



Active and Assisted Living Programme
AAL-2016 – Living with Dementia



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“CARELINK for Dementia sufferers and their community”

*Deliverable D3.2
Front End GUI Interfaces*

Work package: WP4 – Management

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CARELINK Project Profile

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AAL-2016-049

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Twitter	@Carelink_AAL
LinkedIn Group	Carelink
Facebook Page	www.facebook.com/Carelink
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Partners

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	U-CENTRIC (USE)	BELGIUM
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	CREAGY AG (CRE)	SWITZERLAND

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Document Control

This deliverable is the responsibility of the Work Package Leader. It is subject to internal review and formal authorisation procedures in line with ISO 9001 international quality standard procedures.

Version	Date	Author(s)	Change Details
0.1	25/10/2018	Alan Fitzpatrick	Table of Content.
0.2	01/11/2018	Bartosz Wiorek	Draft for review.
1.0	10/11/2018	Gary McManus	Approved version release.
FINAL	01/10/2020	Gary McManus	Approved Final Release

Executive Summary

Objectives

The CARELINK system will be comprised of a wearable tag for dementia sufferers. A wireless sensor tag suite will be developed that has the capability of providing proximity and location information for the user (utilising Blue Tooth Low Energy technology). Additionally, a cloud-based platform will be developed to support personalised connected solutions. This platform will allow Carers to monitor the proximity and location of persons with dementia.

This document is intended to outline the Front-end GUI of the CARELINK project.

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1 INTRODUCTION

Demographic trends indicate a rapidly ageing population worldwide, and even more so in Europe. The proportion of elderly population (defined as aged 60 or over) is expected to double by 2050. This, combined with an increase in life expectancy leads to an increase in cases of Alzheimer's and dementia in the elderly. A major concern for persons with dementia is wandering and getting lost. The Alzheimer's Organisation lists the figures of 6 in 10 people with dementia will wander and lists warning signs such as:

- Returns from a regular walk or drive later than usual
- Forgets how to get to familiar places.
- Talks about fulfilling former obligations, such as going to work
- Tries or wants to "go home," even when at home

With increased life expectancy, there is increasing financial pressure on the health system. To reduce costs for families & society at large, there is a requirement for a 'connected health' service which utilises technology to provide health care services remotely.

Rapid recovery of individuals who have wandered is paramount to their chances of survival. Personal tracking devices and services are a way for caregivers to help mitigate the dangers of wandering in dementia sufferers. The provision of a low cost, or subsidised location and proximity monitoring system suitable for dementia sufferers will dramatically increase the survival rates if wandering person with dementias and promotes low cost community-based caring. They enable the caregiver to track a person with dementia's location through a device which in turn reports location data collected through GPS over a cellular back haul link to a web-based system.

CARELINK project has four main aims:

1. Design an innovative wearable tag for dementia person with dementias at different disease progression stages that are suitable to their needs and the needs of carers
2. Design and develop a wireless sensor tag suite that is capable of providing proximity and location information for the wearer that is low cost, robust and energy efficient
3. Design and develop a cloud-based platform to support personalised connected solutions to enable carers to monitor the proximity and location of person with dementias and interact with the system remotely
4. Develop an information suite that allows carers and family of person with dementias to be educated and informed in the key elements of dementia as well as providing a platform for support and discussion.

The levels of alerts which the carer will receive can be configured as the disease progresses. The carer may reduce the outer boundaries of the determined 'safe zone' which will trigger an alert whenever the person with dementia passes beyond the boundaries.

Additionally, the carer having availed of the eTraining component of CARELINK, will be able to log onto the platform and see the walking routes taken by the person with dementia. A repository of regular movement patterns will be built up. Through platform algorithms, deviation from these patterns will be detected if the person with dementia's movements are commencing on a disorganised sequence.

2 ABBREVIATIONS AND ACRONYMS

Abbreviation	Description
WPL	Work Package Lead
PMB	Project Management Board
PM	Project Manager
QM	Quality Manager
TM	Technical Manager

3 GUI Interface

The GUI Interface is built with the following modern technologies:

- HTML5 and CSS3
- Twitter Bootstrap 4 as CSS Framework
- Javascript ES6, ReactJS with Redux
- .NET Core for routing and hosting purposes
- SASS
- Webpack for Javascript code compile automation

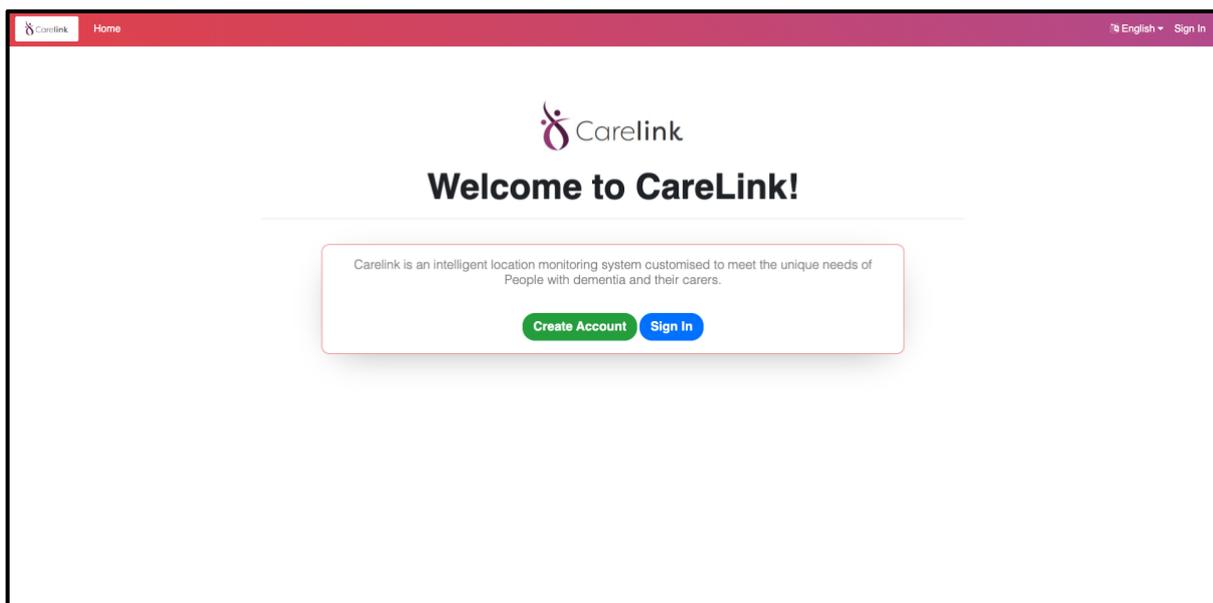
Every time the GUI retrieves/sends information it needs to connect to the API by sending JWT token stored in browser's location storage after successful login process. The UI app is built with HTML, CSS and Javascript. It uses responsive patterns so that it is a mobile friendly application.

Below are working views:

The UI may change over time, but it is intended to be used with modern browsers.

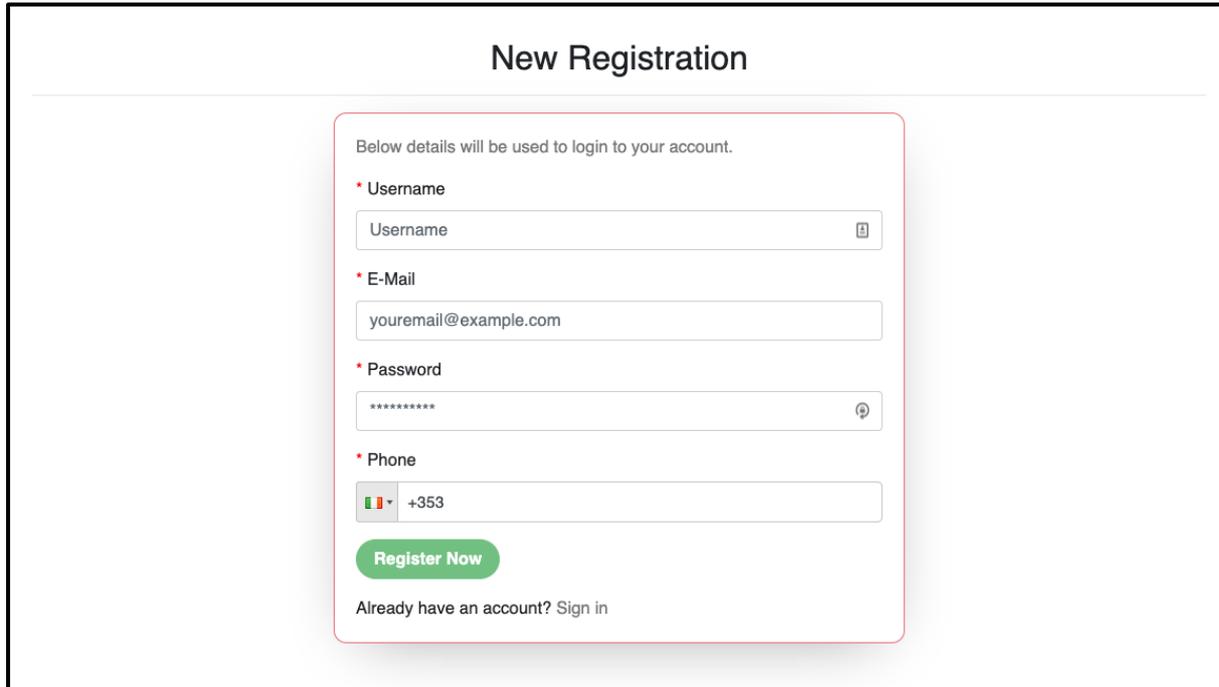
The Carelink web application can be found at <https://staging.carelink.tssg.org/>

From here the user can navigate to the register or login pages. The user can also see information about the Carelink system.



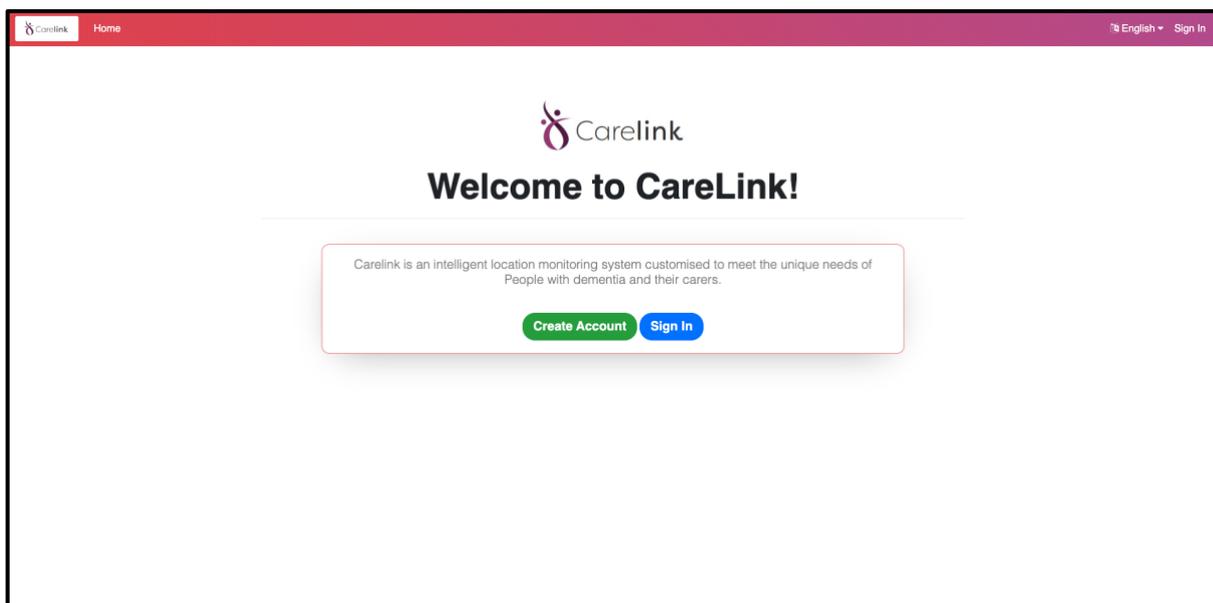
Registration:

On their first visit to the site a user will need to create an account. From this view the user can register to the system. The form requires basic information which will be required in the login process. After successful registration, the user is redirected to the login view.



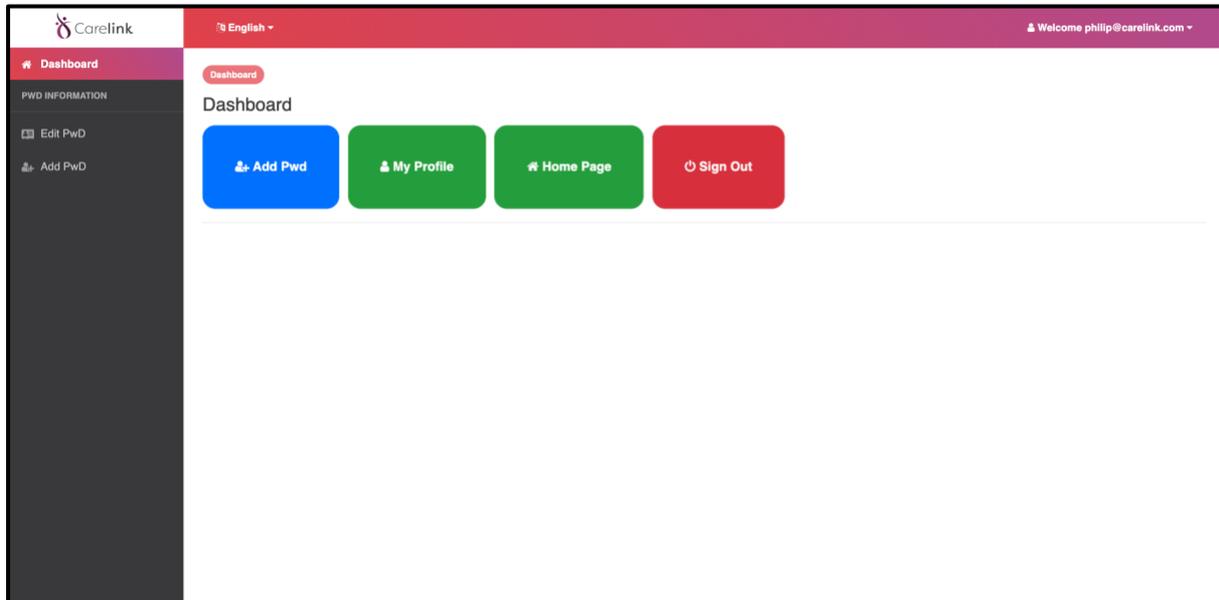
The image shows a 'New Registration' form. At the top, it says 'New Registration'. Below that, a message states 'Below details will be used to login to your account.' The form contains four required fields: 'Username', 'E-Mail', 'Password', and 'Phone'. The 'E-Mail' field contains the text 'youremail@example.com'. The 'Phone' field has a dropdown menu showing '+353'. Below the fields is a green 'Register Now' button. At the bottom of the form, there is a link that says 'Already have an account? Sign in'.

Login:



The image shows the Carelink homepage. At the top, there is a navigation bar with the Carelink logo, 'Home', and 'English Sign In'. The main content area features the Carelink logo and the text 'Welcome to CareLink!'. Below this, a message states 'Carelink is an intelligent location monitoring system customised to meet the unique needs of People with dementia and their carers.' At the bottom of this message, there are two buttons: 'Create Account' and 'Sign In'.

From this view the user can login to the system. The form requires information provided in registration process. After a successful login, the user is redirected to the admin panel view.



Add New Person with dementia:

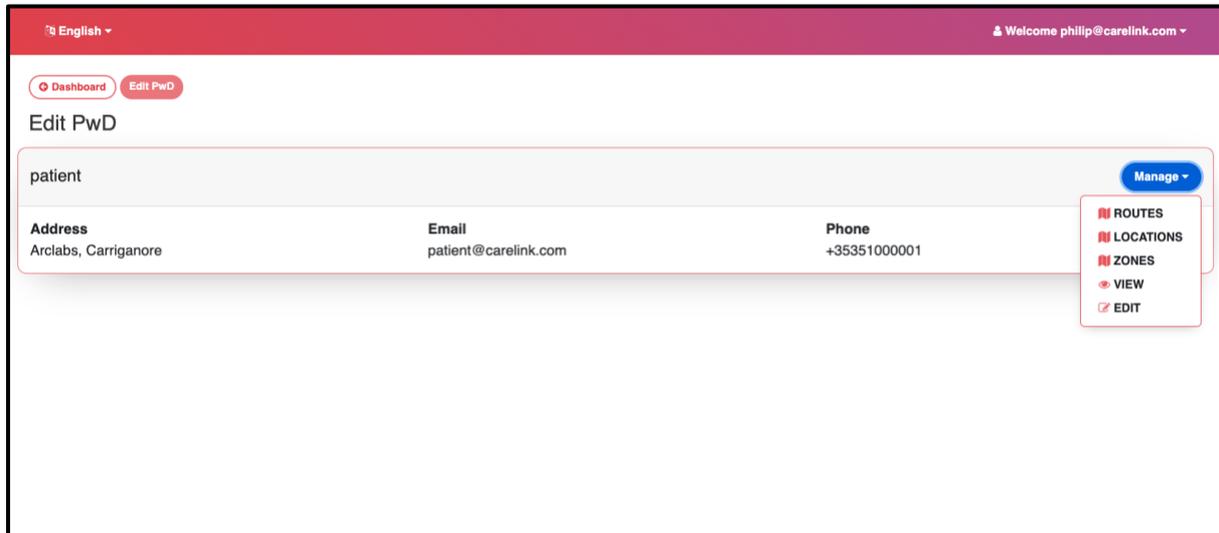
The add new person with dementia view is accessible from the admin panel view. It provides a form which can be used to add a new person with dementia.

A screenshot of the 'Add PwD' form in the Carelink dashboard. The form is titled 'Add PwD' and is located within a sidebar that also shows 'Dashboard' and 'Add PwD' buttons. The form fields are: 'Email Address' (patient@carelink.com), 'Username' (patient), 'Password' (masked with dots), 'Address' (Arclabs, Carriganore), 'Phone' (+353 51 000000), 'Initial device Name' (carelink bracelet), and 'ID' (CP7). At the bottom right of the form are two buttons: 'Save' (blue) and 'Reset changes' (red).

Person with dementia List:

The person with dementia list view is accessible from the admin panel view. It shows table with the person with dementias assign to the user. Every row has an edit button which opens the selected person with dementia information edit modal.

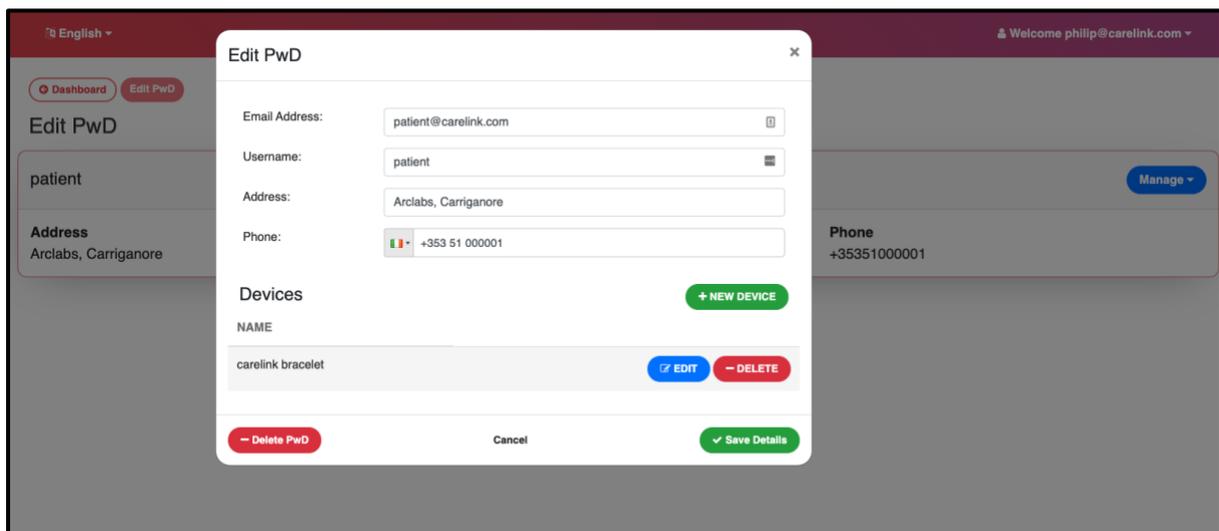
They can later edit profile details for this PwD at a later stage e.g.



Person with dementia Edit:

The edit person with dementia list modal is accessible from the person with dementia list view. It shows form with prefilled selected person with dementia’s information. The user can edit these details and save them. After this process the modal will close and the person with dementia list will be refreshed showing updated data.

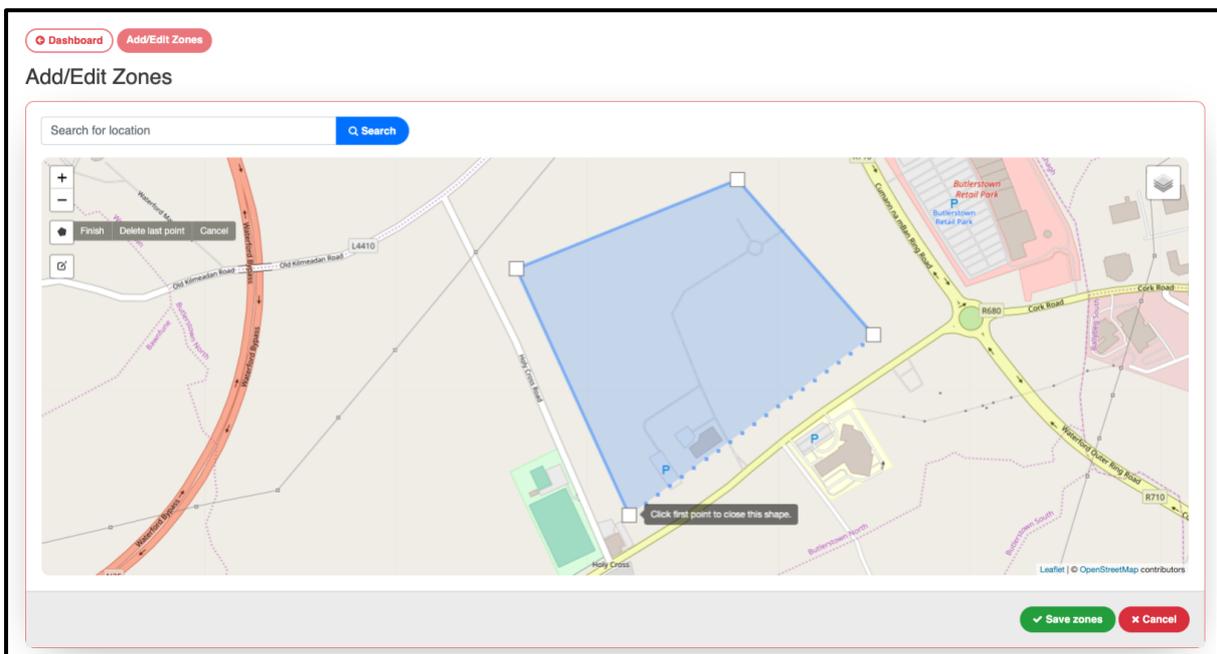
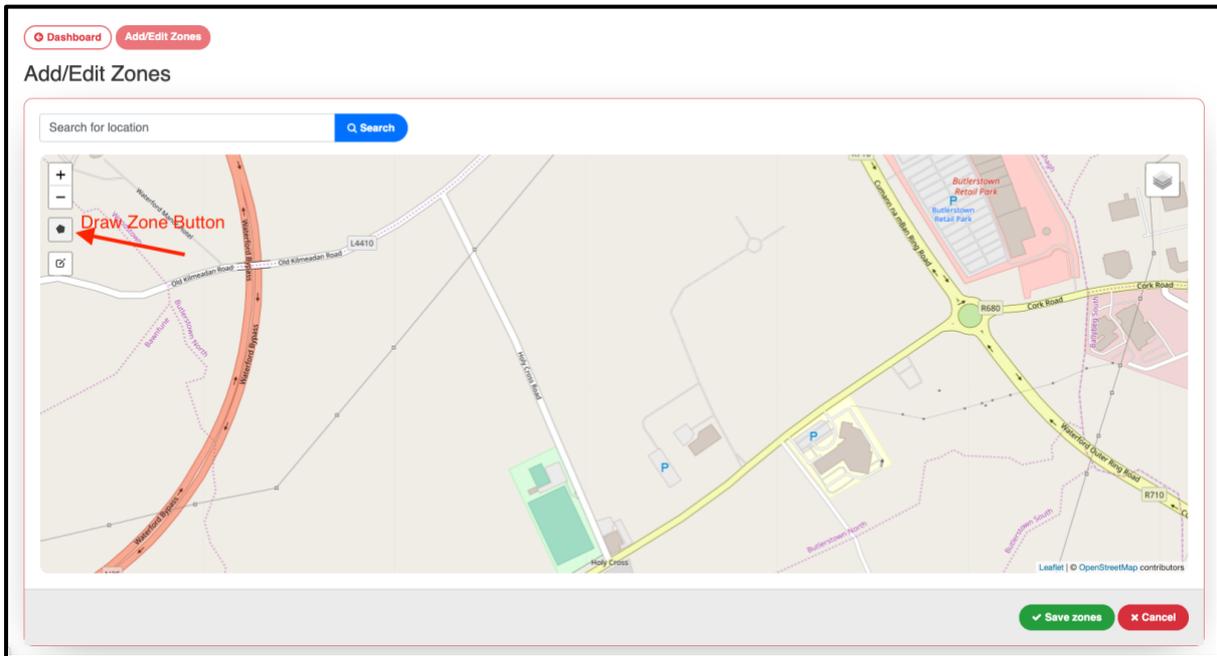
One of the most important steps is required here, adding a device for this PwD. The device name can be anything but the device ID is taken from the physical device e.g. CP7.

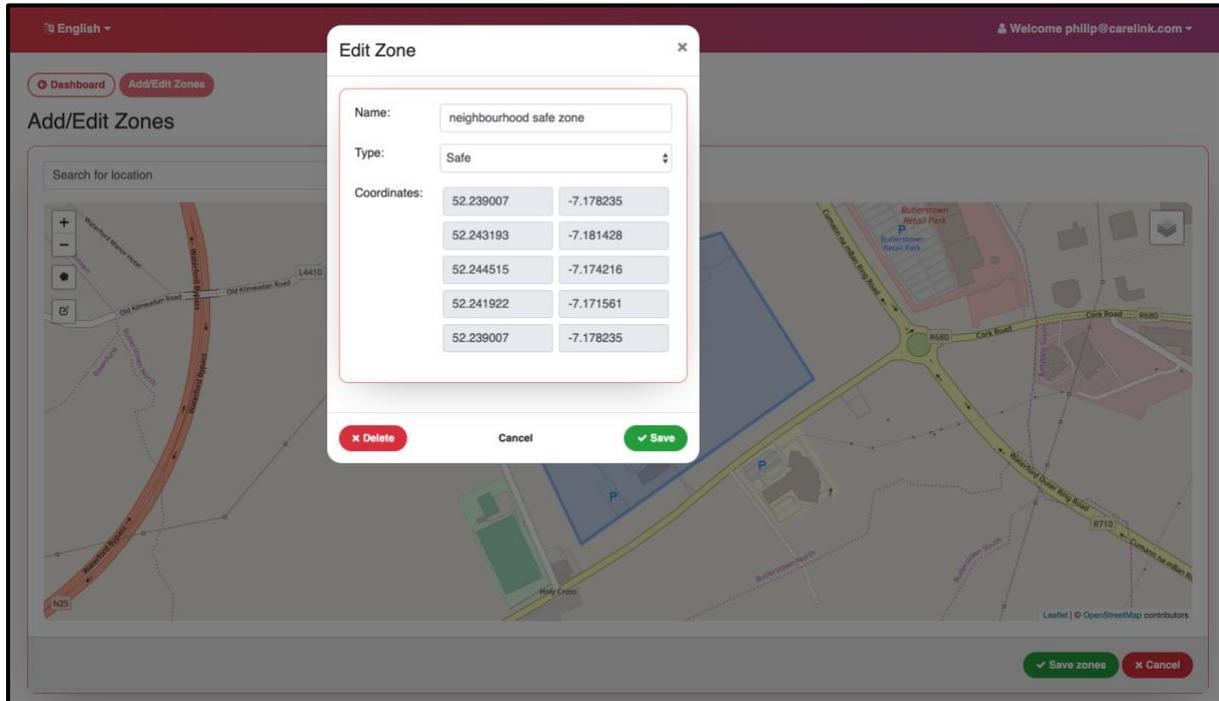


The next important step is the creation of zones for the PwD. These zones can be set as either **safe zones** or **unsafe zones**.

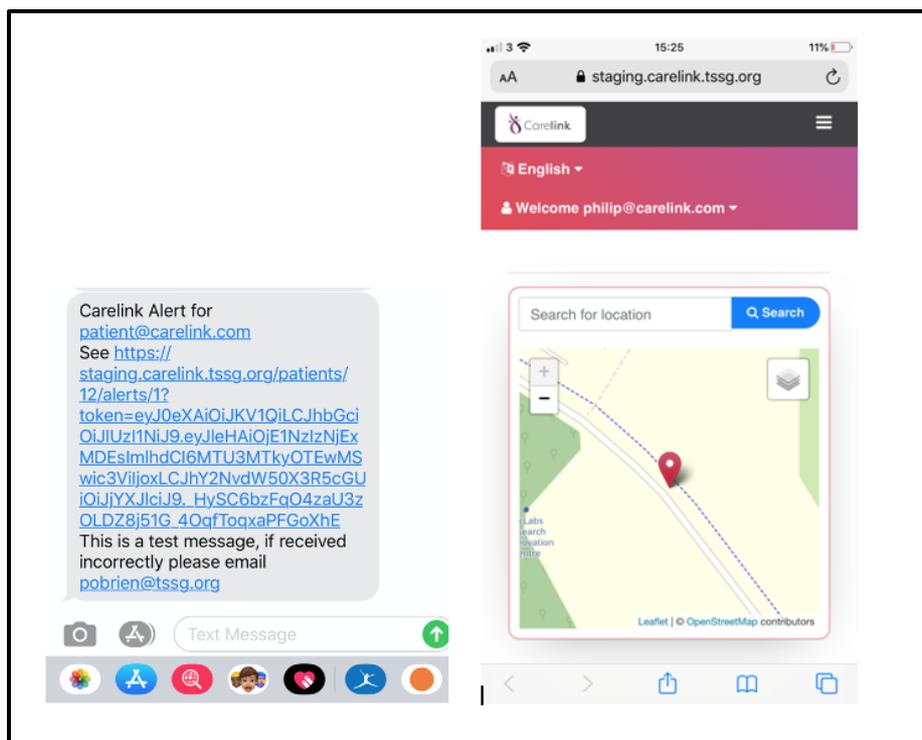
They can be created simply by selecting the 'draw polygon' button on the map, and then clicking the map directly to create the zone. Clicking on the first point completes drawing the zone. Clicking the drawn zone then allows you to name the zone, and specify it as unsafe or safe.

Be sure to then click **Save zones** to save it.



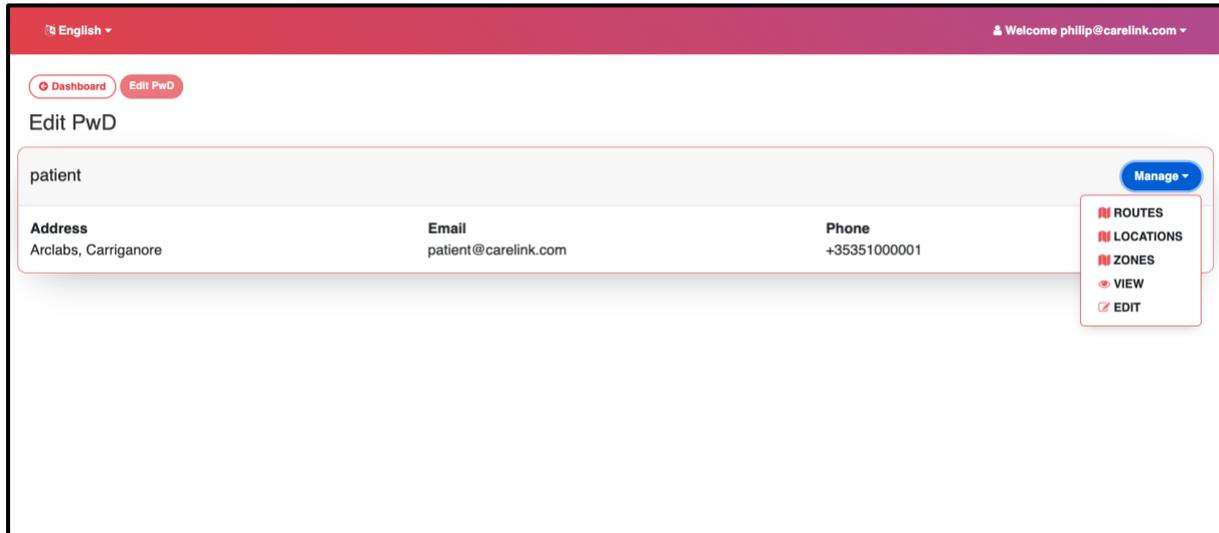


Now once the PwD starts moving outside with their registered Carelink device, their location will be analysed by the platform, and if their current location is outside a safe zone or inside an unsafe zone, an alert will be sent to the carer. This alert will be via SMS, and contain a link that will bring them straight to a web view of the location of the alert.



Two other options are available from the Edit PwD view

- Locations
 - This allows a carer to set locations relevant to the PwD e.g. workplace, home, gym etc.
 - Currently this data is not used by the platform other than as a marker on the map, but the idea is to combine this with the machine learning route prediction.
- Routes
 - This currently shows all logged routes the PwD has travelled.



4 CONCLUSIONS

In this document we have shown the screens for the Carelink project. All have been created with simplicity of use as the core feature due to the fact that not all users will have a technological background and may be aging users.