

Usermanual

MonoToneID

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1 System Overview

EISHMS provides a single page application for monitoring energy consumption and energy generation for your smart home. The system will allow the user to see and do the following:

- View the houses' current battery capacity
- View the houses' total and individual device energy consumption
- Control a devices' state (switch it on/off)
- Receive notifications about system changes and energy levels and restrictions
- Add a device, view its' properties and consumption
- Remove a device from the system
- Manage users of the system

2 System configuration

2.1 Network Setup

A Local area network is required to the connect the components of the system: (<https://www.broadbandchoices.co.uk/how-to/how-to-set-up-a-local-area-network>)

2.1.1 Router Configuration

2.1.2 Dynamic DNS configuration

This section requires a router that supports dynamic DNS.

2.2 Tasmota Sonoff Switch Configuration

This section requires a Tasmota flashed Sonoff Switch or Device. For more information on flashing the device visit [link]. After Flashing the device follow these steps:

1. Connect to the Wifi of the Sonoff Switch.
2. In the Sonoff page enter the details of your network.
3. After the Sonoff Switch has restarted check it's IP address on the router.
4. Visit the IP address of the Sonoff Switch in your browser.
5. Go to Configuration and choose Configure MQTT.
6. Enter in the server address enter your Dynamic domain name.
7. Enter the username and password of you MQTT Broker.
8. Choose a topic for the device, make sure it is a unique topic and no other device has that topic.
9. Save and the sonoff switch should restart. close the page.

2.3 OwnTracks Configuration

OwnTracks is a geo-locating tool that can be used to find a devices' location (<https://owntracks.org/booklet/guide/what/>). This will be used by EISHMS to show which of the system users are inside the house at any given time. To set this feature up on your mobile device follow the instructions found here: <https://www.juanmtech.com/owntracks-http-mode->

3 Installation

4 Getting Started

4.1 Registration

The registration process is as follows, for the following users:

Admin

Upon successful installation of the system the main user or home owner, referred to as "admin" will login to the system using default credentials of **username: "admin" password: "1235678"**. Upon successful verification, the Admin user will be forced to change their details and consequently be forced to login with their new details. These default credentials will only be available for use once and for all subsequent logins the user will have to use their personalized credentials

Guest / Resident

A general user of a system, considered to be a guest or resident in the smart home will register as follows: Select the register option on the initial login page, seen as Figure 3, which will reroute to Figure 1, thereafter prompt the user to input an access key given to them by the admin user. When the key is successfully authenticated then the user will be presented with a registration form, as per Figure 2, where they will fill in their preferred details. Upon the creation of the new user account the user will be forced to login with their created profile details.

4.2 Login

All users will login using their created username and password as seen in figure 3

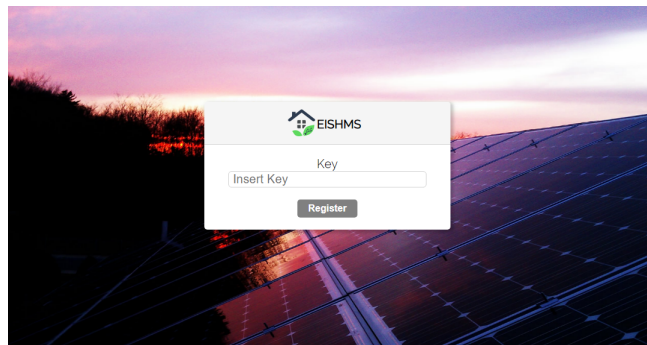


Figure 1 of section 4

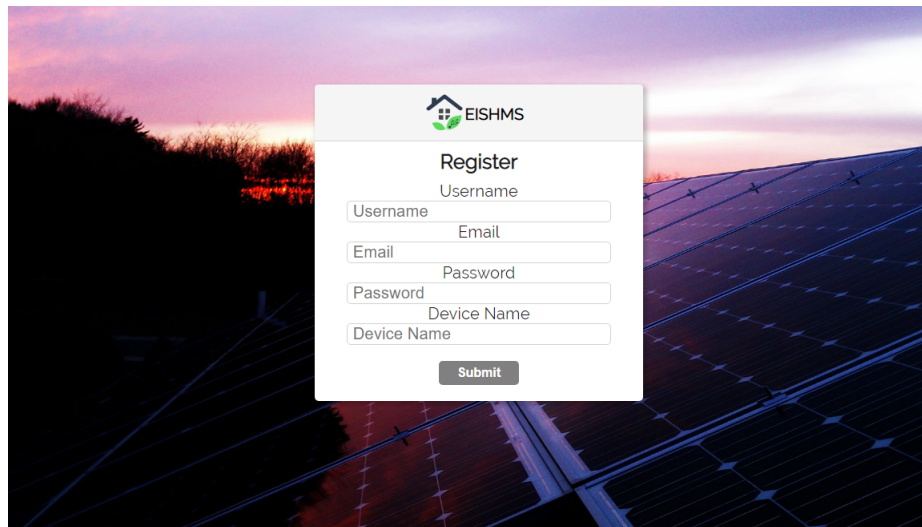


Figure 2 of section 4

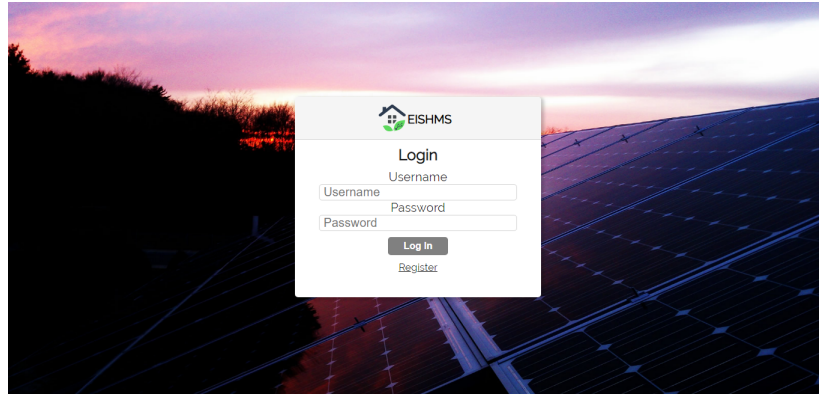


Figure 3 of section 4

5 Using the System

5.1 User Instructions

The following instructions will describe overall uses of the system that all users can access and control.

5.2 Dashboard

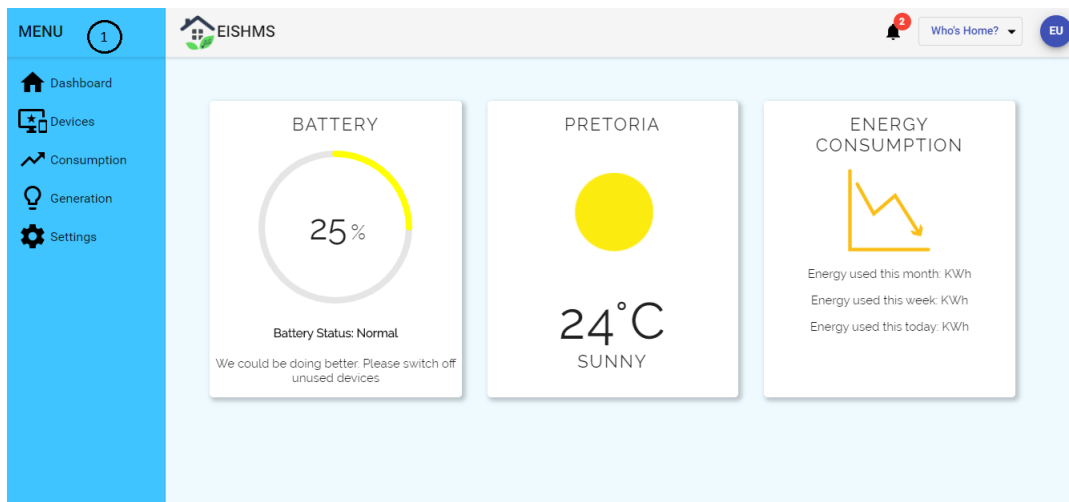


Figure 1 of section 5.2

This is the initial page a user will be introduced to upon successful login. The Dashboard Page includes a side menu indicated by label 1 of the figure 1 of this section. The side menu will serve as the core for navigation throughout the system. It includes links to the various pages as seen in the figure, each link in the menu goes to a page with content related to its' name. Figure 2 outlines the main features of the dashboard page. The features of this page will be discussed following the numbering of the labels:

1. Hamburger Icon
This button will toggle the visibility of the side-menu describes in figure 1
2. Battery Card
This gives an indication of the current homes' battery percentage
3. Weather Card
This gives an indication of the current weather
4. Energy Consumption Card
This give a summarized indication of the homes' total consumption with regards to monthly, weekly and daily power consumption

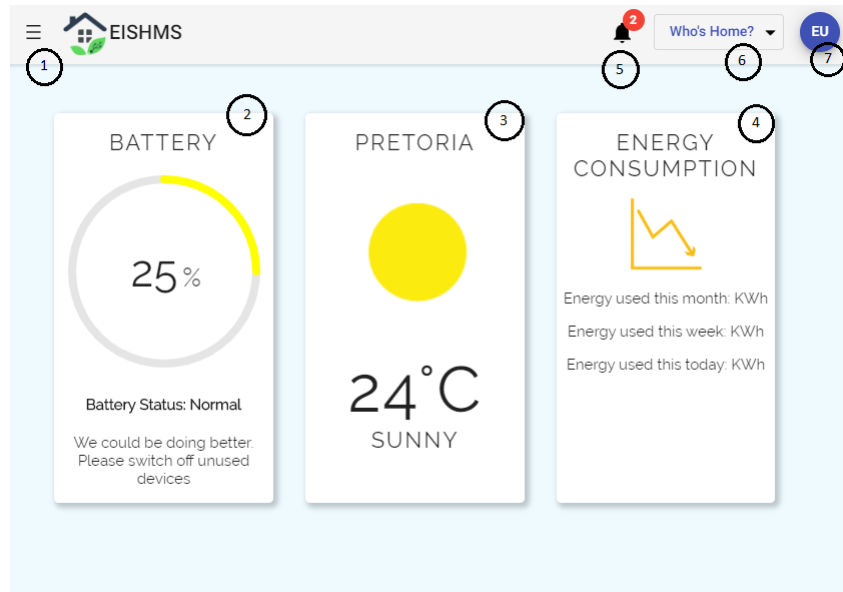


Figure 2 of section 5.2

5. Notification Button

This shows a summarized list of notifications of the system. Upon clicking the tick marked as number 5 in Figure 5 of 5.5, the specific message will be marked as read and removed from the list

Upon clicking the "View All Notifications" button, marked as 2 in figure 5 of 5.5, it will route you to the notifications page.

6. Who's Home Button

This button upon clicking will show a list of system users currently in the house as seen in Figure 4 of section 5.5

7. Profile Button

This button gives a drop down list with the option to change ones' profile details and to logout of the system

Notification

5.3 Consumption

The consumption page is to view various aspects of consumption of the smart home; the user can change their graph to view different devices' consumption's for different time periods. For example:

- Current
This gives a real-time consumption of the graph of a certain device
- Last Hour
This gives a graph showing consumption from the current moment to an hour back
- Today
This gives a graph showing consumption from the current moment to an 7 days prior
- This Month
This gives a graph showing consumption from the current moment to a month prior
- This Year
This gives a graph showing consumption from the current moment to a year prior
- Custom
This will give a user the ability to choose their own custom time range for the device consumption they want to see

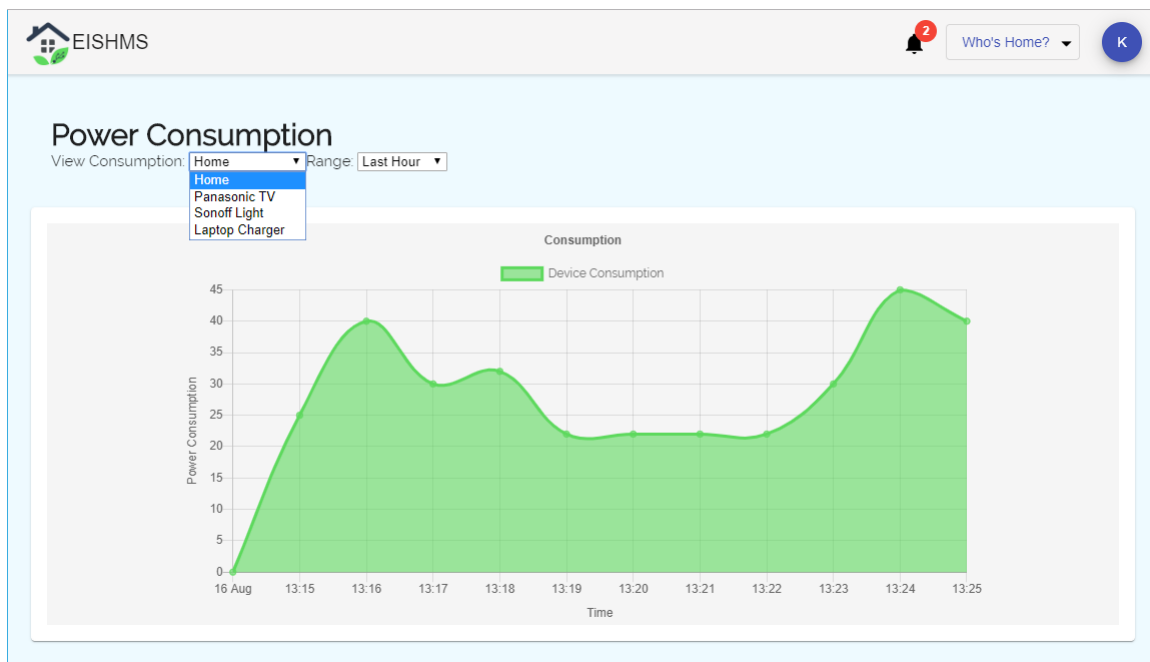


Figure 1 of section 5.3

5.4 Generation

This page gives the user a view of the energy generated by the solar or energy source of the house. It gives various options to viewing time ranges of generated energy

- Current
This gives a real-time generation of the graph of the house
- Last Hour
This gives a graph showing generation from the current moment to an hour back
- Today
This gives a graph showing generation from the current moment to an 7 days prior
- This Month
This gives a graph showing generation from the current moment to a month prior

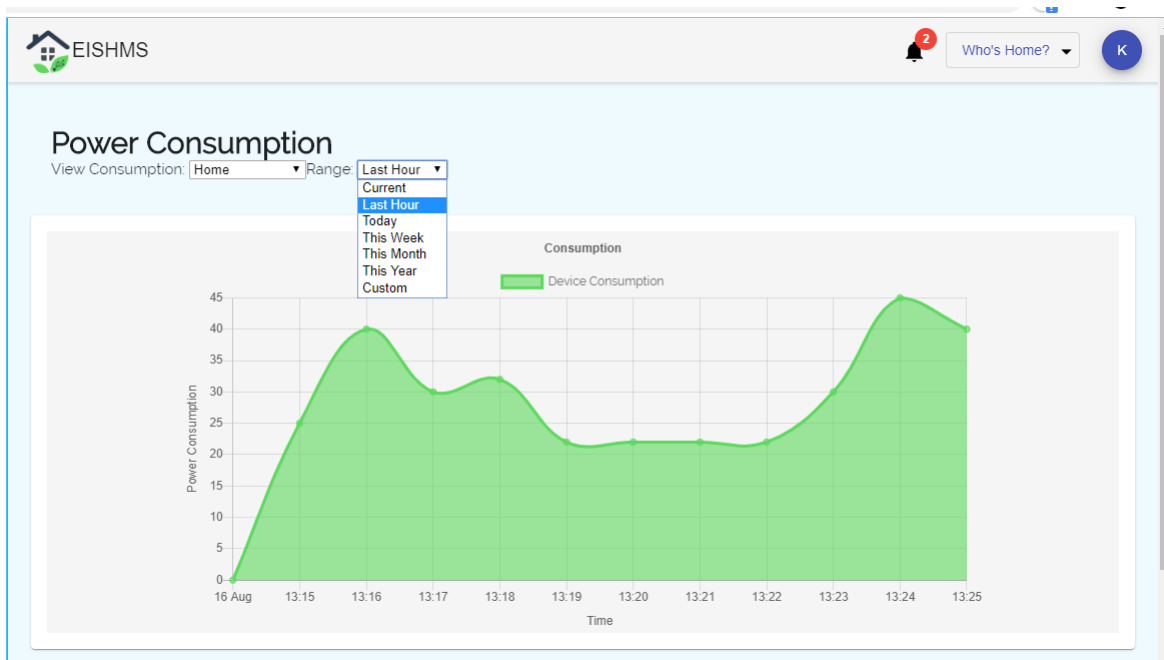


Figure 1 of section 5.3

- This Year
This gives a graph showing generation from the current moment to a year prior
- Custom
This will give a user the ability to choose their own custom time range for the house generation they want to see

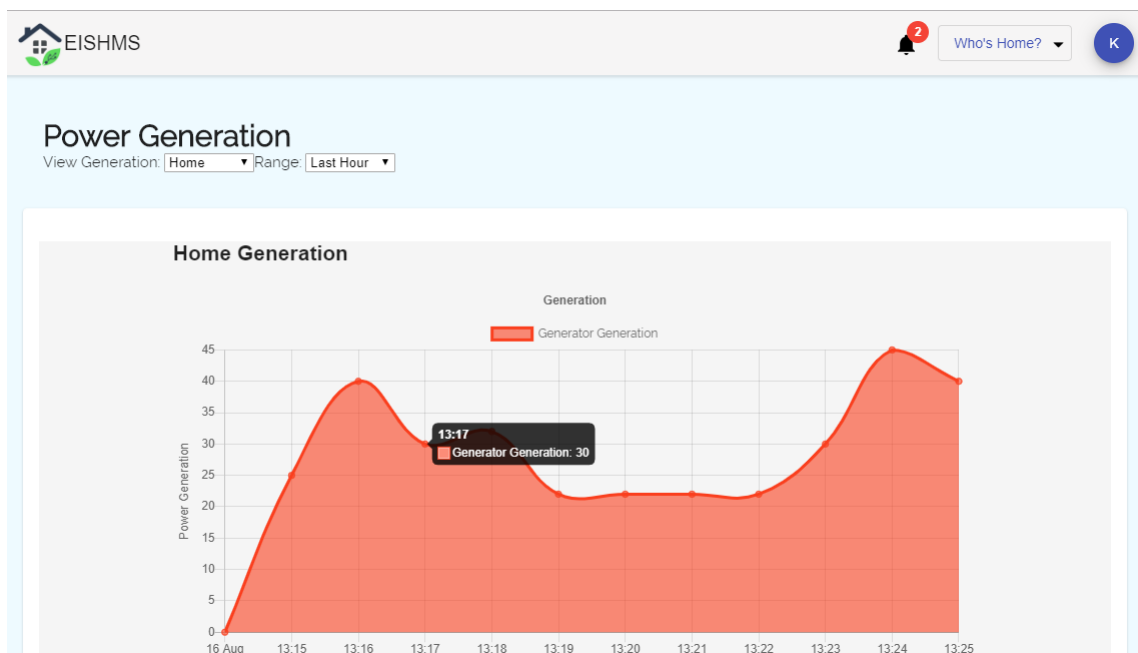


Figure 1 of section 5.4

5.5 Settings

The settings page is for admin use only. It is to manage devices and general system users. The functions of this page will be explained out according to the images and their corresponding labels

5.5.1 Devices

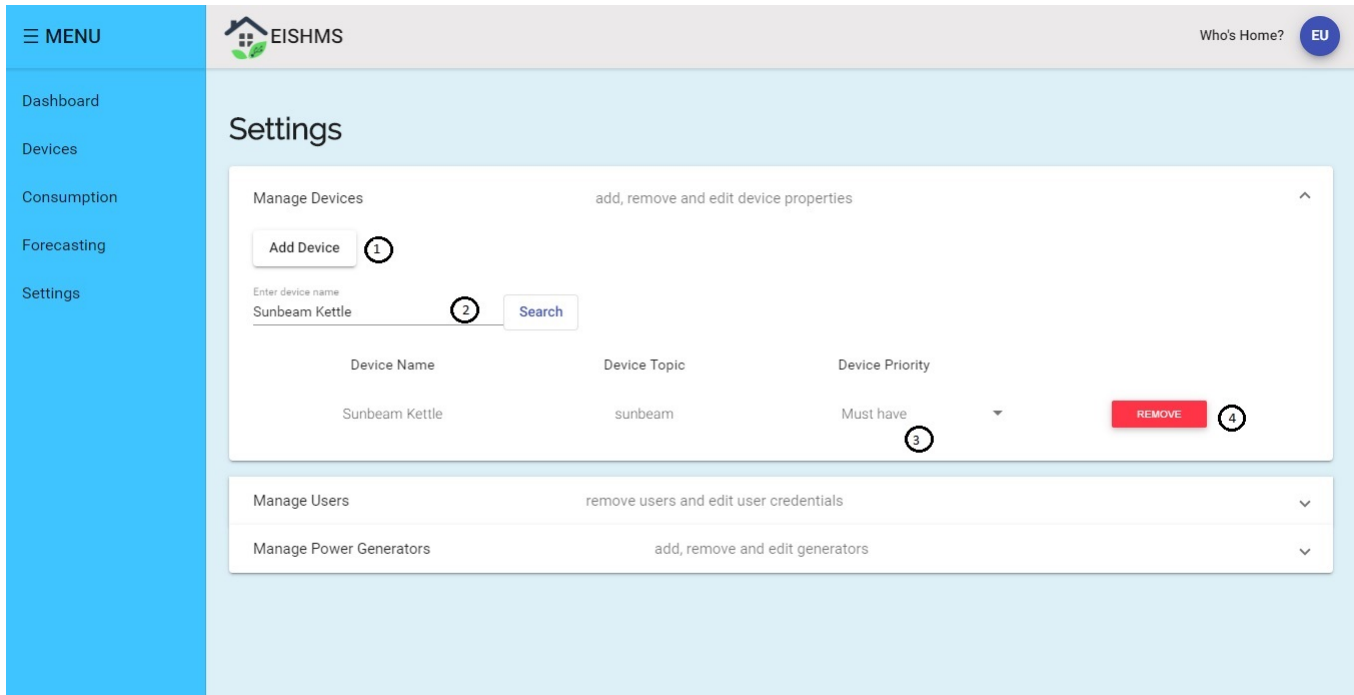


Figure 1 of section 5.5

Figure 1 shows the process in adding , viewing, updating and removing system devices

1. Add Device
This button will open a screen as shown in Figure 2. This will add a new device into the system
2. Device Search
Here the admin user will able to search for a device to view their various properties upon click, as the table indicated by point 4
3. Device Table
The table loads the device(s) that was searched and including their current properties. All columns in the table are editable, such that the admin user can change the properties.
4. Remove Device
This label removes the selected device from the system

5.5.2 Users

Figure 3 shows the process of managing user roles / types. The table shows user details, their respective name, email and current expiry date represented by label 1. The next column (label 2) represents the option to extend a guest users' expiry date for a certain number of days; This column is only editable when the user is a "Guest" The next column (label 3) represents the user type / role, where an active toggle represents a "Resident" and an inactive button represents a "Guest". Label 4 represents the option for removing the selected user from the system

5.5.3 Generators

Figure 1 shows the form used to add a new or additional power generator to the system

Figure 2 shows the details of the generators currently configured to the system. Each of these tabs are editable as with the devices in section 5.5.1

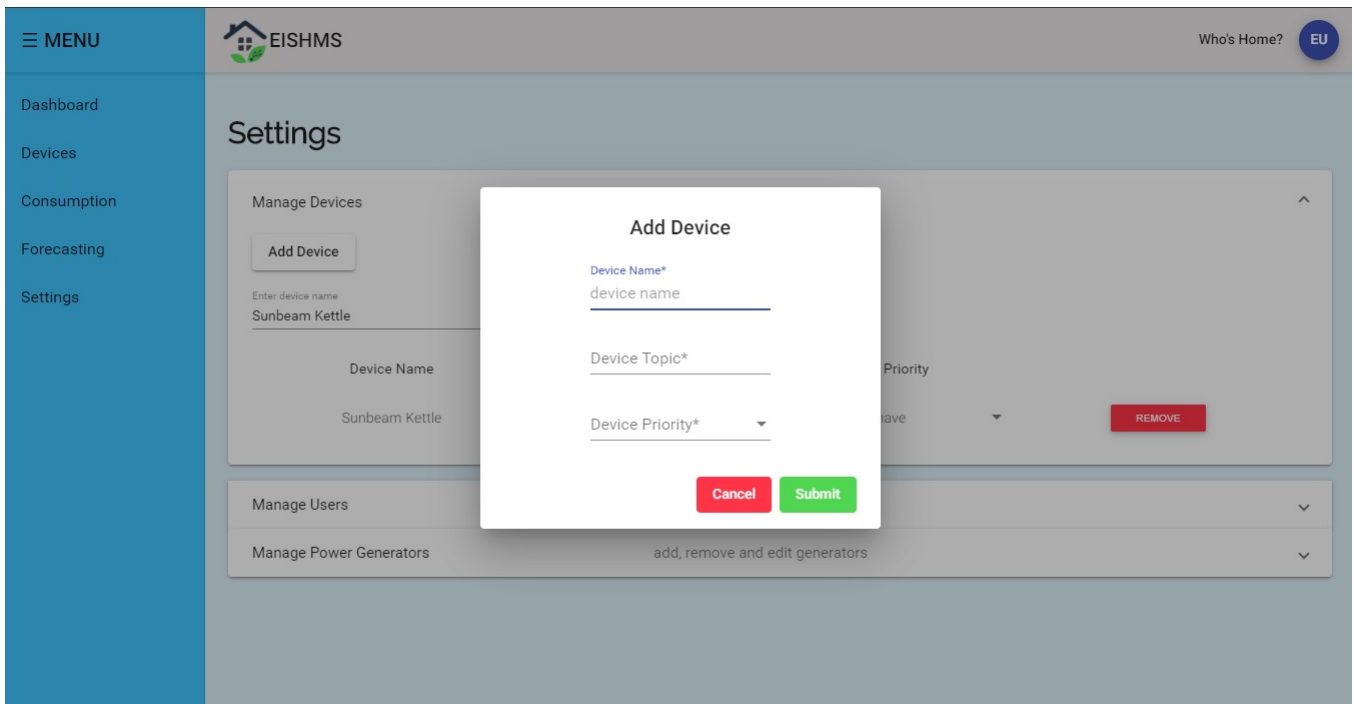


Figure 2 of section 5.4

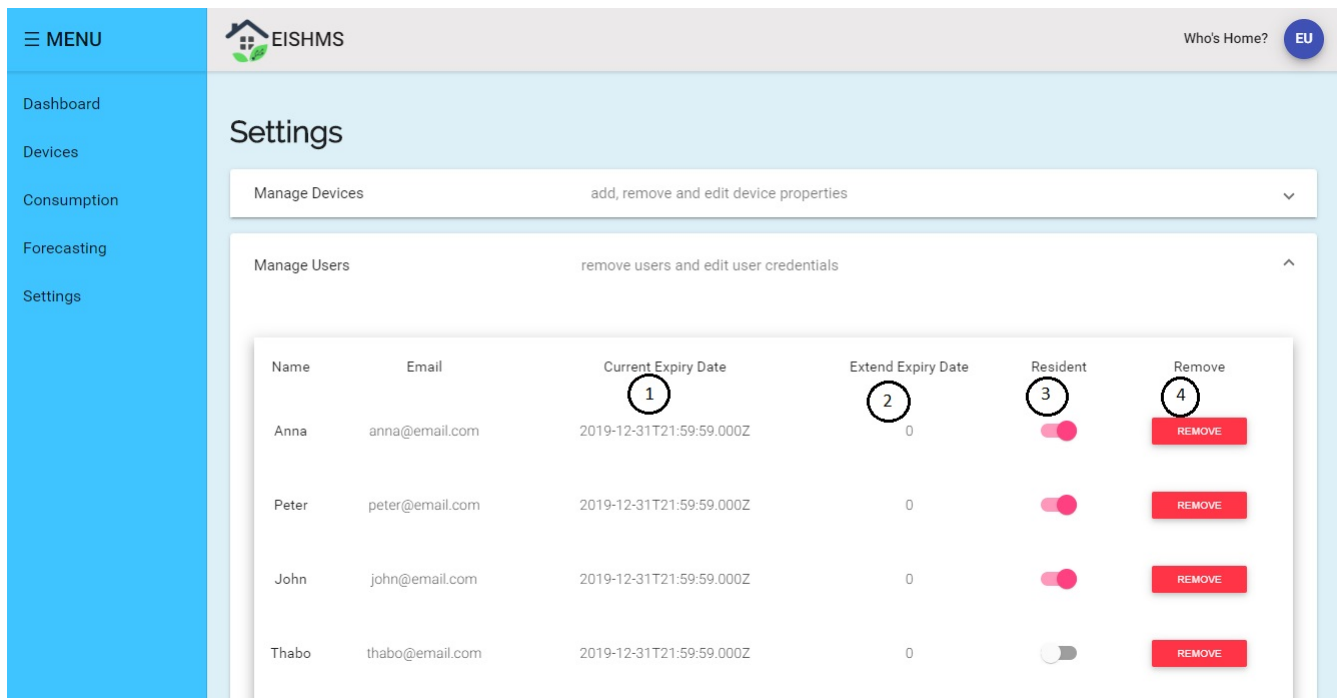


Figure 3 of section 5.5

5.5.4 Home Details

This section configures the system to finding your smart home's location using OwnTracks [section 2.3].

1. As seen in Figure 4, you enter your home's name as known by OwnTracks
2. After step 1, details will appear below

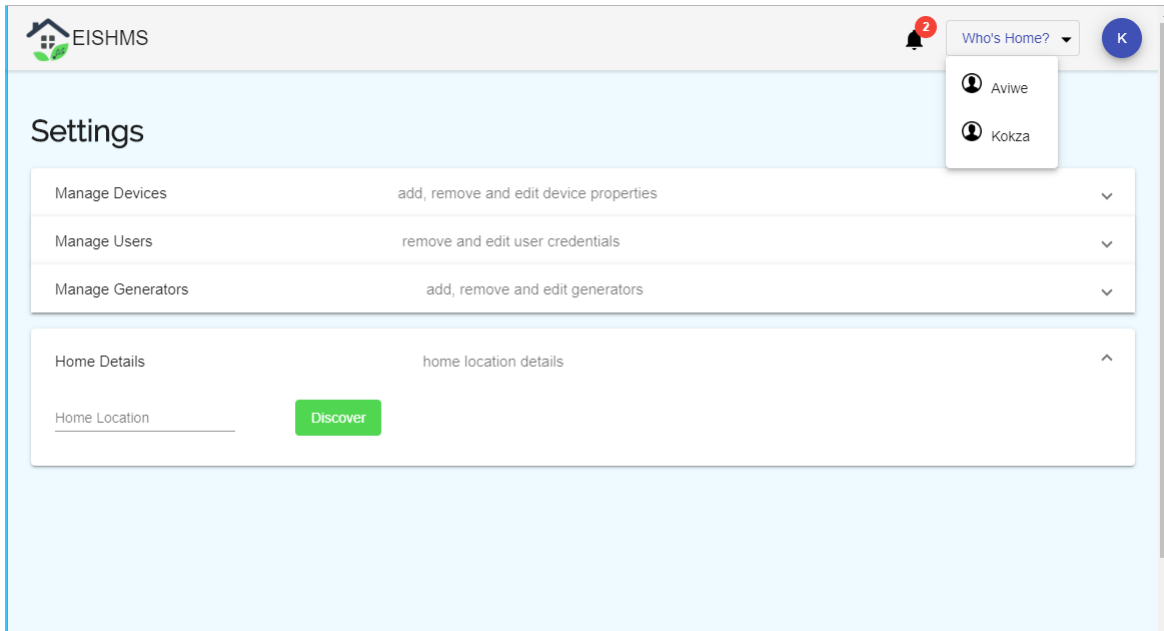


Figure 4 of section 5.5

5.6 Change Credentials

Change credentials allows the user to change their current user details. The users' details are loaded into a similar form as seen in figure 2 of section 4 and from there the user can choose what to edit.

It is compulsory for the user to enter their password even if they are not changing it for the action to be completed successfully.

6 Troubleshooting

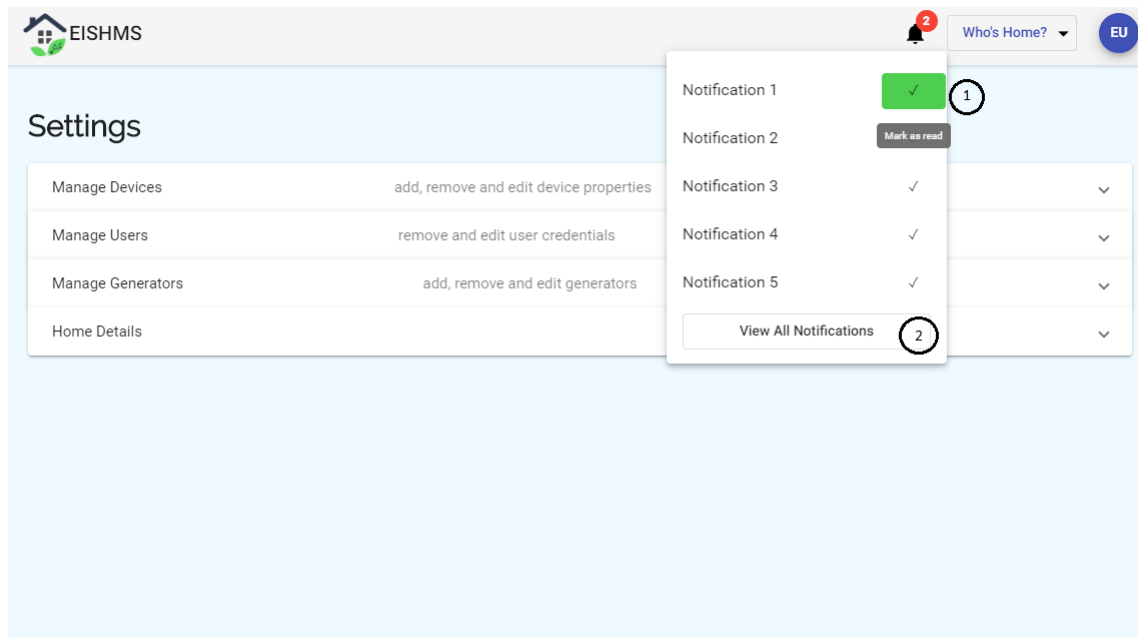


Figure 5 of section 5.5