Functional requirements : user, external system, functionality, and information

1. Users can sign in with their existing account
   1.1. Users are able to create a new account
   1.2. Users can retrieve forgotten password and username
       1.2.1. Email retrieval process
2. System must determine location of user upon starting up of app
   2.1. System will show all the nearby charging locations based on current location
3. System displays details of each charging location
   - Charging location type
     - Charging wire
       - USB-C
       - Lightning cable (Apple)
       - Micro USB
     - Charging port
       - USB
       - USB-C
     - Charging socket
     - Portable charger
   - Lockable / Unlockable
   - Capacity
   - Paid / Public area
   3.1. User is able to open Google maps with a pop-up button to determine route from user's current location
   3.2. User is able to review charging location
4. User is able to search for a specific charging location
   4.1. User is able to filter charging locations based on the details
5. System is able to record and display number of online users close to the charging location
6. Allow users to share undiscovered charging ports
   6.1. Sharing report consists of:
     - Picture of charging location
     - Current GPS location
     - Short description of new charging location by ticking the details
       - True/False and numbered options are chosen by the user as follows in point 2)
   6.2. User will be rewarded with credits which can be redeemed for vouchers within 5 working days after the report has been verified to be true
7. User is able to report a damaged / incorrectly described port
   7.1. Update report consists of:
     - Picture of charging location
     - Re-description of details pertaining to port are chosen by the user as follows in point 2)
   7.2. Damage report consists of:

- Picture of damage
- Short description of damage
- Date of which the damage was discovered

   7.3.   Users will be rewarded with credits which can be redeemed for vouchers within 5 working days after the report has been verified to be true.

8. Send a notification when phone battery drops below 15%

   8.1.   Users can disable this push notification

   8.2.   Users can customise the battery threshold levels for push notifications

9. User is able to favourite charging locations

   9.1.   User is able to view list of favourited locations

10. A warning message will be displayed "The charging port may not be available at this time" to users between 2200 and 0700.

11. Rewards conversion

   11.1.   Users are able to convert their accumulated credits for partnered merchant rewards

12. Users are able to view their profile

   12.1.   Notifications

   12.2.   General settings

      12.2.1.   Change Username

      12.2.2.   Change Password

      12.2.3.   Edit email address

      12.2.4.   Edit GPS tracking setting

      12.2.5.   Change Light/Dark mode

      12.2.6.   Delete Account

   12.3.   Profile picture

      12.3.1.   Change profile picture

   12.4.   Users are able to view their historical activities

      12.4.1.   Historical damage reports

      12.4.2.   Historical new charging location sharing

      12.4.3.   Historical charging location

   12.5.   Privacy

      12.5.1.   Privacy Policy

   12.6.   About us

   12.7.   Help

      12.7.1.   FAQs

   12.8.   Log out

13. Recommend new ports to the government based on popular start search locations

Performance:
- The app should load quickly and display charging locations near the user within 5 seconds of logging in.
- The app must provide the search results for charging locations within 5 seconds
- The app must be able to support at least 100 simultaneous users without any delay.

Reliability:
- The app must be accessible 24/7.
- The app must be able to handle occasional network disruptions or server failures without losing the user's data
- The app must be able to restore back all its functionalities 1 minute after a crash.

Usability:
- The app must be able to detect and show the nearest charging locations within a 1 kilometre radius from the user.
- The app must be able to detect the user's location within 3 seconds
- The app must be able to detect the user's location accurate up to 5 metres
- The app must display updated (up to 1 year) information of the charging locations and its details.

Security:
- The app must require users to sign in to use the app
- The app must authenticate users and authorize access

Scalability:
- The app must be able to accommodate up to 5 million charging locations.
- The app must be able to accommodate future updates and enhancements without major disruptions to the existing functionality.

Compatibility:
- The app must be compatible with a wide range of operating systems to ensure accessibility for a diverse user base.
- The app must support different screen sizes and orientations, providing a consistent user experience across various devices.