 4.1

Blank Condition: When the user taps back onto the camera view and Display conditions aren’t met

## 3.  Map View

This is the second main mode.  This will be entered when the user scans a QR code and a Map will be displayed in VR to the user.

### 3.1 Building Model

Description: This is a scale model of the University campus without the other buildings in Preston on.  The buildings will be to scale for size and distance apart.   The building will be initially grey and depending on the course specific buildings will be highlighted in an Orange Hue

Display Condition:  When a user scans a map QR code

Blank Condition: When the map QR code is out of range.

### 3.2 Building dot

Description: This will be a dot red mark that indicates where the user is that will be imposed onto the Building Model (3.1) depending on which QR code that has been scanned then the map will update to show the location.

Display Condition:  When a user scans a map QR code

Blank Condition: When the map QR code is out of range.

### 3.3 Navigation Line

Description: see 4.3

Image: see 4.3

Display Condition:  When a user scans a map QR code and a building is selected in 4.1

Blank Condition: When the map QR code is out of range Display Conditions aren’t met

### 3.4 Entrance/Exit Marker

Description: These will be small marker on the buildings of interest that show where the Entrances/Exits are located for each building.

Colour: This will initially be Blue but can be changed to the users preference in the options menu

Icon: Icon 5.2 in Priority 2

Display Condition:  When a user scans a map QR code

Blank Condition: When the map QR code is out of range.

## 4. Common Symbols

### 4.1 Next Building Entry

Description: This will be a drop down box that will allow the user to select the next building of interest they want to view.  The buildings selectable will be from a list of available buildings of interest specific to each users course.

Display Condition:  When the app is in Building or Map view

Blank Condition: When the user is on the start screen

### 4.2 Information Box

Description: This will be a small information box that will appear with an arrow to the building selected in the Display conditions

Colour: This will initially be Orange but can be changed to the users preference in the options menu

Size: Will be dependant on amount of text as height and width will adjust.

Display Condition:  when a Next Building is selected in Map mode and for the Building of interest in Building Mode

Blank Condition: When Display Conditions aren’t met or If user taps the screen when a text box is present

### 4.2a Building Name

  Description: This will be the buildings official Name

Position: Top of the Information Box

Font: Bold Characters font Size ???

Colour: This will initially be Black but can be changed to the users preference in the options menu

Display Condition:  See 4.2

Blank Condition: See 4.2

### 4.2b Building Type

Description: This will be what the building means to the course from a selection of – “Library” , “Canteen” , “Lecture Theatre” , “Lab Class” , “Library” , “Other”.

Position:  Under 4.2a

Colour: This will initially be Black but can be changed to the users preference in the options menu

Font: Black Characters font Size ???

Display Condition:  See 4.2

Blank Condition: See 4.2

### 4.2c Rooms of interest

Description: This will be which room numbers in this building are for you depending on the users timetable – will link to the users uni account and fetch the information from their timetable.

Position:  Under 4.2b

Colour: This will initially be Black but can be changed to the users preference in the options menu

Font: Black Characters font Size ???

Display Condition:  See 4.2

Blank Condition: See 4.2

### 4.2c Class Time

Description: This will be updated daily and have a time next to the specific rooms for that day so the user knows when and where they need to be.

Position:  Next to 4.2c

Colour: This will initially be Black but can be changed to the users preference in the options menu

Font: Black Characters font Size ???

Display Condition:  See 4.2

Blank Condition: See 4.2

### 4.3 Navigation Line

Description: This will be a line that will show the user a route between two buildings.  This will follow the predefined routes pre set in the app that can be tailored to a users ability.

Position:  Along the predefined route on the mini map (2.3) or within the Model View(3.1)

Colour: This will initially be Black but can be changed to the users preference in the options menu

Display Condition:  When A building has been selected in 4.1 and in Model Mode or Mini Map is selected

Blank Condition: See 4.2

## 

## 

## 5 Icons

These are icons that will be used within the application

### 5.1 Mini Map

Description: This will be a small icon that resembles a map.

Location:  -----

### 5.2 Priority Location Marker

Description: This will be a Circle with a black outline and colour

Colour: This will initially be Red when in priority 1 and Blue when in Priority 2 but can be changed to the users preference in the options menu

# Sprints

## Week 1

### Product Team

Goal – Have a bare bones application for a phone using the camera and overlays something onto the real world.

Completion – App can be loaded onto an end product device and when opened something is overlayed onto the ‘real world’/screen.

### Design Team

Goal – Have a MoSCoW written and a complete set of requirements for the application.

Completion – a Full MoSCoW has been agreed by the teams and a rigorous set of requirements have been agreed.

### Stand Up Outcome

### 

Design team – MoSCoW’s have been submitted for the design team and the product team and are in review by other team members to fully agree on the specs.

Product team – Created a virtual world with AR camera with a point of interest in the world and camera movement has been implemented. There is also a text box with can be overlayed but the implementation of this has not been fully executed.

## Week 2

### Product Team

Goal – Create a pop up within the application, when a user is pointing a direction the application registers that an object is in view.

Completion – Object turns true when within line of site.

### Design Team

Goal – Provide final design brief to product team. Make a start on the applications detailed design.

Completion – Design brief provided. Have some of the applications symbol requirements.