Testing

1. Heuristic analysis

1.1 Visibility of system status

The status of the system is always apparent to the user, From logging on the user can see a circular progress icon that informs the user that the app is attempting to log the user in. Inside the app the user can at any time swipe up on the screen to refresh or swipe down to see the navigation bar disappear and reappear swiping up which will indicate that the system is working as it should be.

1.2 User control and freedom

The user has complete control of the application, they are always able to see where they are in the app by the text in the top toolbar and the highlighted icon usually found if the bottom navigation bar is displayed which will tell them of the page they are on for example "Dashboard" or "Info". If the user accidentally enters a page they did not wish to go to they can at any time use the back and navigation buttons on the android device to navigate back to the dashboard alternatively the user can press the back button in the top toolbar if in a non fragment screen to also go back out of any action.

1.3 Consistency and standards

Our application is consistent throughout, from the moment the user enters the app the text boxes are all labeled with hints to insure the user is aware of what to input and all the buttons of the app are the same colour and size. Inside the app the navigation bar is present across all the pages and it is accessed in the same manner throughout the app. There are no contradictory design elements and everything unique is labeled and explained in the app if needed.

1.4 Error prevention

The app is carefully labeled throughout with information on how to use the different system features which allows a good degree of error prevention and the user is not made to guess. There are also error exceptions in place to catch any errors that may occur redirecting the user to the dashboard.

1.5 Recognition rather than recall

The app uses many elements of the real world. For example the Social Distance feature button of the app indicates that it's a scan button which when pressed will scan for nearby devices and the text will change to stop the scan if the user would like to stop it. The app uses intuitive layout so that it is easy to navigate and the user regardless of their technical background can use the app like any other app they may be already using.

2. Universal design

From the inception of the idea for this app we have always strived to create a universally accessible app for the user base. We have achieved this by ensuring that the information our app provides is relayed through multiple ways. Our app offers an informative guide to dealing with COVID-19 and keeps the user up to date with the news and case data. The app also uses large buttons and clear text with no distortion to enable people with weaker senses to also benefit from the app.

The app has a clean and simple design all throughout which aims to be accessible to any user regardless of how 'tech savvy' they are, this helps create a rich and rounded experience for any user.

3. User interface testing

As shown below the app works well on a variety of screens and phones the two examples here are a 'Motorola G' which has a screen size of 4.5 inches and a 'Samsung galaxy s8+'' which has a screen size of 6.2 inches and as the images show there is no distortion of scaling issues from screen size to another screen size. Also tested were Pixel and Nexus devices through the emulators of the android studio application.

Figure 3.1 Motorola G 4.5 Inch display

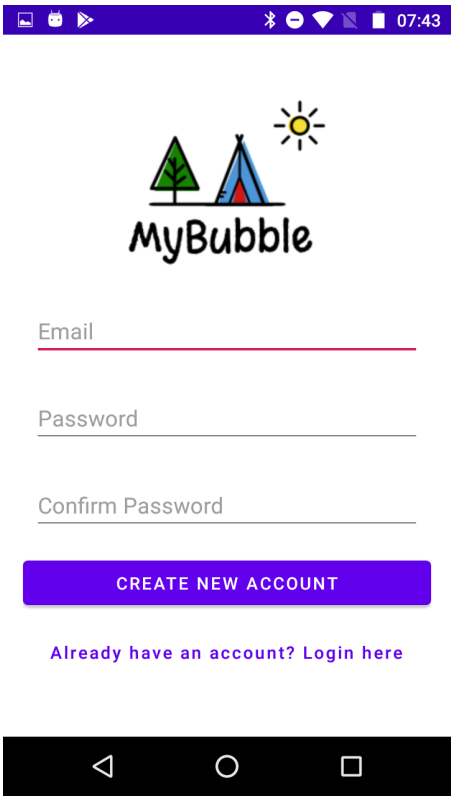
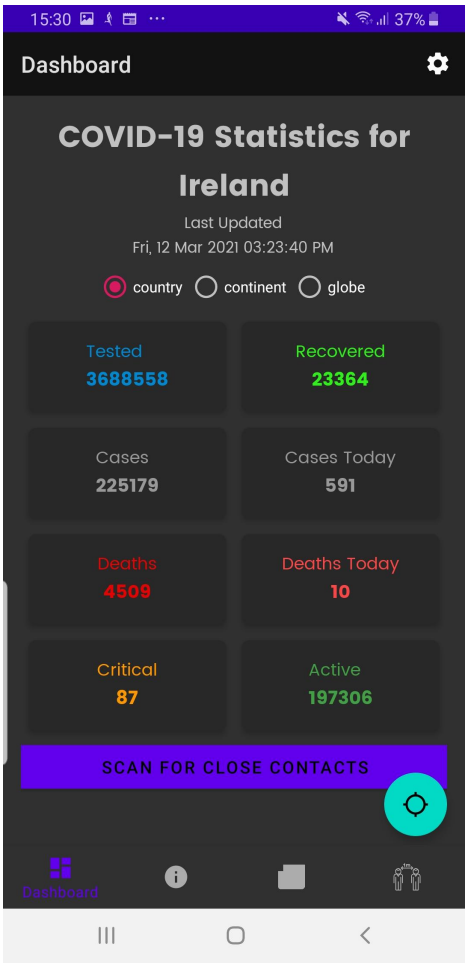


Figure 3.2 Samsung Galaxy S8+ 6.2 Inches



4. Functional testing

4.1: Functional tests

Test Case: Login with email and password
Input: "Test@test.com", "testing12"
Expected Output: User successfully logs in
Output: User logged in.
Result: Success

Test Case: Login with invalid email and password
Input: "Test@test.com", "testing12testfail"
Expected Output: Login will fail
Output: User failed to login, Password incorrect.
Result: Success

Test Case: User tries to an register account
Input: Email = "MikeTheTester@test.com", Password = "test123456", Confirm Password = "test123456"
Expected Output: New account created in firestore database.
Output: Account has been registered. You may login!
Result: Success

Test Case: User scans for nearby device via Social Distance Feature
Input: "Button press……...waiting…...User comes into contact"
Expected Output: Alert, Social Distance breach
Output: User receives notification that theres a social distance breach and that someone is within their 2 metre bubble
Result: Success

Test Case: User adds friend to Social bubble
Input: Email = “MyFriend@friend.com”
Expected Output: Adding friend to Social bubble will fail
Output: That user is not registered, please make sure you have the correct email and try again.
Result: Fail

Test Case: User selects new default Country
Input: Selects Canada
Expected Output: Data will now default to showing data related to Canada
Output: You’re new default country is Canada, you may explore the news feed for the top headlines in Canada or explore how COVID-19 has been affecting the country
Result: Success

4.2: Installation Testing:

- Tested that the application ran without errors within Android studio and the build did not fail.
- Tested the application on multiple devices, with varying versions of Android to make sure it is compatible with a multitude of devices. It was tested with devices running Android 5.0, 6.0, 8.0 and 9.0.

5. User testing

The application was shown and used by friends / family / roommates to gather their thoughts and ideas on the project. They helped test out monitoring the Social Distance feature which demonstrated two phones being able to pick up each other within a 2 metre radius and notify a user to move away.

A common positive feature from the majority of those using the application was that it kept users quite informed about COVID-19.

Another common positive feature was the accessibility and ease of access throughout the application, where users found it quite easy to navigate to where they would like to go.

Both of these positives were goals set out by us, within our functional specifications, and are pleased to see users taking a liking towards them.