Installation and User Guide

Levstone REAMIT App

NWE831: REAMIT – Levstone App

Installation and User Guide

Table of Contents

1   Introduction

1.1   Purpose & Scope

This document is provided to serve as a template for project partners, sub partners, clients, contractors when they create installation instructions for the Levstone Mobile App delivery that is to be installed on the Levstone Mobile Frame infrastructure, and to provide guidelines on the general rules governing the contents.

The objective of this document is to provide initial content for partners to set up their own installation documents as best suited to the client's requirement.

This document is only a guide for partners to provide installation instructions in order to reduce possible manipulation mistakes, errors, misinterpretations, loss of time to find the correct information, etc. …, as well as to comply with general admitted rules concerning the use of correct, well formed, up to date, relevant and clear App install and guide document. By no means is this document a complete compilation of the install procedures and user guide.

It will not cover detailed aspects such as the acceptance or validation procedures, nor the technical environment. Should you need further and complete information about these topics, please refer to Levstone Ltd.

The app provides a number of extra functionalities that are not suited for the REAMIT project Pilot Study and are omitted from this document.

1.2   General Principles

I.   The REAMIT Mobile app is available for Google's Android OS devices phone and tablet. Apple version of the same app is not available.

II.   The release APK [package installer] is available from the REAMIT SharePoint together with Release notes for upgrade if applicable.

III.   All App releases are internally tested by Levstone and for the next stage; for partners testing. Therefore all releases are not considered as full production releases for end clients.

IV.   The REAMIT Mobile App is a **none Google 'Play Store' compliant**, as it is not released on the Google platform. There are no downloads required from Google Play Store.

V.   No personal data identification is required by the App. i.e. No user names, email address, phone number, Addresses etc.]

VI.   No other software service required other than the App for administrative or operational purposes.

VII.   Access to REAMIT Pilot Data when using the App is controlled by Levstone, who will issue invitation keys to the partners and provide assistant during the installation procedure if needed.

VIII.   **Whysor Pilot Test Devices:** Whysor provides an API interface to read their devices as and when requested by the App users. Levstone does not write to the Whysor cloud, and strictly only makes read requests via the REAMIT App.

IX.   **Blue Tooth Low Energy Devices[BLE].** Technology not used by Pilot tests, but the REAMIT Mobile app has the capability to read BLE devices such as

BlueMaestro, Minew and others manufacturers who have devices compliant to BLE 5.0 standard and above. For this project only BlueMaestro and Minew are supported.

X. Raman spectroscopy Pilot: This Pilot test partner who are not using the Whysor devices may not find the App suitable for their requirements.

XI. Alerts based on Pilot Data Analysis and modelling: What constitutes an alarm, DEFINITION of alerts required for all pilot tests. Levstone have limited alerts in the App built in for this release.

XII. Facility to read Apple Tags is disabled.

1.3 Quality Control, Security & privacy

The App uses 'end to end' encryption between users via the Levstone server. However, most IoT devices have limited security to protect the data when transmitting to a router or to a local control device. A typical router can be dedicated routing device or a mobile phone/tablet that can be used as a routing device to upload into the cloud.

The quality of the data collected is beyond the scope of the app and partners are encouraged to double check all data displayed and verify the source. It is the responsibility of the Pilot Test leads to forge test plans and carry out effective dissemination actions; hence, enabling partners to make constructive recommendations to their clients to improve their business processes.

All App users are expected to adhere to the REAMIT project's GDPR and project compliance policies, any unforeseen negative behaviour or data related issues highlighted by the App should be reported to the App Quality lead.

App Privacy Policy, Term of Service and Frequently Asked Questions can be viewed from the app Help page on the main menu [Top left button]. The App does not forward any information to any third party directly. Google, Whysor and Digital-Matter service providers have their own policies regarding the usage of their services. The sensor devices are provided by Digital-Matter, and Whysor use this service provider means to setup facility for Levstone to read the sensor data via an API.

XIII.

1.4 App Data storage

Access to the data by the App is only through the Levstone Gateway app running on another a separate instance to that of the main database server. The Gateway app provides secure connections for the client App to protect the database from cyber attacks, broken mobile connections and to queue requests from client devices etc. Below is a summary of the data stored on the Levstone Mobile Framework Infrastructure:

- Record of user consent for policy, privacy and location for compliance with GDPR keep last 366 days.

- User device location tracks are kept for 33 days, logged by real user devices (phones, tablets) that are sharing their location with a group on the device's normal background heartbeat.
- Group diary events (a log of activity per group) kept for 33 days.
- Data log from BLE sensors are kept for 33 days.
- Debug log from real user devices are kept for 33 days.
- Whysor API data: only the last good value from a sensor device is kept until the user is deleted i.e. Historical Whysor API device sensor values are not logged by Levstone. They are viewed on the device Sensor Report chart with data directly from the Whysor API.

The above constraints can be modified if needed.

2 Installation

In order to provide the delivery with accurate, exhaustive, complete and clear installation instructions, please use the following checklist steps:

- Prerequisites
- Install procedure
- Rollback or Un-install procedure
- Configurations and Parameters
- Tests

⚠️ An inadequate, incomplete or inexistent install procedure may lead to the refusal of the delivery.

2.1 Pre-requisites

System requirements:

Software: Android Operating System Version 4 (API 15) to Version 13 (API 33). For reading BLE devices: minimum Version 5 (API 21)

Hardware: Android Mobile Phone or Tablet with a supported Android version above

Memory: The App requires at least 120Mb internal storage and up to 200Mb memory to run.

Processor: Generally any mid/premium device with a multi-core processor will run the app without problems. Newer budget devices may be OK.

Network: Internet connection over Wifi or Mobile Data 3G, 4G, or 5G (2G is too slow), BlueTooth BLE (only required for reading BLE sensor beacons)

Screen: The App supports most common screen resolutions.

App Permissions

The app will ask for permission to use features on your phone, these will include Location, Notification for example, which you can **Allow** or **Deny**. It's probably best practice to change these permissions for the app [or by permission type] in your phone's Settings.

Important: Permissions requested vary for different versions of Android.

2.2 Installation Procedure

In order to download the REAMIT App, you need to have access to the **REAMIT SharePoint**. If you have downloaded the install package APK onto your computer then transfer the APK to the phone/tablet Download directory. Alternately download the APK directly onto your phone.

Allowing app installs from Unknown Sources in Android

Unknown sources: As part of the Android Operative system, there is a restriction that blocks installing applications which are distributed outside the Google Play Store.

If you have a phone running Android Oreo[August 2017 to date] or higher, you won't see a setting to allow installation of apps from unknown sources. Instead, Google treats this as an app permission and you're asked each and every time you want to install an app you downloaded from Levstone.

Allow the App to install from unknown Sources setting.

Note: if you have "App Security Scanner" which routines checks for potential malware, you may have to follow more extra steps.

For Detail Step by Step Install See section 3 Installation Steps.

NB: Some of the screen shots in this document may differ from the current version release of the App.

2.3 Uninstall or Roll-back

To uninstall the App follow the normal app uninstall guidelines. On the Phone, go to Setting->App-Uninstall.

If the App was installed and successfully registered with the Levstone Mobile Framework, Levstone will retain the device id data for future potential reinstallation processes.

2.4 Configuration & Parameters

Within the App: There are number of configuration and parameters required in order for the App to function successfully. Some of the App parameters have default settings and does not require change. See section 3 for details. Basic checks should be performed by the person in charge of the installation and should also check if the application is behaving correctly; without requiring a full functional validation before proceeding to analysis pilot data groups.

Phone: There is also the need to set device/phone setting for the App to function successfully.

2.5 Technical Tests

Levstone will carry out adequate testing prior release to SharePoint and if necessary to check not only functional aspects of the delivery but also not-functional ones.

Tests by Partners: It is envisaged that the Partners using the App should include in the delivery, a separate formed test plan procedure and reporting, that can be handled and scrutinised by all partners. The test plan should be linked to the delivery package it belongs to, describe the purpose of the tests, and should mention in an unambiguous way the correct environment prerequisites and information, the location of the data source needed as input (if any), the actions to perform and the expected results, the output files location (if any). The main reason for the partner tests is that whilst Levstone do carry out internal testing, these tests are limited. Tests carried out by none Levstone employee carry far more weight because of system environments, tester skillset, different devices etc.

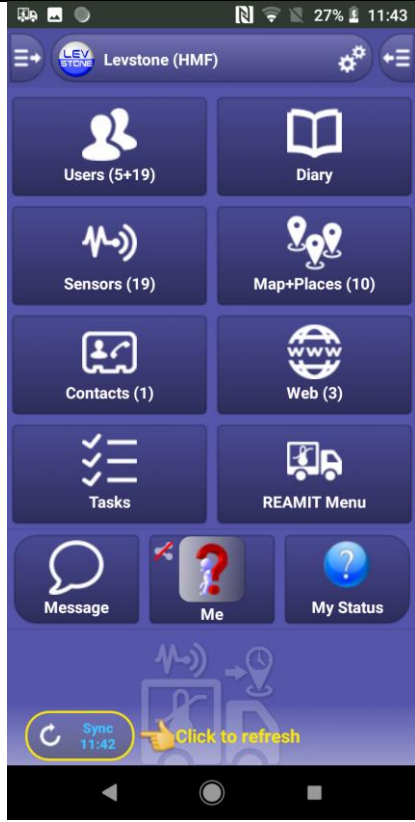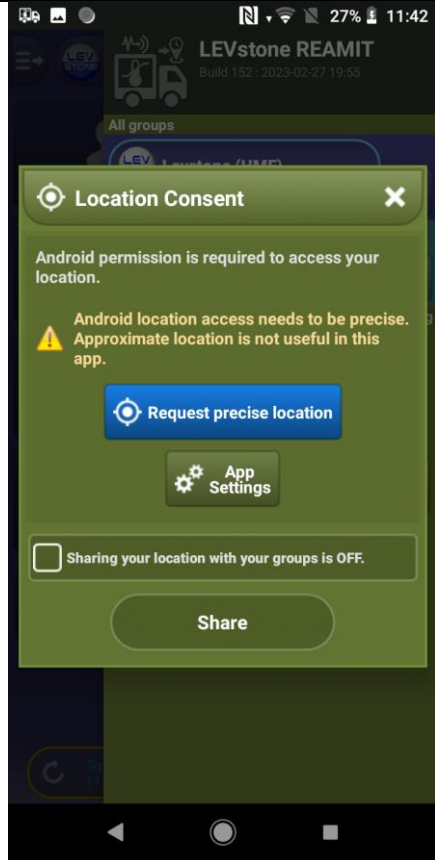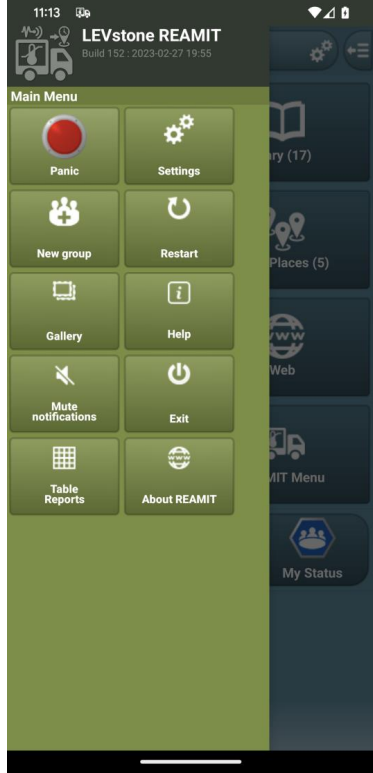Please report any issues regarding the functionality of the app to Levstone.
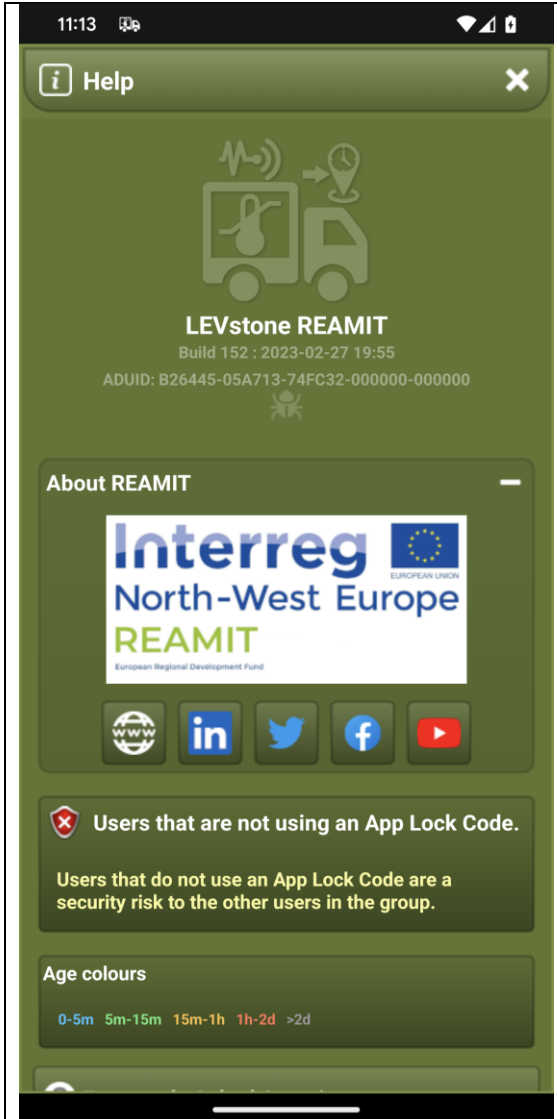
3 App Installation Steps

3.1 Setup Pages

Privacy policy & Terms of service can be viewed, English is default Language, 6 digit security code for the app can be set now or later. After continue enter text to identify your phone. [No personal data required]
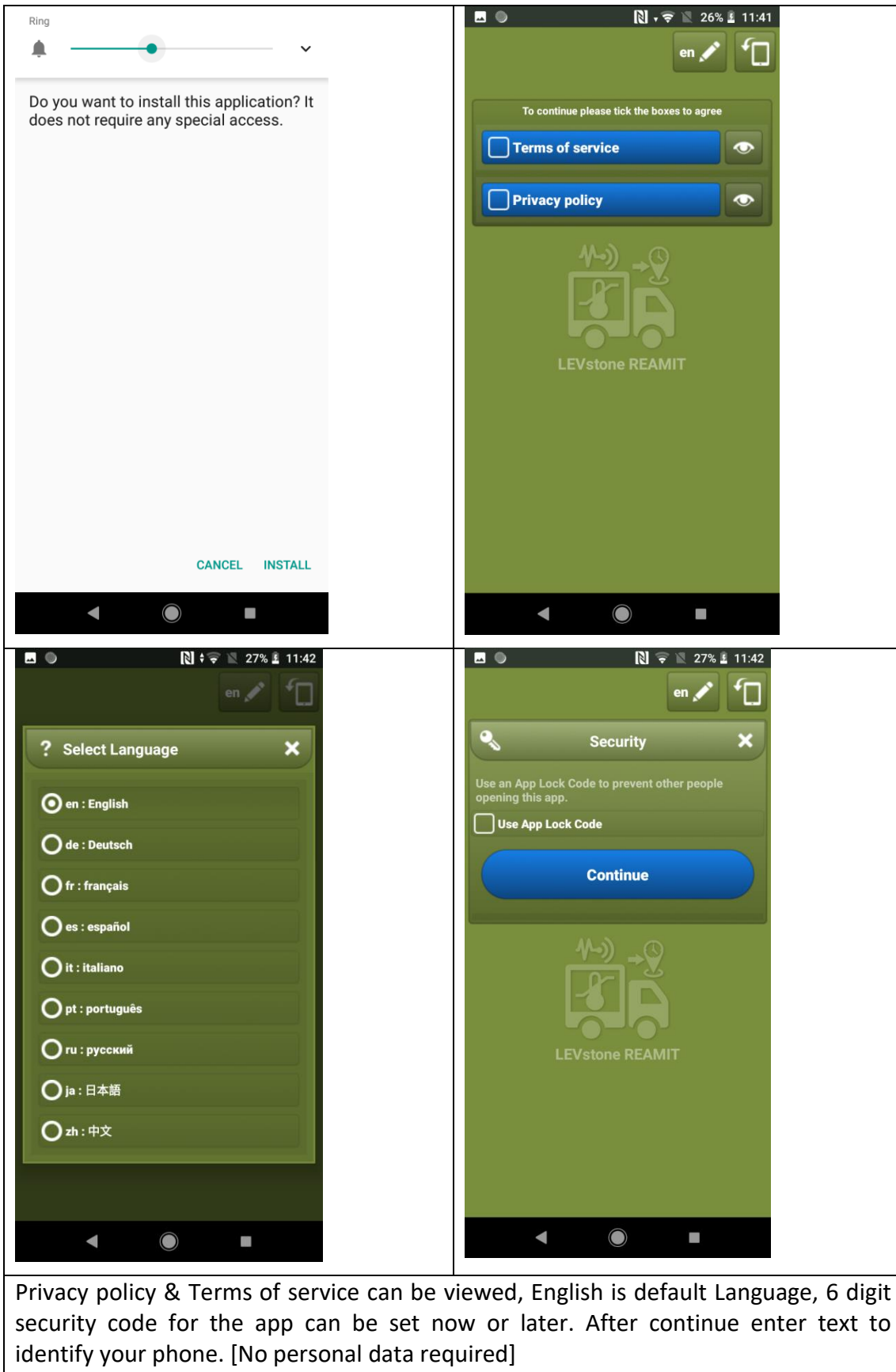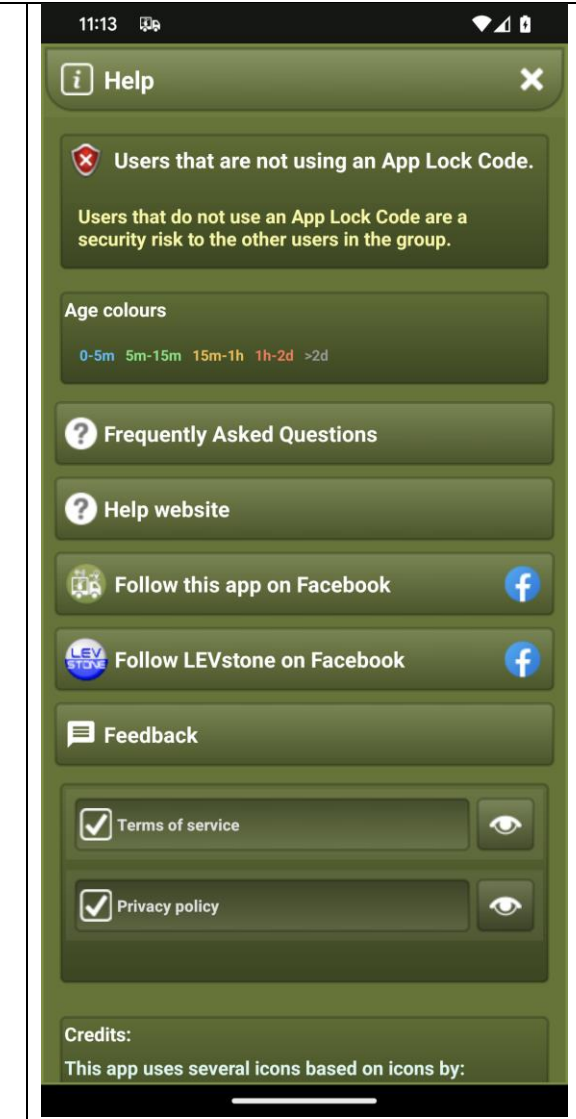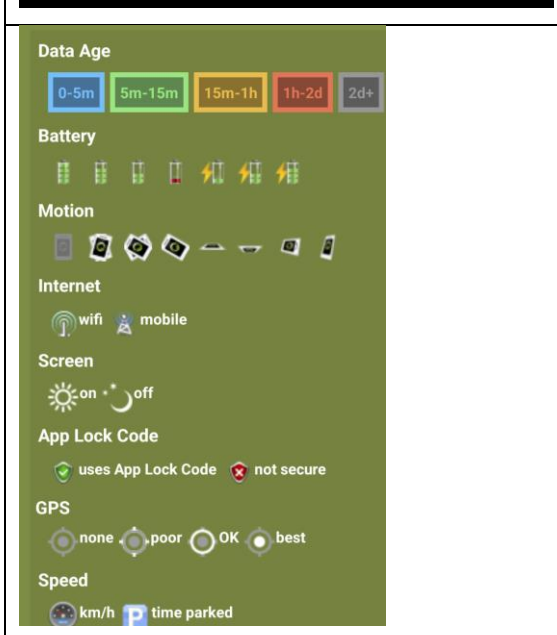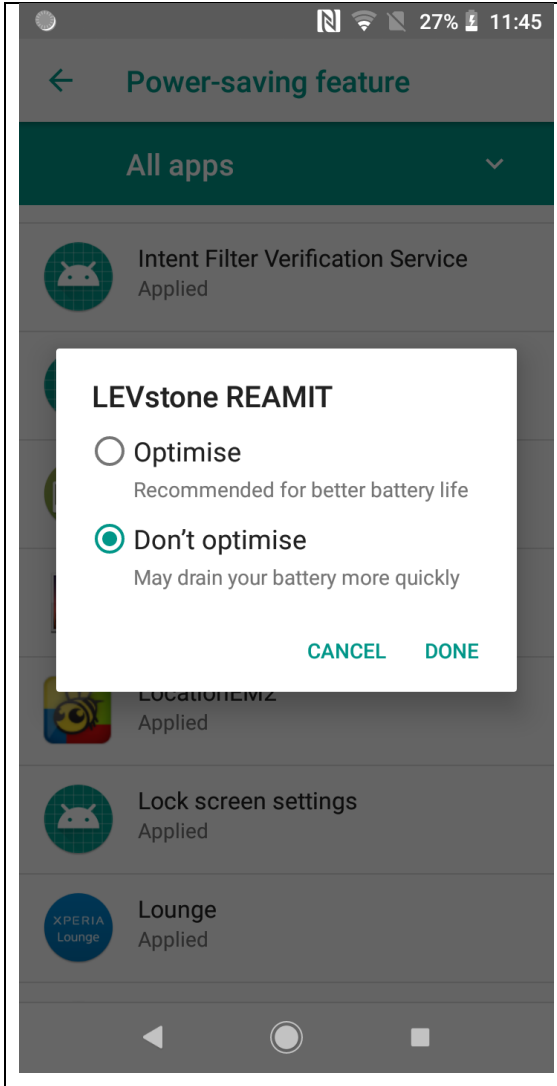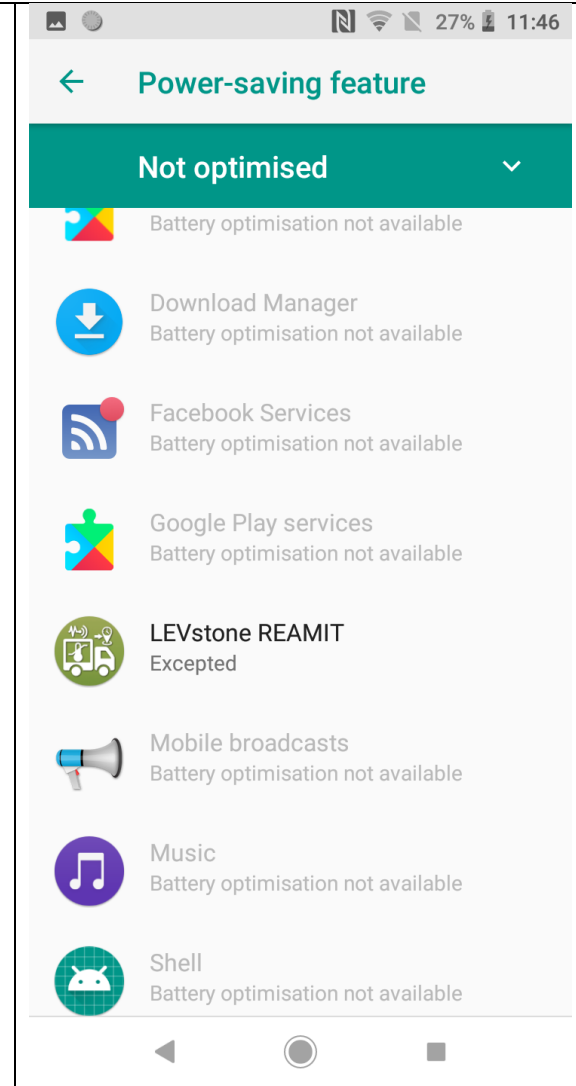
3.2 Registration confirmation Page

	I. You can setup permission by going straight to the Phone setting page via 'App Setting'. The sharing tick is OFF by default. For this to be ON you need to set phone location settings first. II. Make sure you have precise Location setting ON if you want to use Location services. III. For the first time the pages are displayed: there will be a 'yellow guide' [e.g. Click to refresh] boundary around objects which will inform the user of the functionality. The 'yellow guide' help text will be disabled automatically after using the app functionality for the first time.

*When the App displays the App name and the 'Menu' page, the app is registered
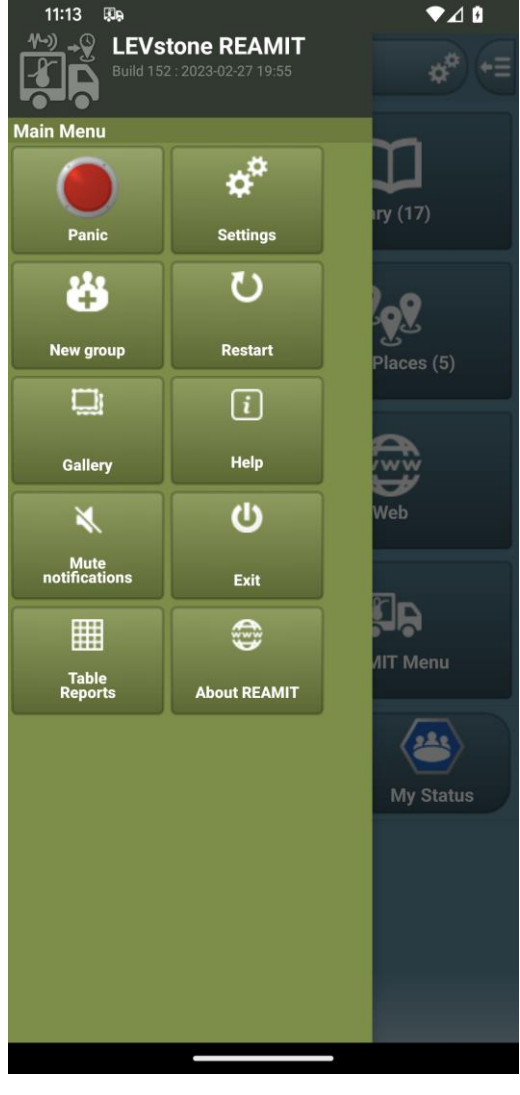
3.3 Explore Help Pages

REAMIT digital Media resources links

In app help for basic functionality:

I. Dynamic Icons used to display current status
II. Age colours is the data refresh - i.e. last refresh. Blue being most recent.

3.4 Set Phone Permissions

Battery optimisation Usage	The REAMIT App background services will NOT function if the Battery is using optimisation services.
I. Improve battery life by placing apps in Doze mode or App Standby.	Set permission as follows:
	Battery Optimisation: 'Don't Optimise'
II. Optimisation is turned on by default and can be turned off / back on as preferred.	**Notification Permission**. **Allow** the App to use this service for automatic alerts.
III. REAMIT App with optimisation turned off may continue to impact battery life, behaviour like most other apps.	**Location Permission**: **Allow** all the Time [This will allow background services to log gps positions whilst the screen is off]
	Pause app activity if unused: **OFF**
*You may have to restart the App after changing setting	

3.5 Set App Settings

Default values : Language, refresh data, others..	Access New Group or Join a Group
I. You can start the scanning services for the Low Energy Blue Tooth [BLE] devices by Maestro and Minew. II. There is also a BLE sensor logging utility optional for testing purposes	The location dwell distance: The app assumes there is no location change if the gps position is no more than the dwell distance. ** Mute all Notifications options [Table reports for Levstone only]

You will need to set Phone Blue Tooth permissions ON followed by a restart of the app required if you want to use BLE devices.

**Dwell distance too small will result in a lot of gps positions and can 'clatter the map pages.'

How to stop all REAMIT App services: Press EXIT then Press "EDIT" and select STOP background services.

3.6 Set App My data Sharing per group

Default values	Pilot Test Groups for Partners
I. You can select what to share within your group(s) users. II. Press Tick button when done	• YumChop • PICNIC • BIOGROS • GlenAffric • HMF
** You will also have your default Group [My Group] which you are the OWNER. Levstone (HMF) group – only for Levstone use	

3.7 Main User Page and Phone page customisation
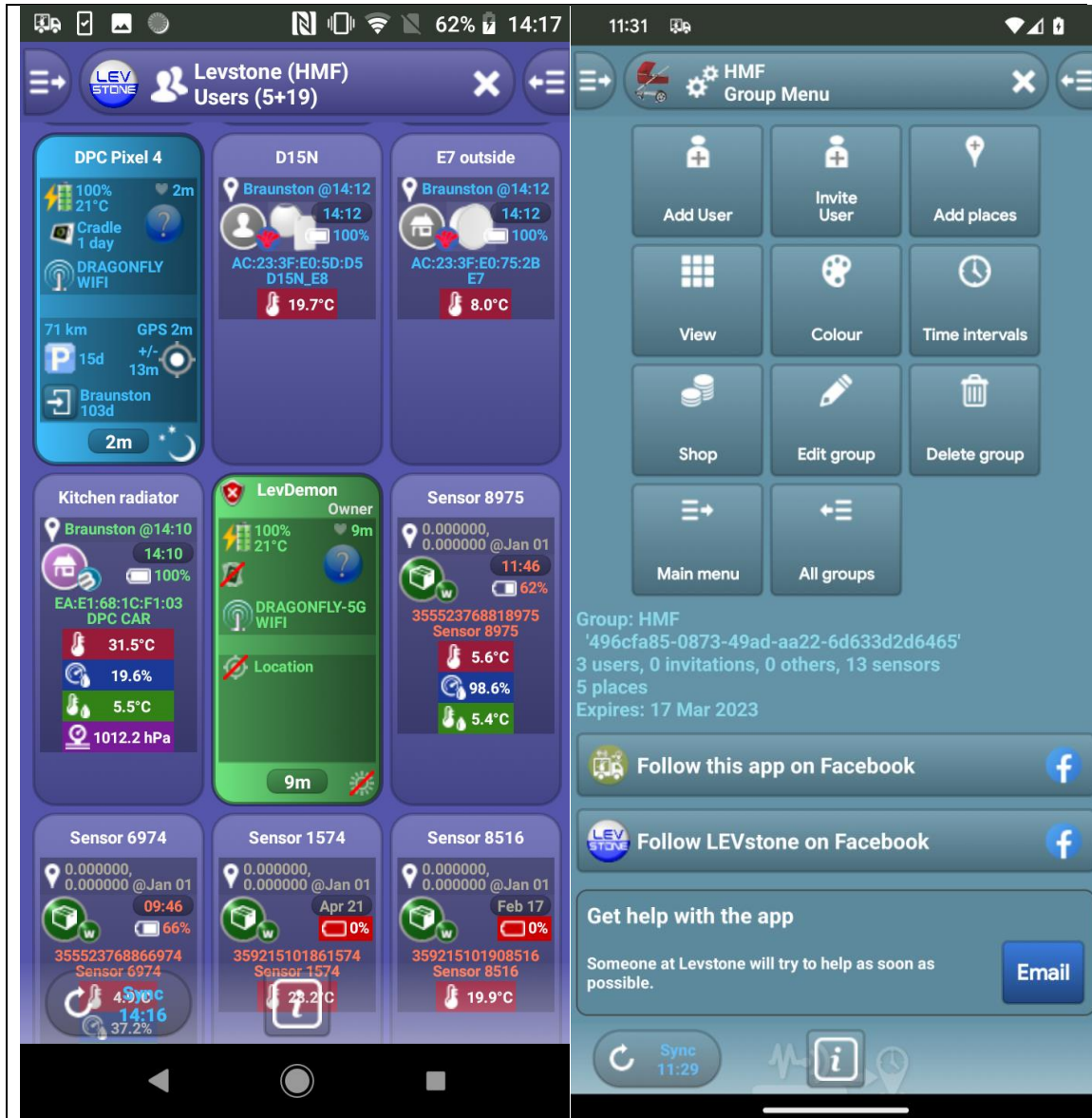
| Default display Users	Group owner privilege is displayed at the top menu bar as "Owner" on the Phone object e.g. LevDemon
I. All objects [phones[5] and sensors[19]] II. Whysor Sensors are labelled "Sensor nnnn", other sensors are BLE e.g. D15N, E7 Outside	Owners of Group: Can Add and remove users, edit the group properties. Change display view modes, colours, etc. This change is for this phone only and not the group.
* Levstone(HMF) group is for Levstone testing only.	

3.8 Join or Add a Group
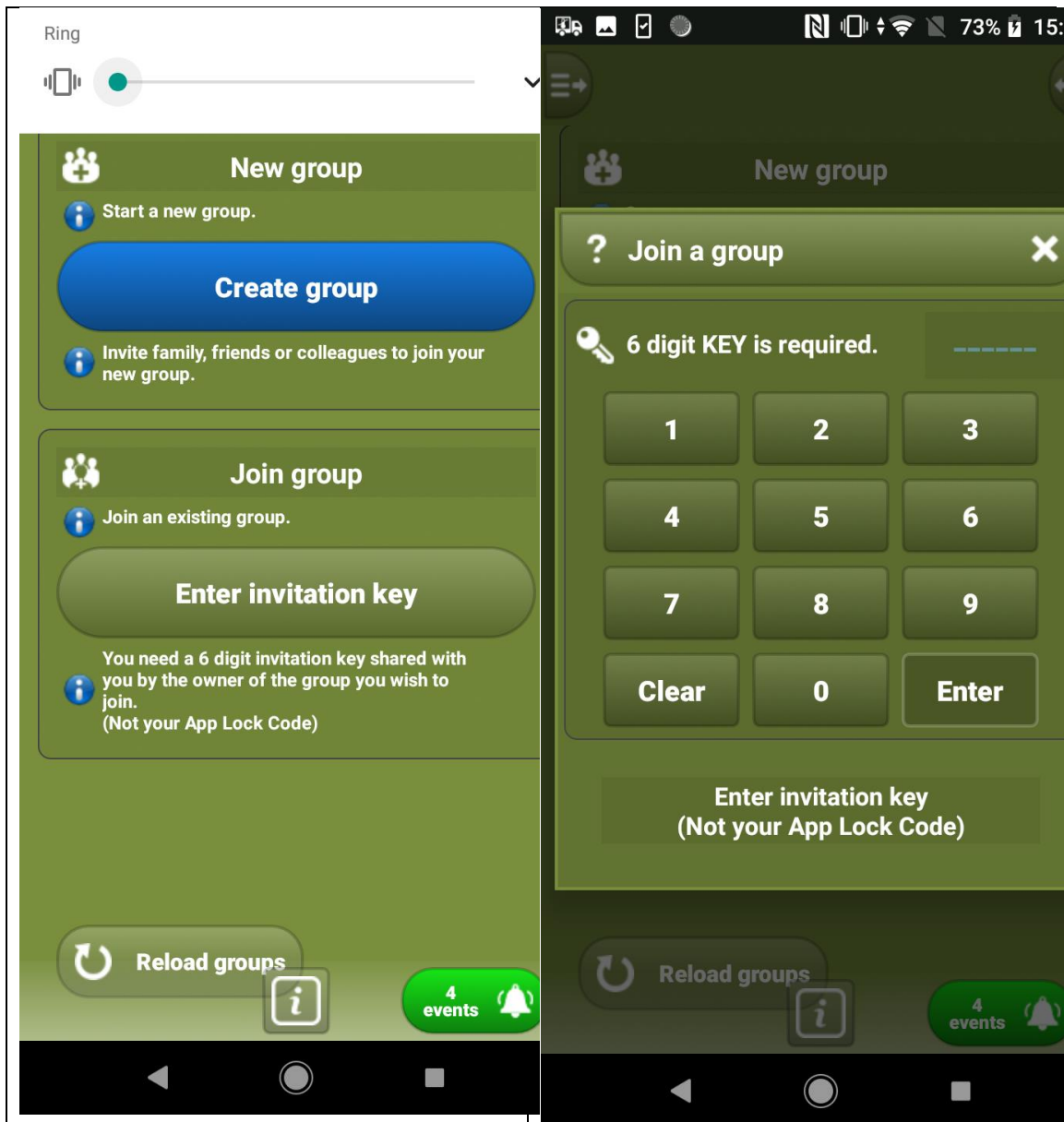
| Create or join: The group owner of an existing group will provide the 6 digit Invitation Key I. The invitation code will expire in 11 hours II. You can create your own new Group	Joining an existing group: After adding your user text[name] you will be prompted for Invitation Key. Enter the 6 digits provided by the group owner to join and press Enter. Do not enter the App Lock Code which will be 6 digits as well, if already setup on your device.

* You can leave a Group if you desire even if you are not the group owner, by deleting yourself in that group.

**A group owner can only 'leave' a group if there is another user with owner privileges. If you are the sole owner then you can delete your group all together but you cannot delete yourself as a user.

3.9   View Pilot Test Devices per Group
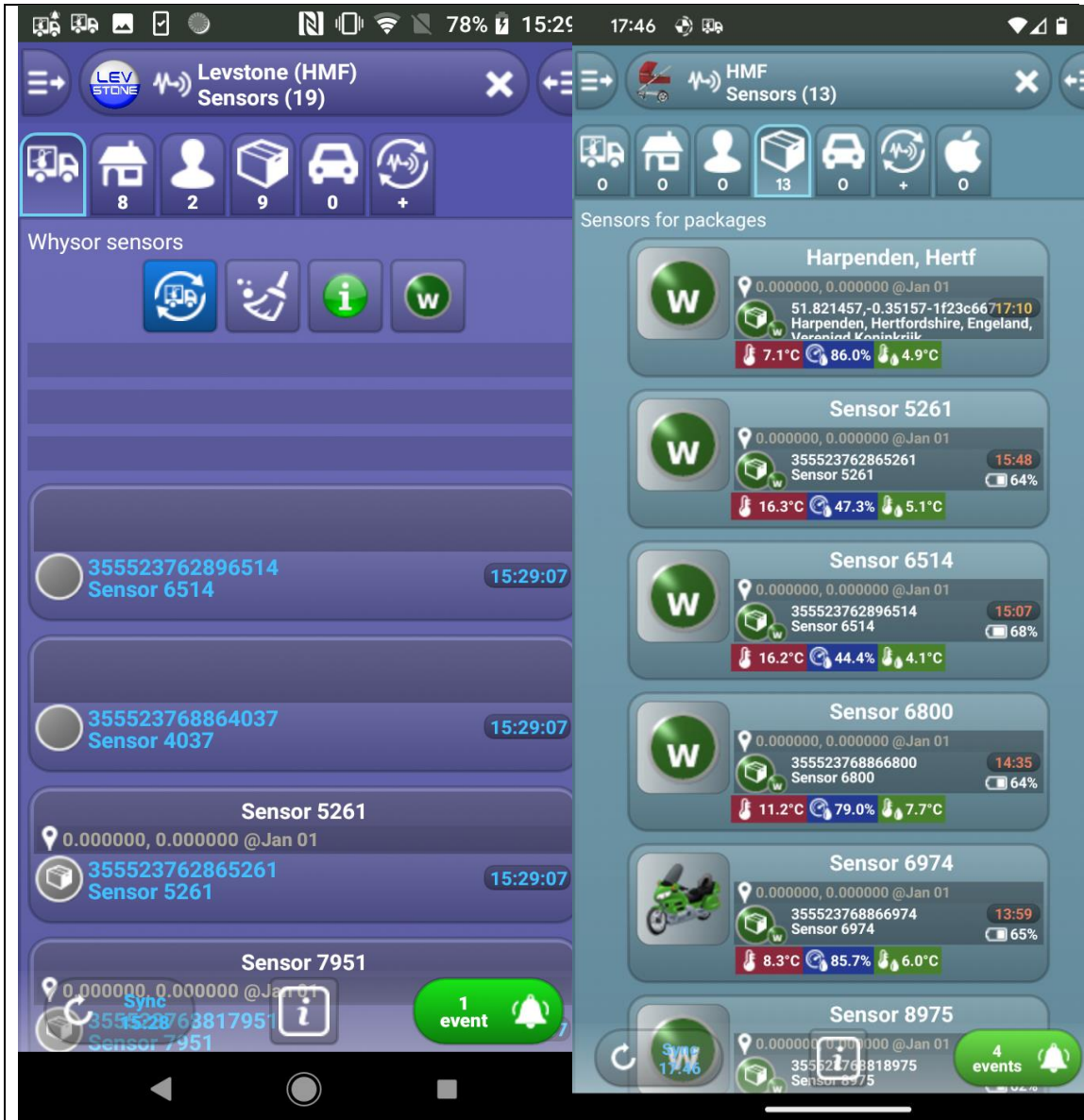
How to Scan for Whysor devices for a group and organisation:	Registered Devices with the App:
How to Scan for Whysor devices for a group and organisation: Select the Lorry icons, followed by press lorry with arrows button, the App will request to read all Whysor devices for this group and organisation. You can Add or remove these devices from the group. If a device is already registered with the App.	**Registered Devices with the App:** List of HMF devices in the main Sensor page. The group can select the interested sensors and remove unwanted devices. Object with an icon with "W" are Whysor sensors and have been successfully registered by the App. Sensors can be in categories as: fixed position, vehicle, person, home.

* The 5 Pilot groups already have some of their devices registered.

*In a similar manner BLE Sensors can be added or removed and additional options will appear for the setup of BLE devices.

3.10 View Pilot Test Devices per Group – Add Whysor Device

How to Add a Whysor device & Register	Press (+) for additional info entry
I. Sensor 4037, Press + Add button, the menu on the right will pop up. II. Other sensors without the + are already registered	A Registered device can have a number of associated information. E.g What is the device for, who installed, other info..

* For Whysor devices default icon is used with W, you can change this and other default information to suite your requirements

3.11 View Pilot Test Devices per Group – Additional functionality

Context info for Device – Supportive info client.	For Device named "Sensor 4037". There is additional info [text] :
If during the adding of the device you have given email, telephone, www address. There will be 2 objects for this device created on the Menu:Contacts, Menu:Web page for easier access.	For Contacts: there is at least Telephone or Email entry or both for this Device.

* Contacts & Web objects cannot be deleted individually or separately from the device. Only deleting the device will remove these objects.

3.12 View Pilot Test Devices per Group – Fetch Latest values

Device read confirmation and supportive info	A device can have a number of sensors, in this case for Sensor 4037 there are 6 sensors
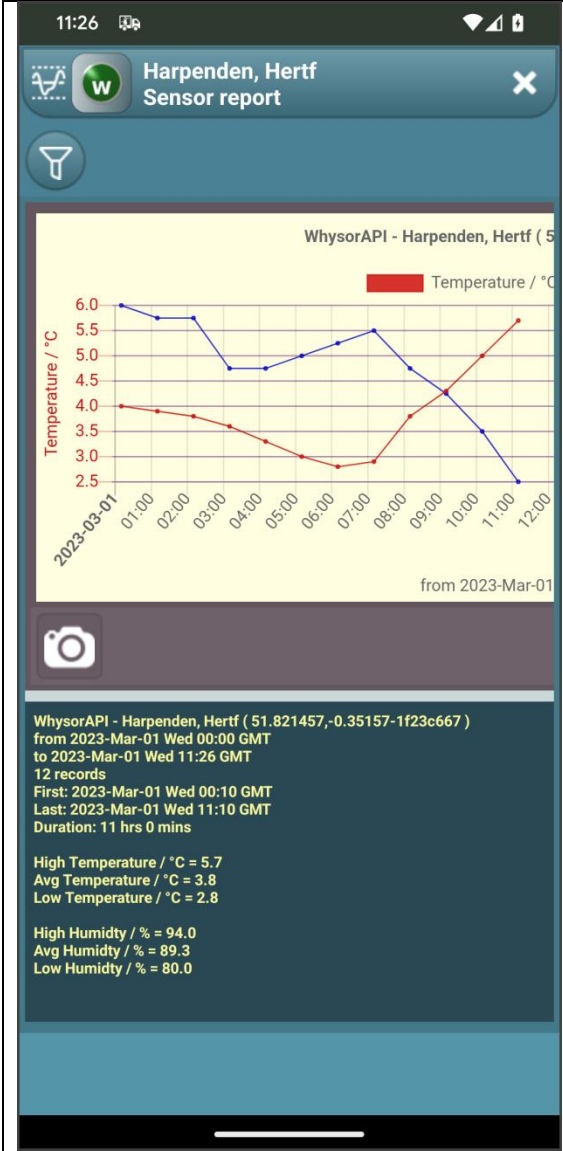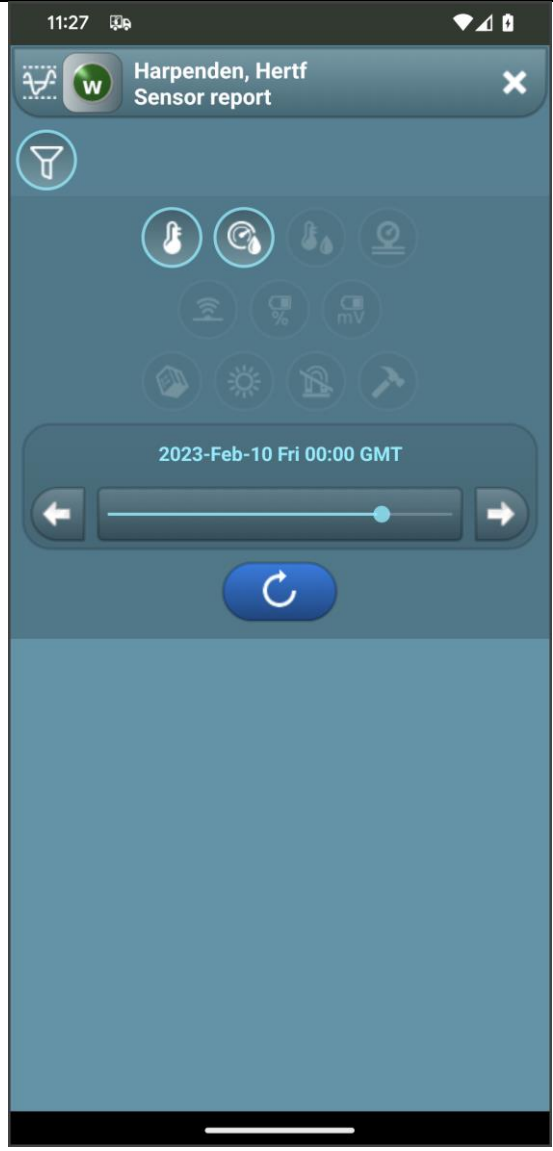
* The Refresh icon[circular arrow] press will make a request to read latest values and display them in the panel below. The refresh is for this device only.

** To refresh all devices in this group on demand, Go to Sensors Page and press the Lorry icon followed by Whysor icon[W].

There is a normal refresh carried out per group without user interaction.

3.13 View Pilot Test Devices Data per Group - Graphs

Device per Sensor Graphics - Daily	You can select which sensors to display for a given day.
I. For this data 12 records read, first and last record date and timed.	Some sensors do not have data logged, they are displayed with an empty graph.
II. Max, Min, Avg for this period	
III. Graphics are best viewed on a tablet	

* Not all devices have same sensors, there are considerable different devices in use, hence you will have different filter icons displayed for each one.

4 Additional App Functionality

4.1 Blue Tooth Low Energy [BLE] devices
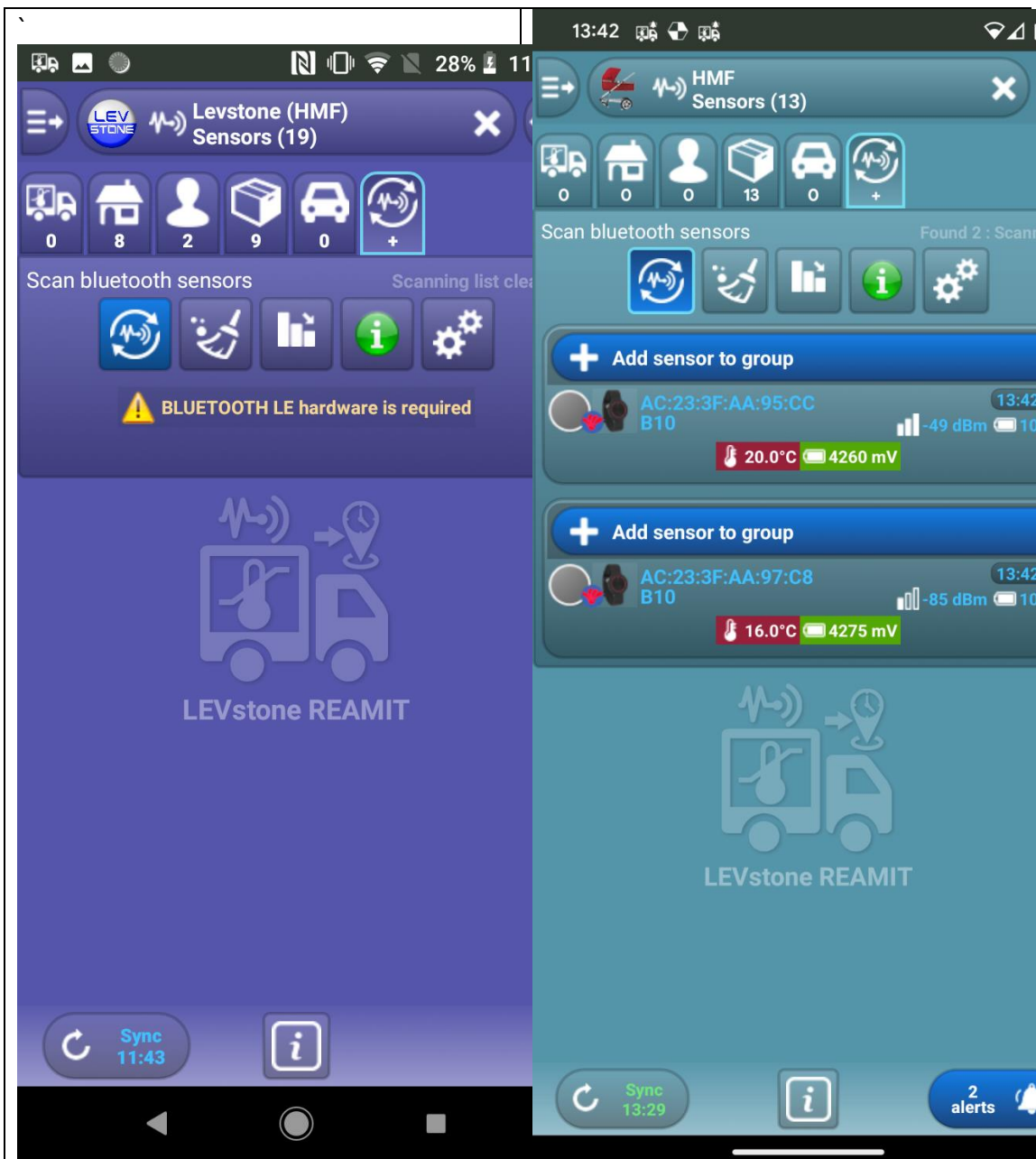
BLE Sensors setup: Some phones don't have BLE radio. The app displays a message as above.	BLE Device Scan ready for registration
Phone: Bluetooth must be on, Permission must be granted to the App	Add sensor device to the group in a similar manner already described earlier.
BLE devices must be nearby when scanning [< 5m]	
Press the 2 clogs icon to get the BLE	

Sensor Beacon Scanning service. Set the relevant BLE sensor monitoring in the App and start the scan by using icon above. Do not forget that the device needs to be transmitting BLE signal. Some of the devices have on/off button, some have magnetic switch which can be toggled by a small magnet, some have 'pull out' strip which allow the sensor to turn on forever until the end of battery life.	
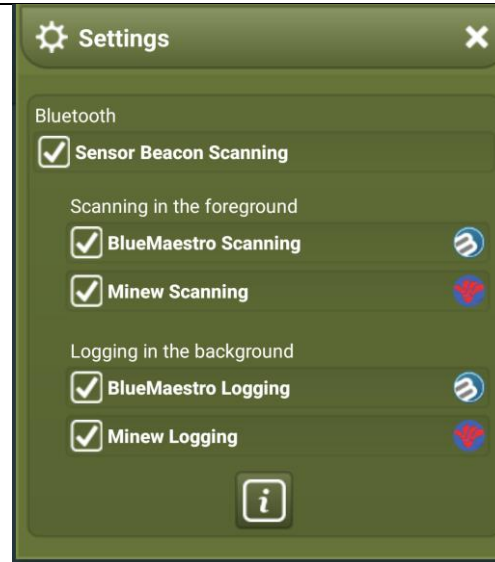
* BLE Long Range devices require significant more power than short range BLE devices.

** BLE devices transmit signals periodically, so, when first registering a new device with the App, it may take up to 1-2 minutes.

4.2   Tasks Control – For operational processes
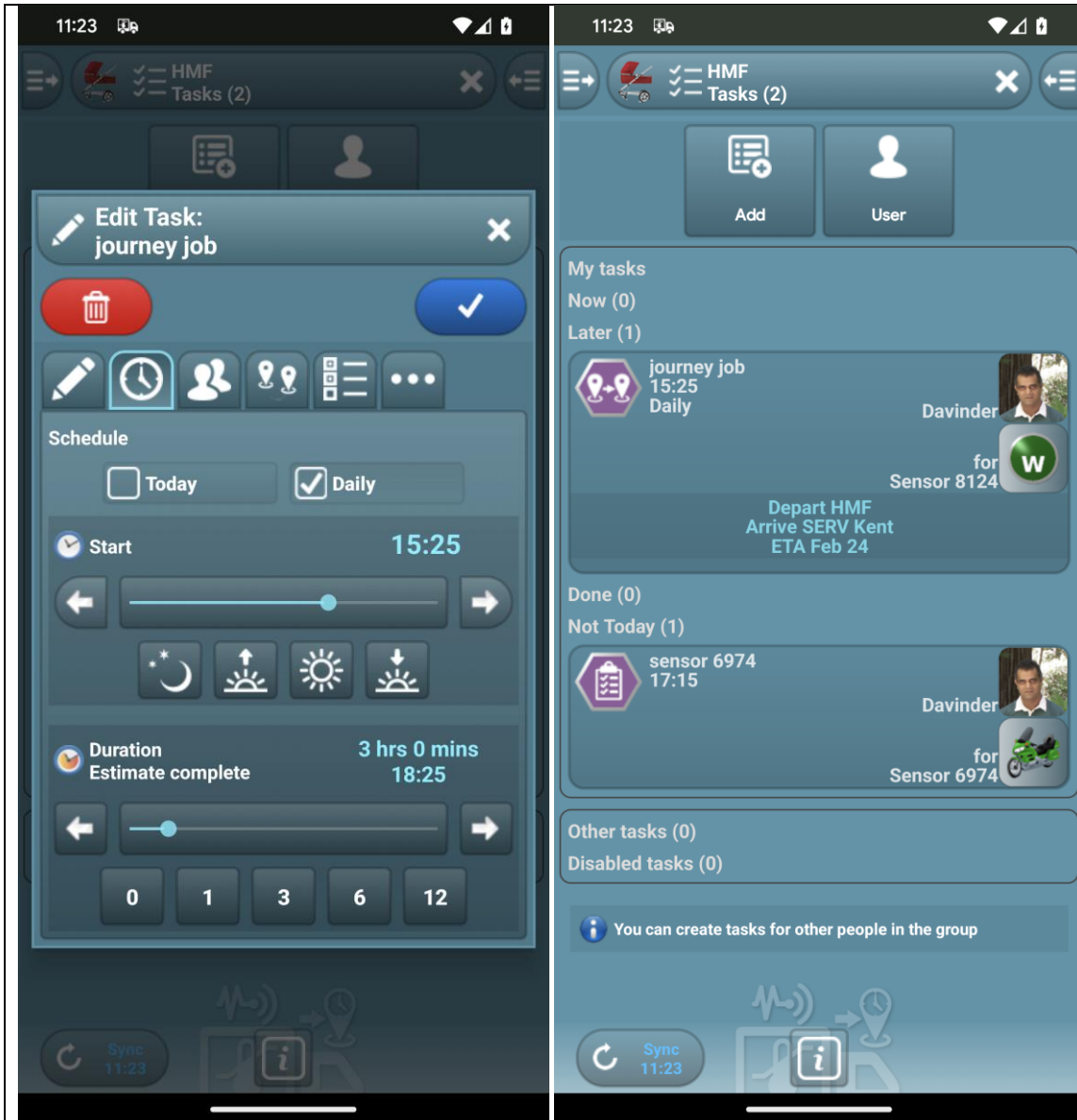
Configure Tasks	Task can have a number actions which should be performed by the person doing the task and these actions can be configured. e.g. Map zones [in and out], Start , Cancel, Complete, Photo, text string for Progress1,2,3
A task is an action to be performed by designated group user. Alerts will be sent to group members. E.g. Demand and Supply type action to be accomplished.	All actions have the timestamp, user device info, & GPS option data etc. making the **Task data sets to be totally robust and genuine.**

* e.g. Task Journey Job for Davinder, daily to start at 15:25 delivery from HMF to SERV using sensor 8124

** Alerts: What constitutes an alarm, DEFINITION of alerts required for all pilot tests.

4.3 Maps and Places
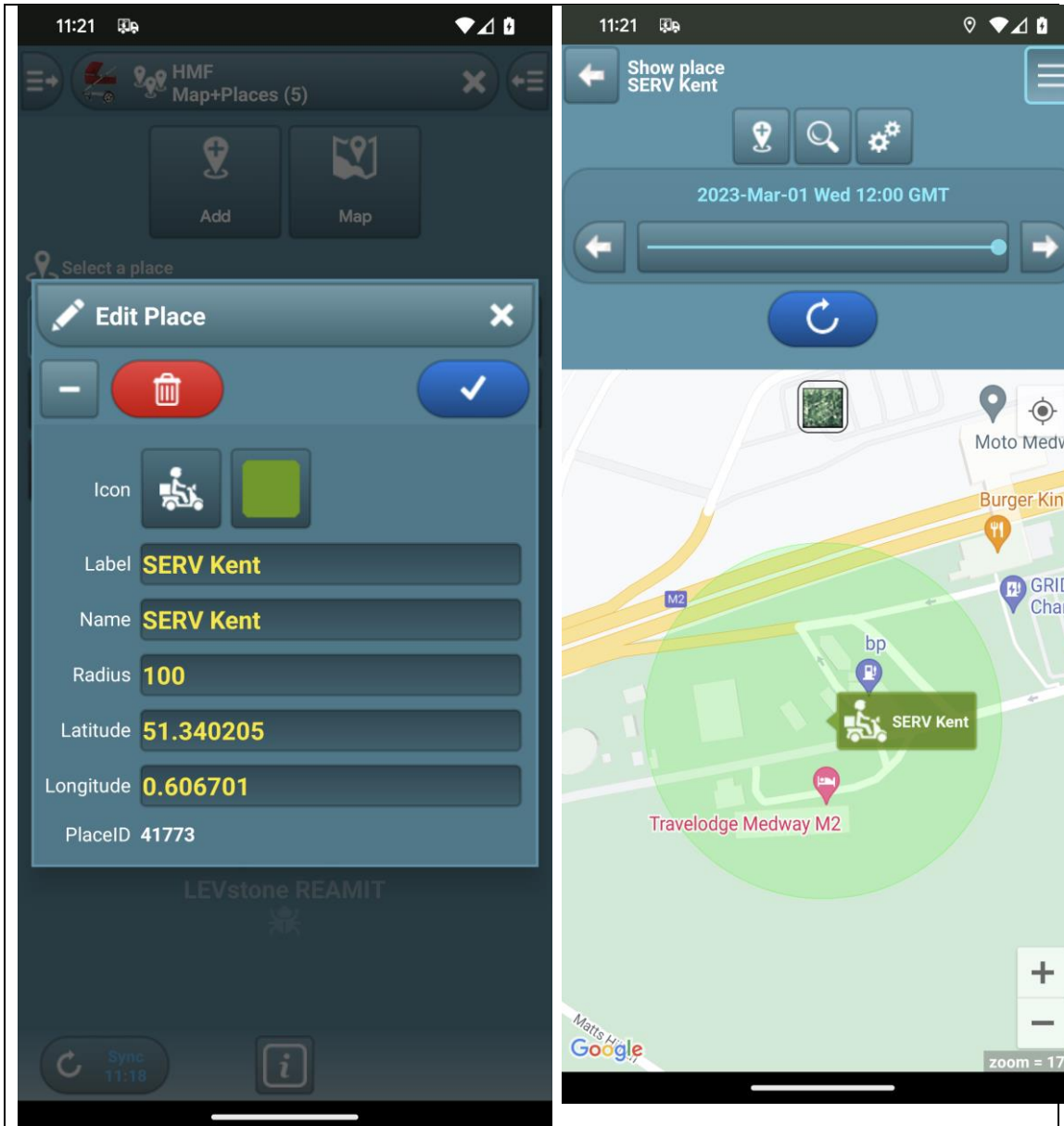
Configure Places & parameters	Places are useful way of configuring journey based tasks with automatic alerts a group user in and out of place.
Press and hold any user object, maps will be triggered and then press and hold to add a place at the desired location.	You can view historical gps positioning per day.
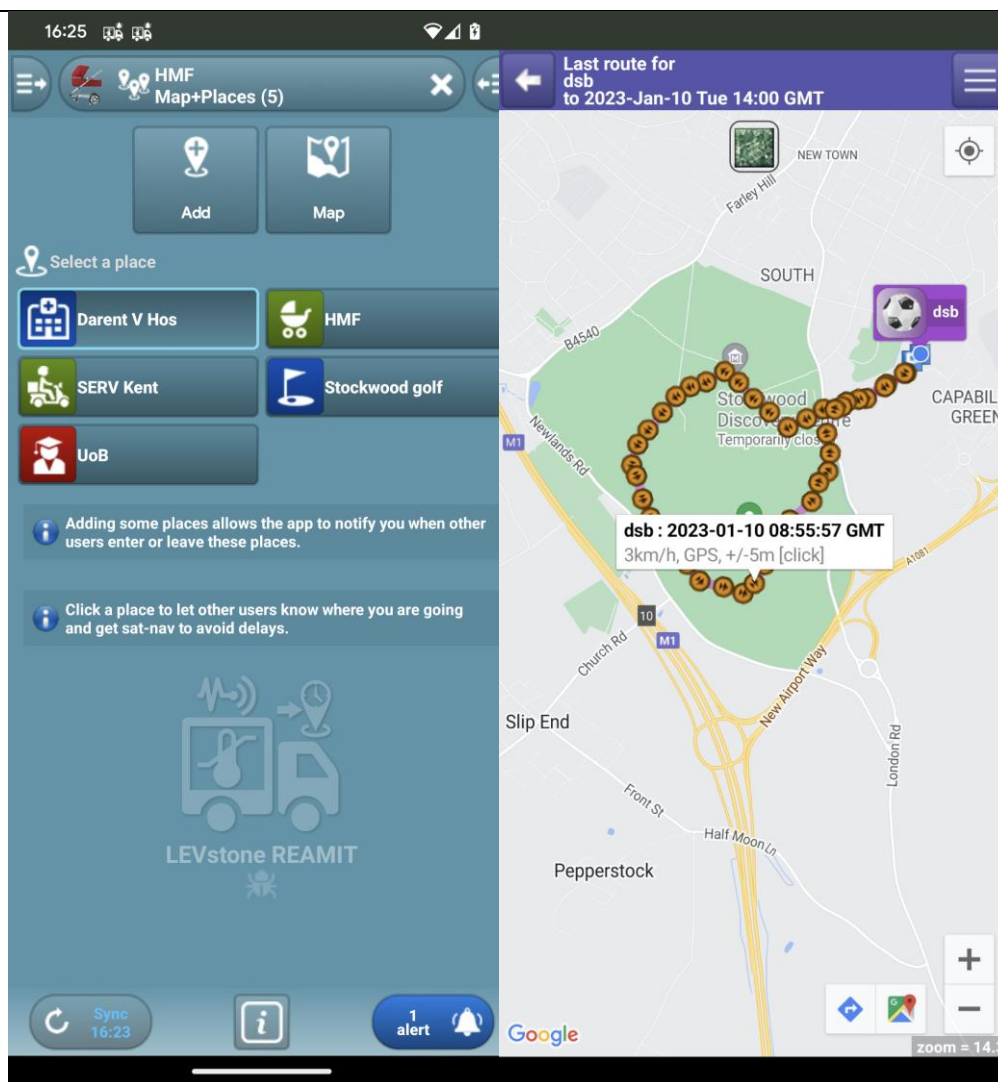
* You can press and hold user object in Users page to bring up maps and tracks for that user as well as look at past recent historical tracks. [Similarly a device object Sensor which has gps can also be viewed on the maps].

** Real time traffic information when using the App for a journey and all group members can see the journey [Only if sharing location].

4.4   Diary [Logs] Page& Filters

e.g. Post a message of a 24 records to all users	Filter events by selecting the options

*New notification events will pop up a button on the bottom right with a bell.

**You can switch off all notification on the main top right menu button press 'Mute'.

4.5 REAMIT Menu
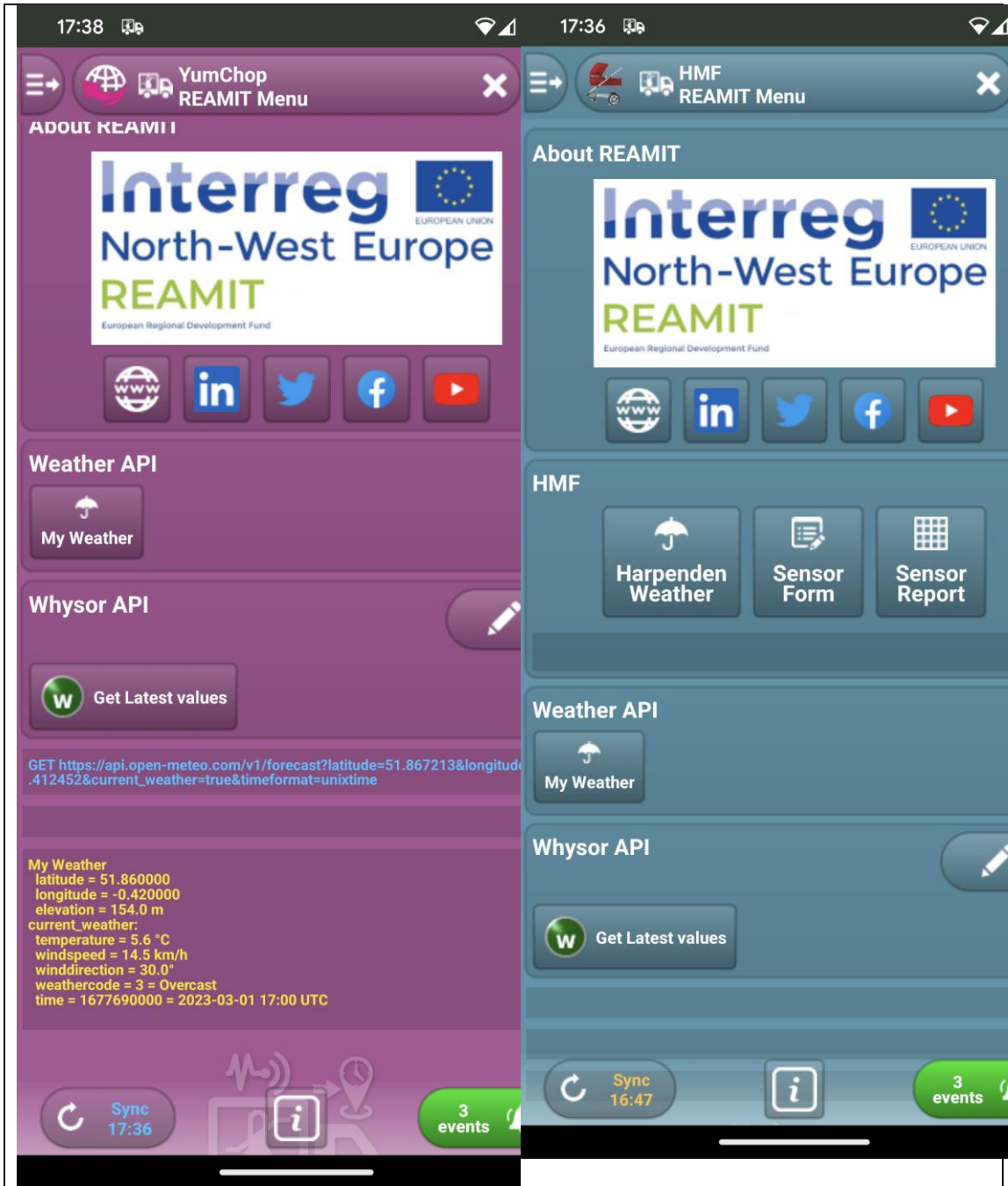
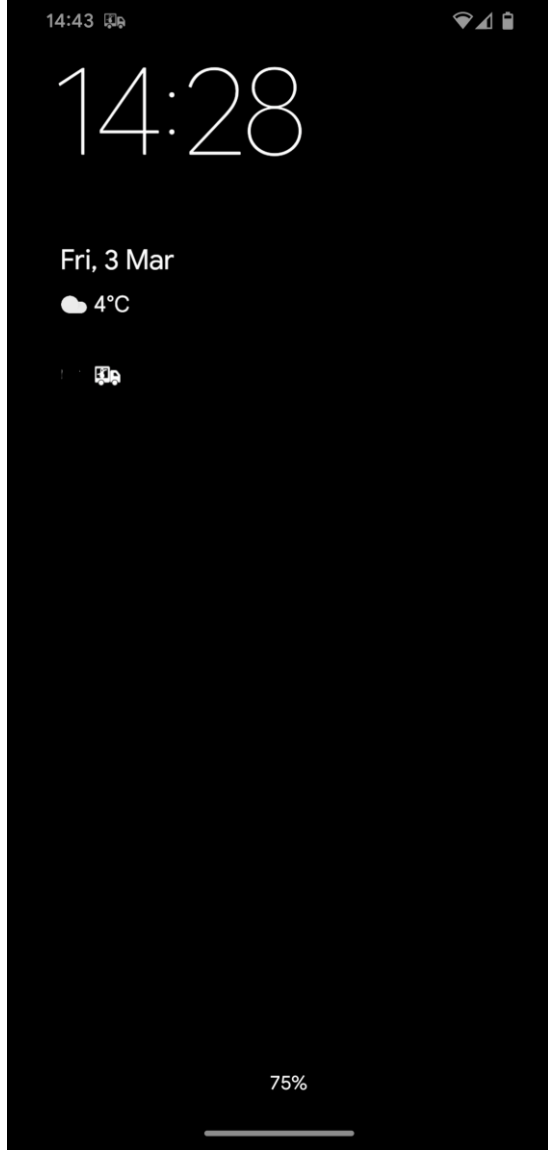| General REAMIT Menu for Pilots:	For **HMF the REAMIT menu** include additional functionality.
I. REAMIT resource links II. Get weather via open-Meteo API [www. Open-Meteo.com] III. Read the latest values for ALL Whysor devices for this group.	I. Access to Sensor forms & reports summary, weather API interface. II. *Pressing the Get Latest Values reads will go to Users main page, refresh the page **Note: The Sensor Form & Sensor Reports are on Google platform and are**

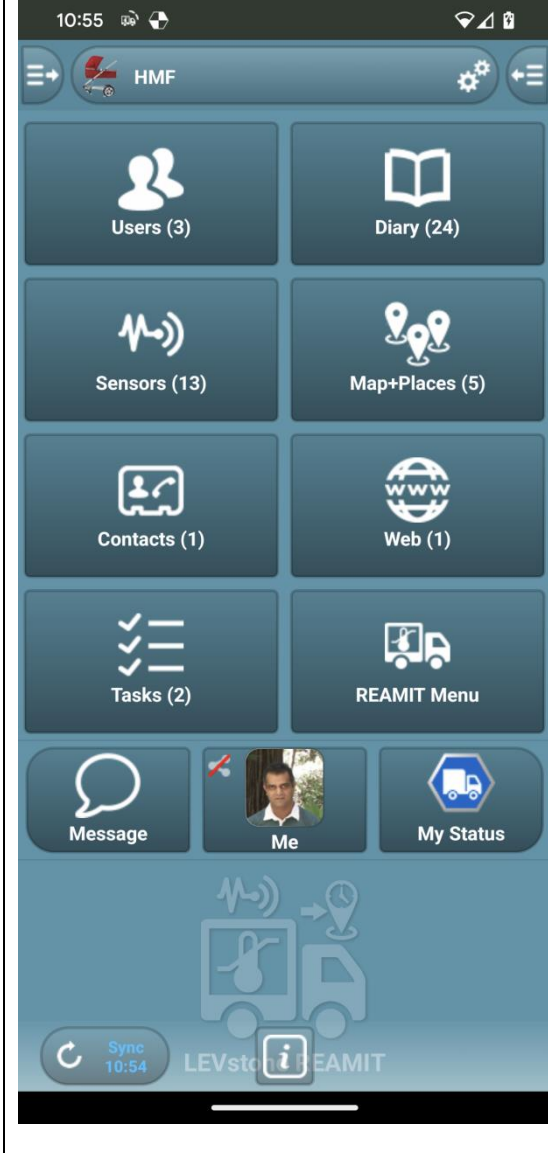|	
	strictly for use by HMF.

Menu for the Whysor API log in. These credentials are provided by Whysor.

Normal App running in the background or foreground with notification message 13:50

Simple Mode: REAMIT App running in the background NO User interaction required, active services include: BLE sensor Services, Location Services, Alerts, heartbeats etc.	User Mode: Normal App running in the background and foreground, user interaction.

Reference Document

Title	Description / Status
LEVstone-REAMIT-App-InstallationAndUserGuide-NWE831-A02-Deliverable-7-2	Issue for LEVstone REAMIT App [Build 152v] for Project Partners by Levstone Ltd(UK)

Contact Information

Title	Description
Davinder Bola	App Developer & Installation Support
Partner - NUT	Communication
All Partner – UoB main - App Tester	App Quality
ioT Devices & Pilot Data	Pilot Leads