

Where2P4Free

Bachelor of Science (Honours) Software Development

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Functional Specification

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1. Introduction

The purpose of this document is to identify, outline and specify the functionality with regards to the project scope of the mobile application, “Where2P4Free”. The planned stages of developing the mobile application over the course of three iterations will also be outlined. Any exceptional requirements will be noted at the end in the document.

The document is divided into different sections, Target Users, Overview of Technologies, Brief and Detailed Use Cases, Application Screens, Project Plan and Exceptional Requirements. Although it offers an overview of the development project, it is by no means “set in stone” due to the dynamic nature of the software. Whether through user input or development requirements, the project will evolve, as too this document.

2. Product Description

Where2P4Free is a helpful guide to locating public restrooms. The project is a mobile application that assists users visiting foreign towns or cities in easily locating nearby unpaid public restrooms. Users can locate restrooms on a map, their respective distance from their current location, see user ratings for each restroom as well as leave a review. They can also add a restroom to the mobile app and include important information such as location, address, pictures, and quality.

The user may also view detailed information about a restroom including opening and closing times(if applicable), accessibility, quality, layout, and obtain directions through Google Map. The application also ensures that the user's location is constantly updated to ensure that they can access a nearby restroom when needed. Overall, the application is intended to make the travel experience for an individual going somewhere foreign as easy and comfortable as possible.

3. Target Users

Where2P4Free intends to target visitors travelling to foreign cities whom might not be able to locate public restrooms during their trip. The use of geolocation will enable the mobile application to show exactly where the nearest restroom is for the visitor's convenience. Restrooms can be listed in order of nearest by distance and information on each restroom can be displayed for the user.

The app will also be useful for people who are not going on holidays are visiting foreign countries. People who are simply visiting their local town or going shopping in the city can make use of the app to locate public restrooms that they may not know or simply need reminding of. Directions to the toilet can be given through the map, ensuring the user gets to the destination.

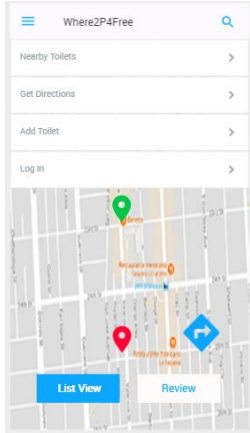
4. Core Functionality

The core functionality for the scope of the project is in agreement with the research of the mobile app market.

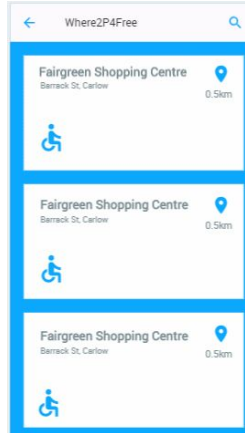
1. Mobile App for Android.
2. User login - single sign-on (Facebook, Google, or unique account).
3. GPS - MAPS
 - a. The app should be able to get the user's current location and determine how far away a restroom is i.e. restroom is 500 metres away. At the click of a button, the user can get directions to said restroom - Google Maps. When the app is started, GPS should update the current position of the user if they are not in the same place.
4. Restrooms
 - a. List of nearby restrooms in the App; address, distance, reviews, rating, pictures, layout. By selecting one or more restroom, it should display to the screen consisting of an image, short text, description, and how far away. Selecting a restroom should present to the user an information page; image/images, text, reviews (other user comments), accessibility, open/closing times, location on a map, star rating, fee (if any or applicable). Allow a user to add their own review and rating. Data retrieved from a database using an API.
5. Quick Search
 - a. The user should be able to search for a restroom from anywhere in the App. The list could display by nearest to the user or start rating.
6. Useful Contacts
 - a. A section with useful contact info for contacting the developer if the user is experiencing problems with the mobile app.
 - b. Favourite's list
 - i. The user can add a listing to a favourite's page - quickly store restrooms to view later when out and about.

4.1 Possible Core Layout

Slide in Menu



List of Toilets



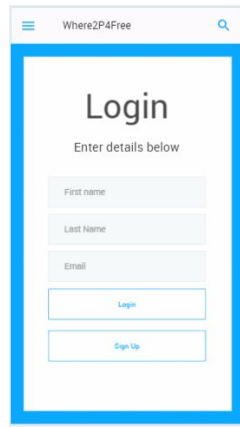
Toilet Details



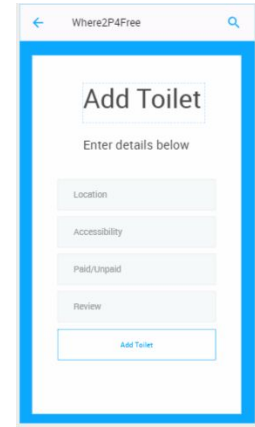
Home Screen



Login



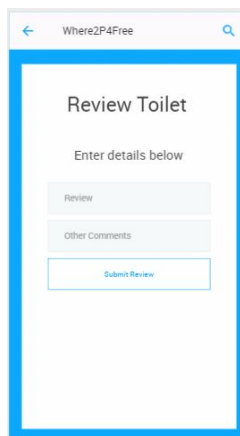
Add Toilet



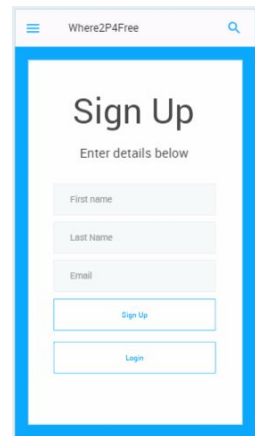
Directions



Review Toilet



Sign Up



5. FURPS+

5.1) Functionality

- a) The user must be connected to the internet to use the application.
- b) Reviewing a restroom or adding a restroom is only permitted if a user has registered first with the application and is logged in.
- c) GPS feature must be turned on to locate a user's current location and calculate the distance from their position to a restroom.

5.2) Usability

- a) The user should be able to easily navigate around the application from one restroom to another in under 10 seconds.
- b) The application should be at least a 60% native look and feel to the Android platform.
- c) The user should be able to easily register with the application with no more than four clicks.

5.3) Reliability

- a) User passwords should not be stored as plain text.
- b) GPS locations of restroom and distance from user's position should be accurate within 30 - 50 metres on average.

5.4) Performance

- a) Queries retrieved from the database should take no greater than 5 seconds 70% of the time.
- b) The database should have a 99% uptime for service.

5.5) Supportability

- a) The mobile application should be available for Android.

6. Brief Use Cases

6.1 View Map



Actors:

User, Mobile Application, Database, Google Map, GPS, Toilet

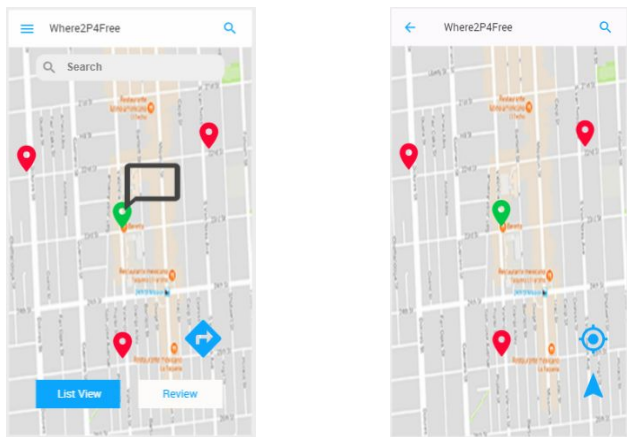
Preconditions:

The user has access to the internet and is currently viewing a toilet.

Description:

This use case begins when the User wishes to view the location of a Toilet on a map. The User selects the view location icon displayed on-screen. The Mobile Application gets the GPS coordinates of the Toilet from the Database before displaying a Google Map with the pinpoint location of the Toilet on-screen.

6.3 Get Directions



Actors:

User, Mobile Application, Google Maps, Toilet

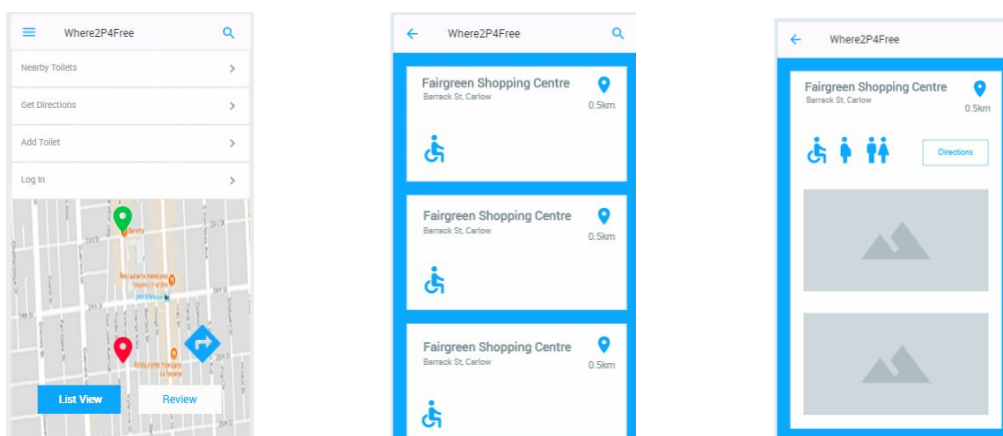
Preconditions:

The user has access to the internet and is viewing a Toilet page.

Description:

This use case begins when the user wishes to get directions to a Toilet that they are currently viewing. The User selects the get direction icon displayed on-screen. The Mobile Application obtains the User's current GPS and Toilet's GPS coordinates before passing it to Google Maps. Google Maps displays the directions to the Toilet.

6.4 Viewing a Toilet Page



Actors:

User, Mobile Application, Database, Toilet

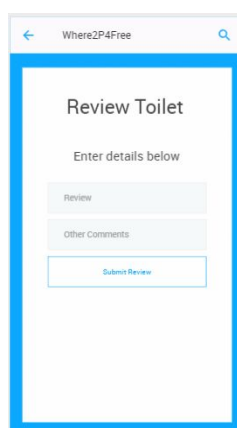
Preconditions:

The User has navigated to the Toilet page from the main menu.

Description:

This use case begins when the User wishes to view information about a Toilet. The User selects the Toilet from a list displayed on-screen. The Mobile Application requests the information regarding that Toilet from the Database; photo, information text, location, and other user comments. The Database sends the relevant information to the Mobile Application where it is then displayed on-screen for the User.

6.5 Review/Comment

**Actors:**

User, Mobile Application, Database, Toilet

Preconditions:

The User has access to the internet and has logged into the Mobile Application.

Description:

This use case begins when the User wishes to review/comment on a toilet. The User selects the rate/review button on the screen and the Mobile Application displays a form on-screen. The User enters their comment and then submits the form. The Mobile Application sends the User comment to the database where it is then stored.

6.6 Login a User

The image shows two mobile application screens for 'Where2P4Free'. The left screen is the 'Login' page, featuring a title 'Login', a subtitle 'Enter details below', and three input fields for 'First name', 'Last Name', and 'Email'. Below these fields are two buttons: 'Login' and 'Sign Up'. The right screen is the 'Review Toilet' page, featuring a title 'Review Toilet', a subtitle 'Enter details below', and two input fields for 'Review' and 'Other Comments'. Below these fields is a 'Submit Review' button.

Actors:

User, Mobile Application, Database, Toilet

Preconditions:

The user has access to the internet and is currently viewing the login form.

Description:

This use case begins when the User wishes to log in to their account to review a Toilet. The User enters their details; email address, password, before pressing the login button. The Mobile Application sends the User's details to the Database where it is compared with the existing details. If the details match what is stored in the Database, the User is allowed access. Otherwise, the Mobile Application displays an error message on-screen for the User.

6.7 Register a User Account

The image shows two mobile application screens for 'Where2P4Free'. The left screen is the 'Login' page, featuring a title 'Login', a subtitle 'Enter details below', and three input fields for 'First name', 'Last Name', and 'Email'. Below these fields are two buttons: 'Login' and 'Sign Up'. The right screen is the 'Sign Up' page, featuring a title 'Sign Up', a subtitle 'Enter details below', and three input fields for 'First name', 'Last Name', and 'Email'. Below these fields are two buttons: 'Sign Up' and 'Login'.

Actors:

User, Mobile Application, Database

Preconditions:

The user has access to the internet and is currently viewing the login form and does not wish to use a Google or Facebook account.

Description:

This use case begins when the User wishes to sign up for a user account. The User selects the registration option displayed on-screen. The Mobile Application displays a user account registration form. The User enters their details; email address, password, before pressing the submit button. The Mobile Application sends the User's details to the Database where it is then stored.