

NKUA Weather Station Network Project

# Weather Station Network web application User Manual

Version 2

Stella Rafaela Maladaki

## Contents

Introduction.....	3
Users.....	3
Admin Interface 1.....	3
Admin Interface 2 (Django Admin Interface) .....	13
User interface.....	21
Conclusion .....	27

## Introduction

This user manual provides instructions on how to use the web app with link [WSN.UOA\(uoawson.pythonanywhere.com\)](http://WSN.UOA(uoawson.pythonanywhere.com)), which consists of three interfaces: two admin interfaces ( custom admin and Django admin) and one user interface. This document will guide you through the various features and functionalities of the web app.

## Users

There are 2 types of user, simple users which can only access the User interface and administrators who are superuser. - The most powerful user with permissions to create, read, update and delete data in the administrator pages, which includes model records and other users. staff. - A staff user can access the administrator pages.

## Admin Interface 1

### *Description*

The administrator Interface 1 can be accessed by the URL: [WSN.UOA\(uoawson.pythonanywhere.com\)](http://WSN.UOA(uoawson.pythonanywhere.com)) and can be accessed only by administrator users .

The main Features that it gives to the administrator user are: Data Access, Adding and editing a Station in the app, Adding and editing a User.

## Features

- Login

The Administrator can login with their credentials from the login page. The user will be redirected to this page when the user tries to access a page that needs Admin credentials.

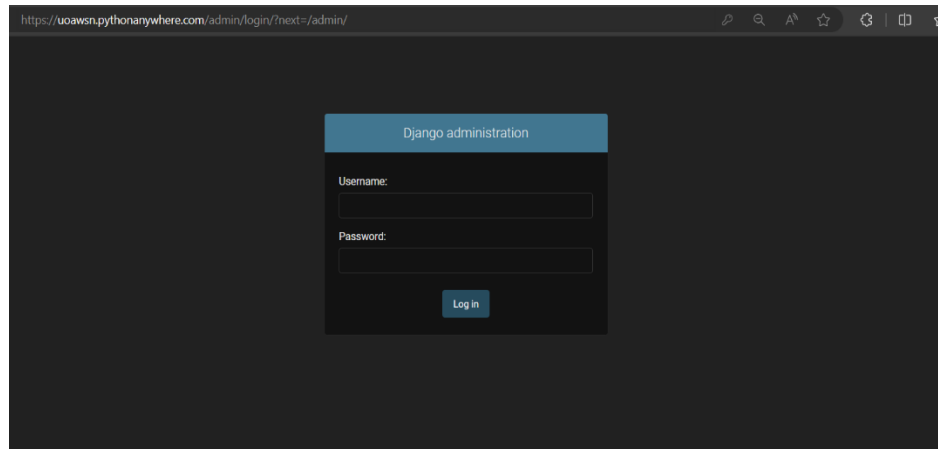


Figure 1 Login Page for Administrators

- Data Access

It gives access to the administrator to download any dataset from and until any date "if there are data available". This feature is accessed by the Download panel in the navigation bar shown in the image below.

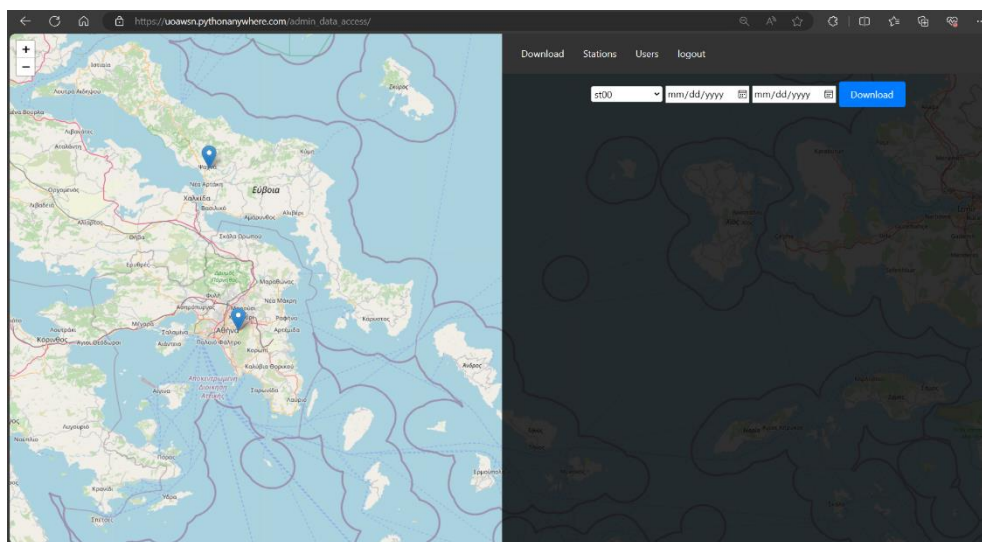


Figure 2 Data access panel for Administrator.

- Adding and Creating a Station

This feature gives access to the administrator to change and edit a station's info, like id, latitude, longitude etc. This feature is accessed by the Stations panel in the navigation bar shown in the image below.

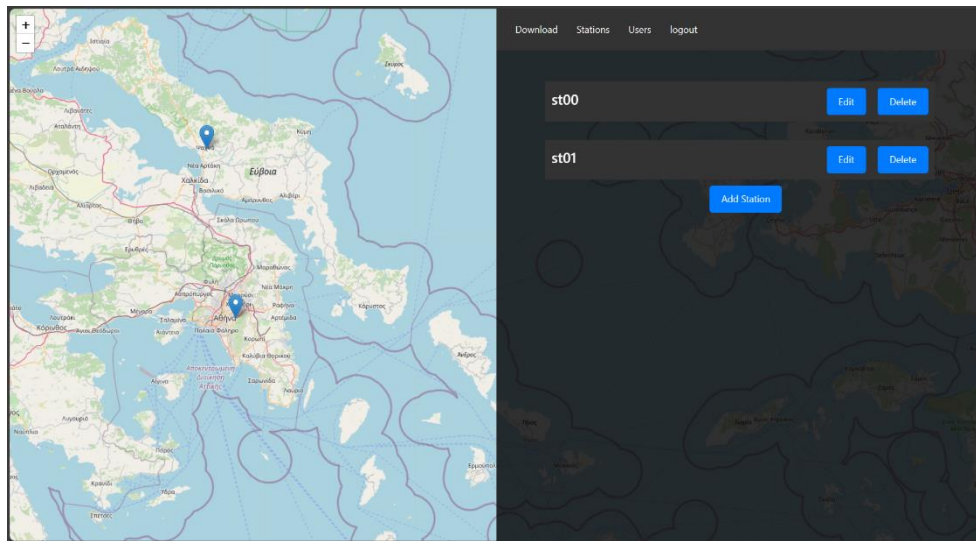


Figure 3 Adding a Station

- Adding and Creating a User

This feature gives access to the administrator to change and edit a user's info, like username, password, email etc. This feature is accessed by the Users panel in the navigation bar shown in the image below.

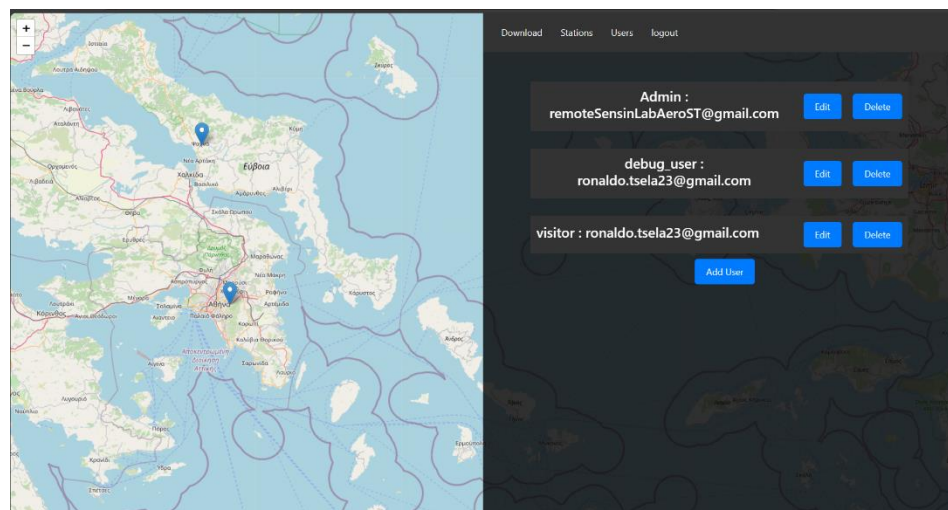


Figure 4 Adding a User from Admin Interface 1

- Showing Telemetry

In the map that is at the left panel of the page is a station has state = active, when selecting the pin in the popup the state, latitude, longitude, last date and time that data were sent, and the telemetry data that where sent last will be shown.

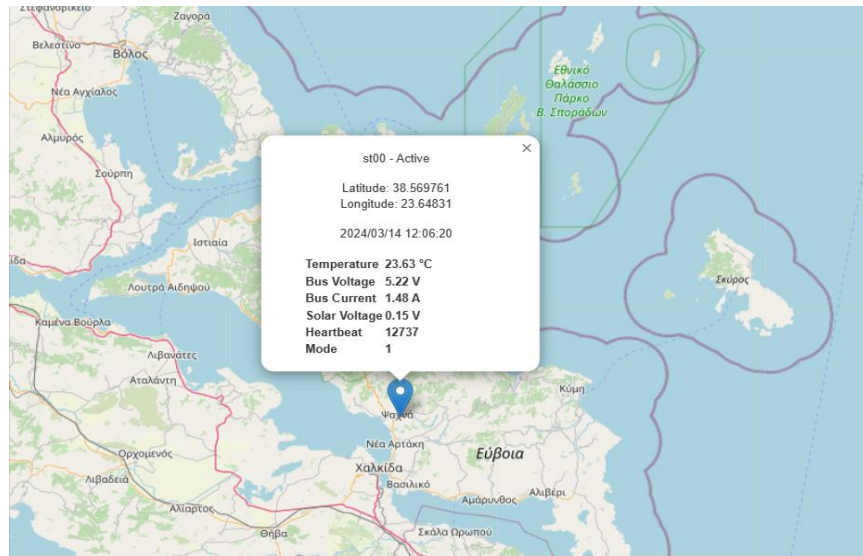


Figure 5 Showing last telemetry from a station, for Admin Interface1.

## Instructions:

### Data access:

To access data for a specific time series the user first needs to select the station id that is equivalent to the desired station , then choose from / to date from the calendar that pops up when clicking on the input slot and finally click the download button and if there are data available in the specific time frame a csv file will be downloaded named "station\_id" "from\_date" "to\_date" .csv . The process can be seen in the images below step by step.

- Selecting the station Id:

The screenshot shows a web interface with a dark background. At the top, there is a navigation bar with links: "Download", "Stations", "Users", and "logout". Below this, there is a form area. On the left, a dropdown menu is open, showing two options: "st00" and "st01". To the right of the dropdown, there are two date input fields, both showing "mm/dd/yyyy" and a calendar icon. To the right of these fields is a blue "Download" button. The background of the form area is a map of Greece, with labels for "Gömeç", "Ayvalık", "Ayia Paraskevi", and "Μοντημδός".

Figure 6 Selecting station form unique ID.

- Selecting the station from date ( start date ):

The screenshot shows the same web interface as Figure 6. The dropdown menu is now closed, and the first date input field shows "01/19/2024". A calendar popup is open, showing the month of "January 2024". The calendar has a grid of days from Sunday to Saturday. The date "19" is highlighted. Below the calendar grid, there are two buttons: "Clear" and "Today". The background of the form area is a map of Greece, with labels for "Karaburun", "Foça", "Menemen", "Cigli", "Borne", "Izmir", "Buca", "Naridere", "Gaztemir", "Menderes", "Guzelbahce", "Urla", "Sefehisar", and "Ayala".

Figure 7 Selecting Start Date

- Selecting the station to date ( end date ):

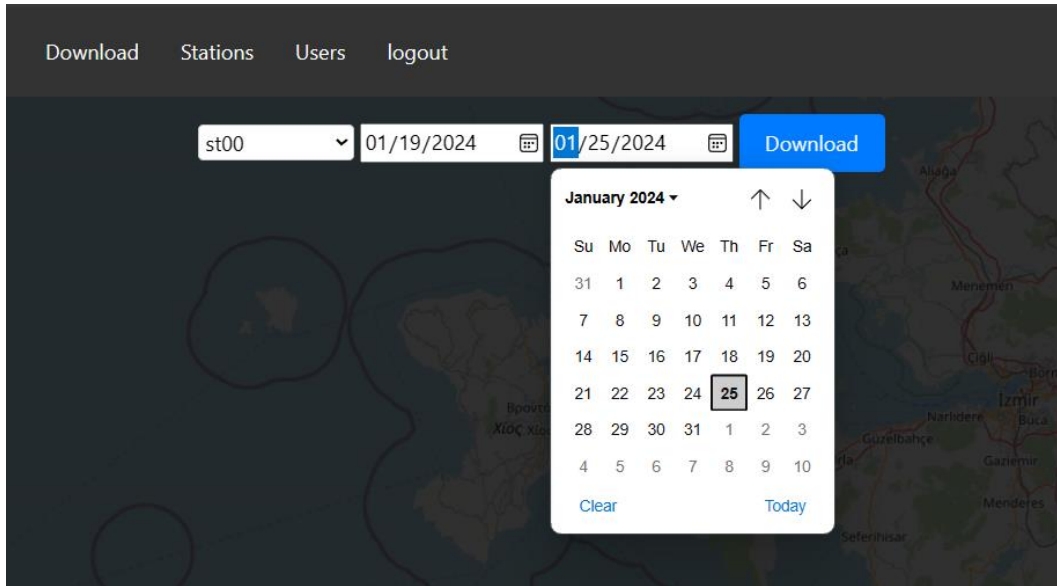


Figure 8 Selecting End Date

- Downloading the dataset:

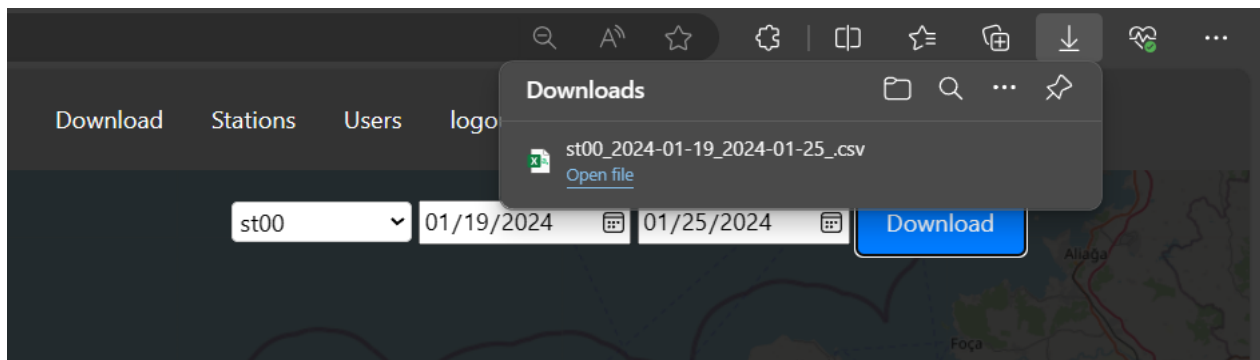


Figure 9 Downloading the Data for the selected dates

### ***Adding and Editing a Station***

This Feature can be accessed from the Navigation bar by clicking the Stations button. Editing a station can be done by pressing the edit button next to the station id that needs to be eddied, next to it is a delete button which can be used when a station needs to be deleted.



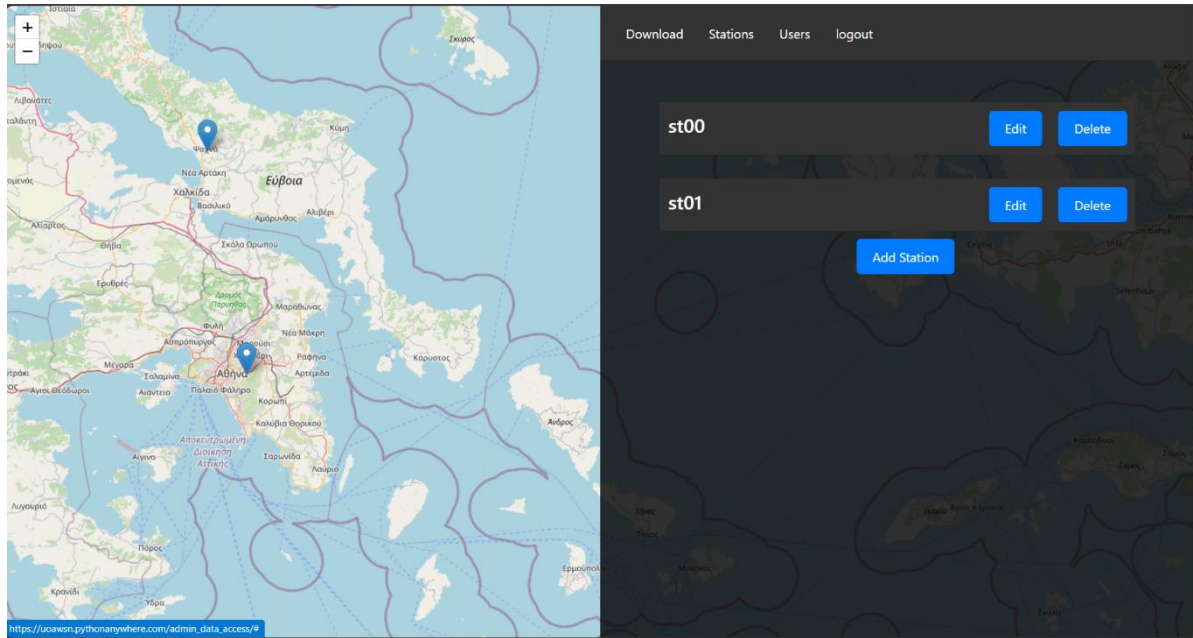
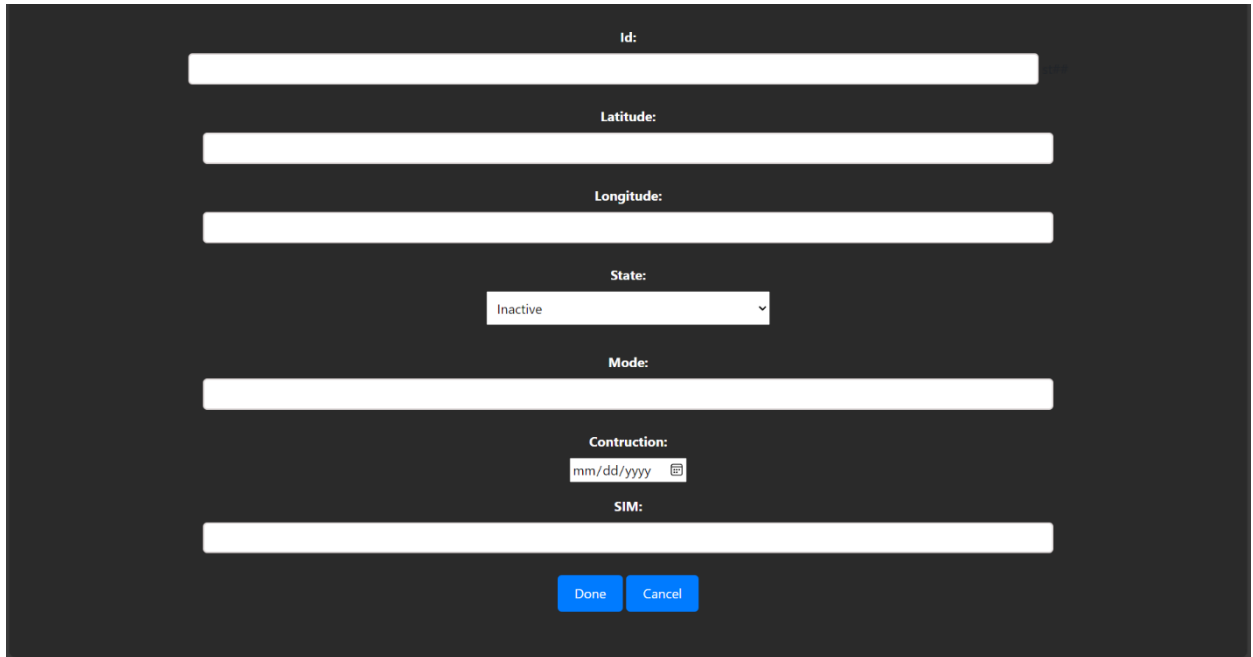


Figure 10 Stations list panel.

After clicking the edit button, a form will appear allowing the administrator to see the data for the selected station and edit them. When the editing is completed, the changes will be applied by clicking the Done button.

Figure 11 Edditing a Station

To create a new station the add station button must be clicked and then an empty form will be shown. When the user is done adding the information needed the button Done must be pressed to complete the creation of the station .



The form consists of the following elements:

- Id:** A text input field.
- Latitude:** A text input field.
- Longitude:** A text input field.
- State:** A dropdown menu with 'Inactive' selected.
- Mode:** A text input field.
- Contruction:** A date input field with a placeholder 'mm/dd/yyyy' and a calendar icon.
- SIM:** A text input field.
- Buttons:** Two blue buttons at the bottom labeled 'Done' and 'Cancel'.

*Figure 12 adding a Station.*

### ***Adding and Editing a User***

This Feature can be accessed from the Navigation bar by clicking the Users button. Editing a User can be done by pressing the edit button next to the Username that needs to be eddied, next to it is a delete button which can be used when a user needs to be deleted.

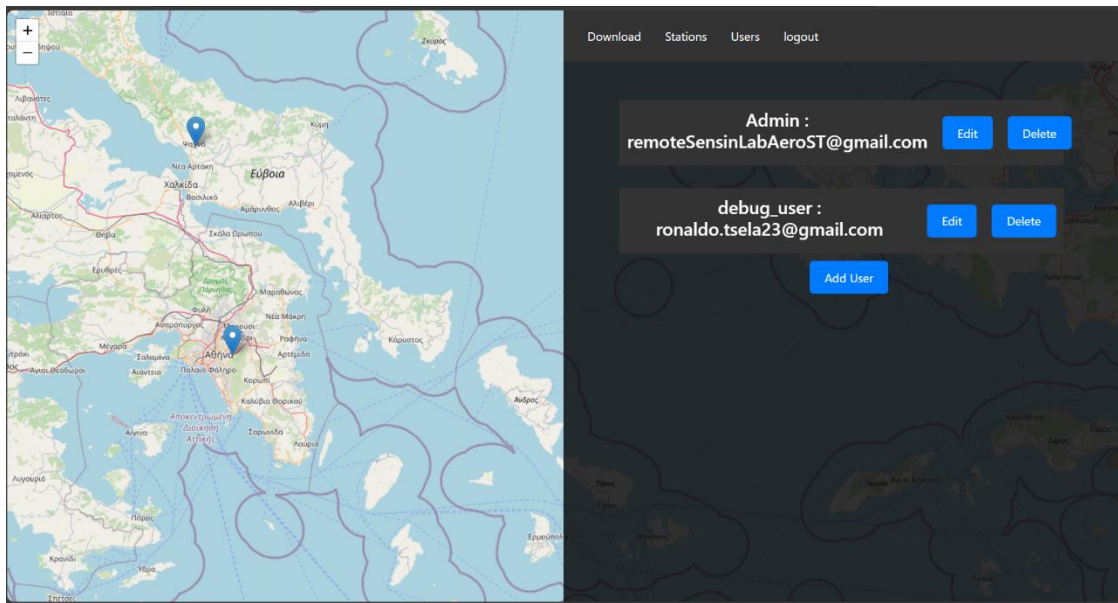


Figure 13 User panel for Admin Interface 1

When editing the password is not shown for privacy reasons. When the administrator is done editing the user's info the button Done must be clicked to save the changes.

**Username:**

Required. 150 characters or fewer. Letters, digits and @/./+/-/\_ only.

**Email:**

**Password:**

Your password can't be too similar to your other personal information.  
 Your password must contain at least 8 characters.  
 Your password can't be a commonly used password.  
 Your password can't be entirely numeric.

**Password confirmation:**

Enter the same password as before, for verification.

**Done** **Cancel**

Figure 14 Editing a User

Similarly, when creating a user an empty form is displayed and when the administrator is done adding the data the Done button must be pressed for the user to be created.

**Username:**

Required. 150 characters or fewer. Letters, digits and @/./+/-/\_ only.

**Email:**

**Password:**

Your password can't be too similar to your other personal information.  
Your password must contain at least 8 characters.  
Your password can't be a commonly used password.  
Your password can't be entirely numeric.

**Password confirmation:**

Enter the same password as before, for verification.

[Done](#) [Cancel](#)

Figure 15 Adding a User Interface 1.

## Admin Interface 2

### *Description*

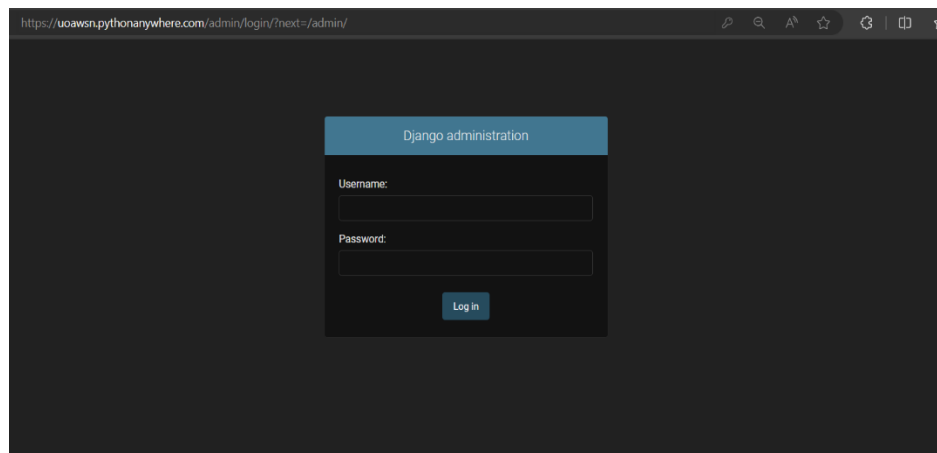
The administrator Interface 2 can be accessed by the URL: [Site administration | Django site admin \(uoawsn.pythonanywhere.com\)](https://uoawsn.pythonanywhere.com/admin/login/?next=/admin/) and can be accessed only by administrator users.

The main Features that it gives to the administrator user are: Adding and editing a Station in the app, Adding and editing a User, reading the last telemetry data from.

### *Features:*

- Login

The Administrator can login with their credentials from the login page as shown previously.



*Figure 16 Login page for Admin.*

In the main page of the 2nd admin page in the right panel the recent actions from the administrators can be seen and in the left side a panel that gives access to the main features of the page.

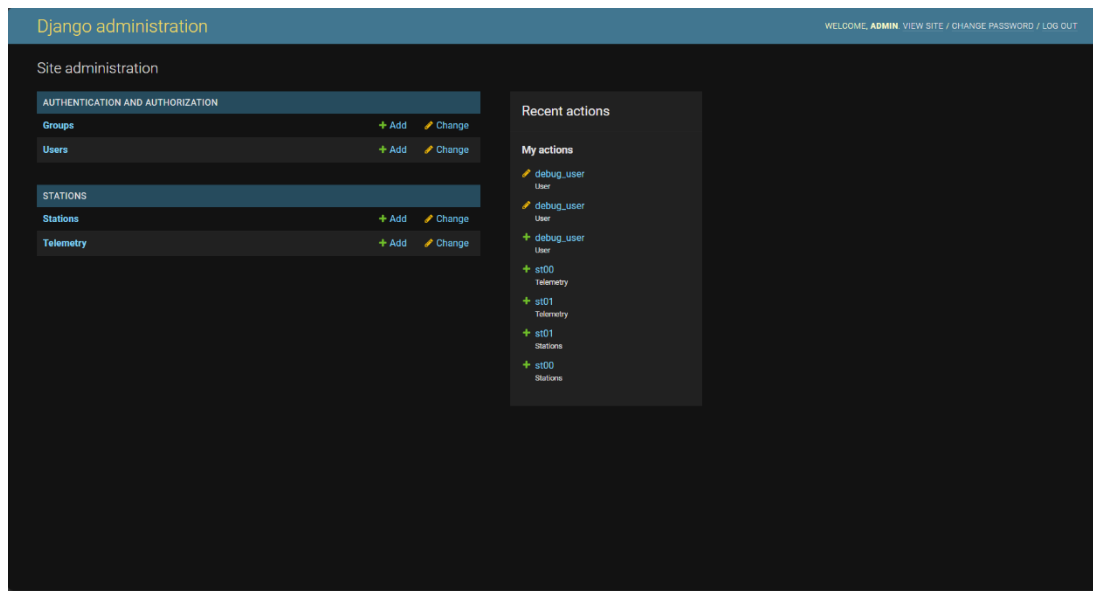


Figure 17 2nd Admin panel Page

- Adding and Creating a Station

This feature gives access to the administrator to change and edit a station's info, like id, latitude, longitude etc. This feature is accessed by the Stations panel shown in the image below.

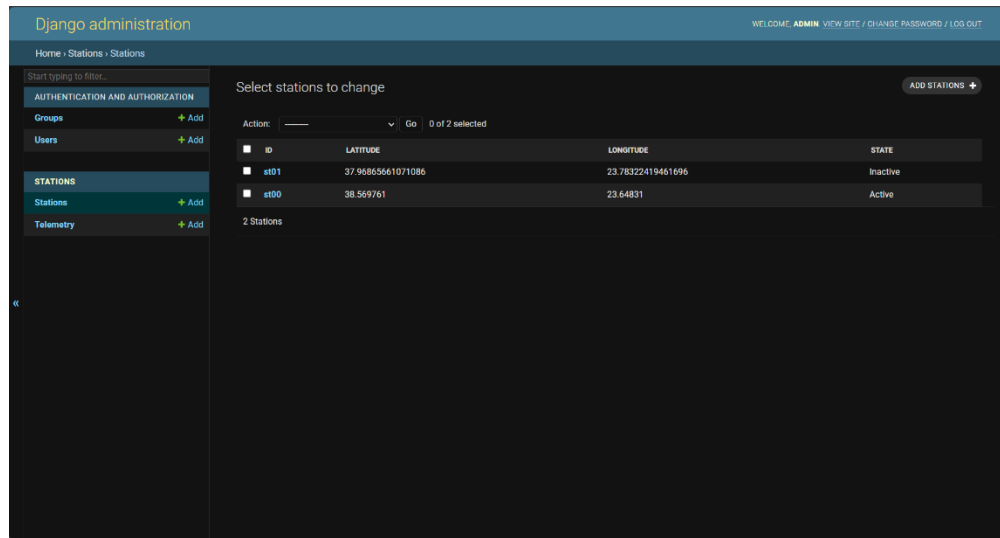


Figure 18 Station Panel for Admin Interface 2

- Adding and Creating a User

This feature gives access to the administrator to change and edit a user's info, like username, password, email etc. This feature is accessed by the Users panel shown in the image below.

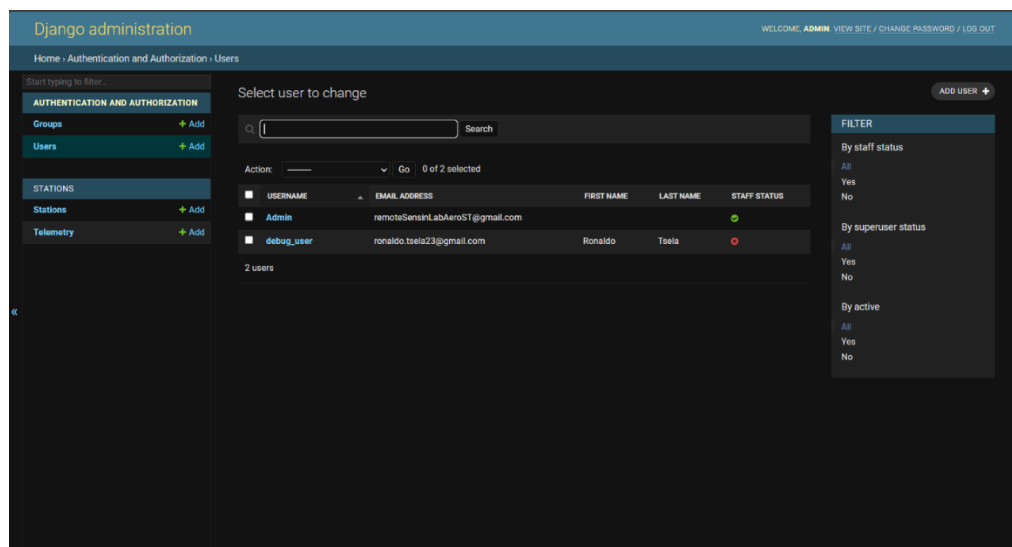


Figure 19 User control panel for Admin Interface 2

- Showing Telemetry

This feature gives access to the administrator to see the last recorded telemetry for the selected station, telemetry being Date, Time, Internal Temperature, Bus Voltage, Solar Voltage, Heart Beat and Mode. This feature is accessed by the Telemetry panel shown in the image below.

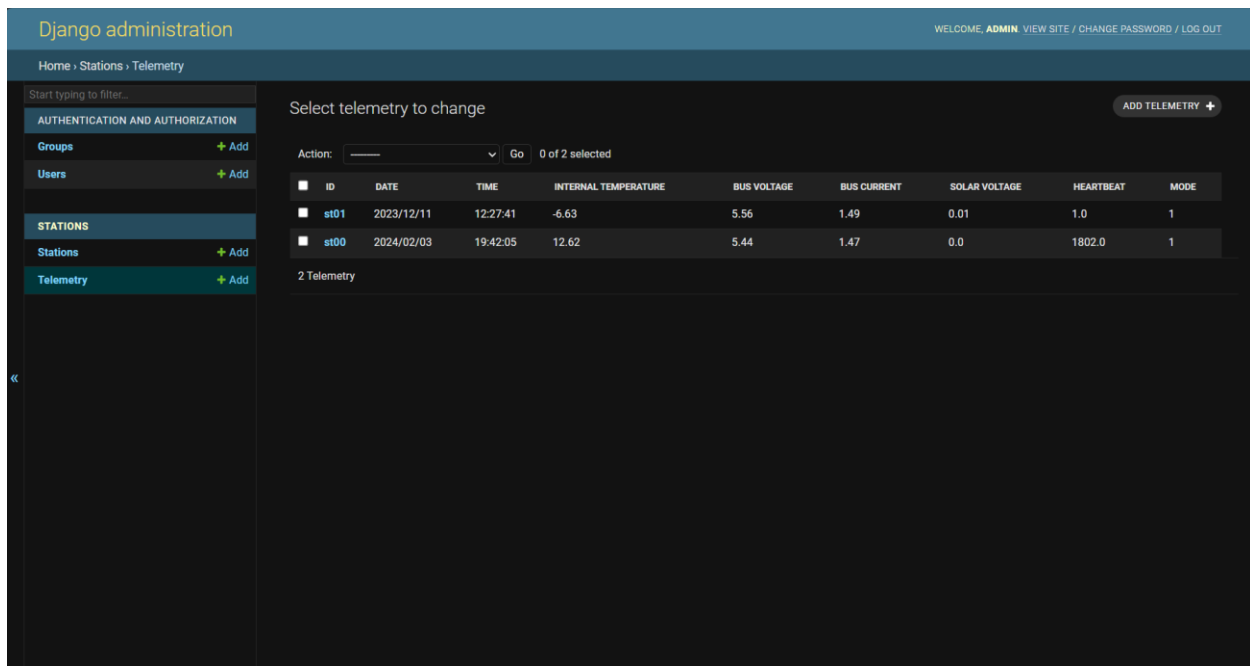


Figure 20 Telemetry control panel for Admin Interface 2

## Instructions:

### *Adding and Editing a Station*

This Feature can be accessed from the Left panel by clicking the Stations button. Editing a station can be done by pressing a station's id button. There are three already made actions: Delete, Set Inactive (when inactive a station will not be visible on the main map ) and Set active (when active stations will be visible on the main map ).

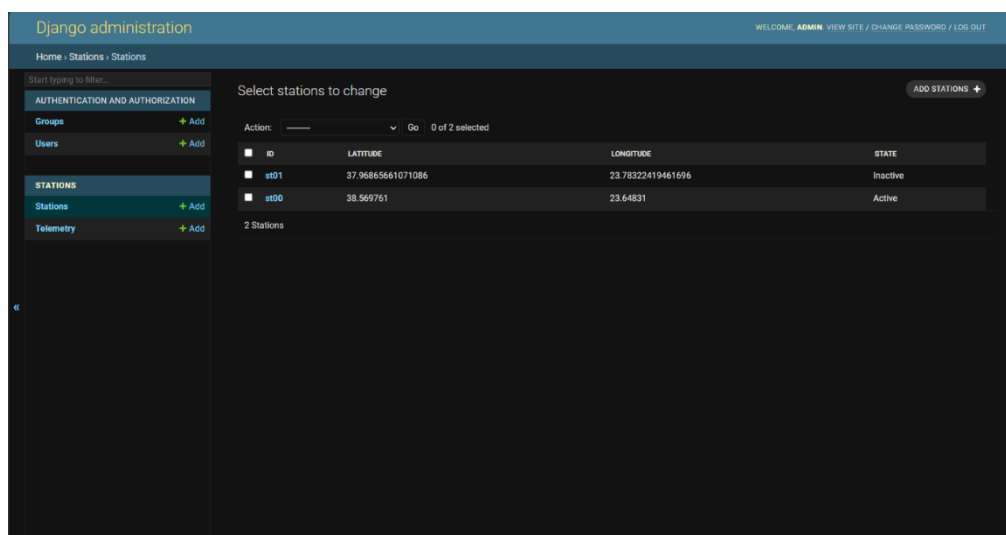


Figure 21 Station Control panel in Admin Interface 2



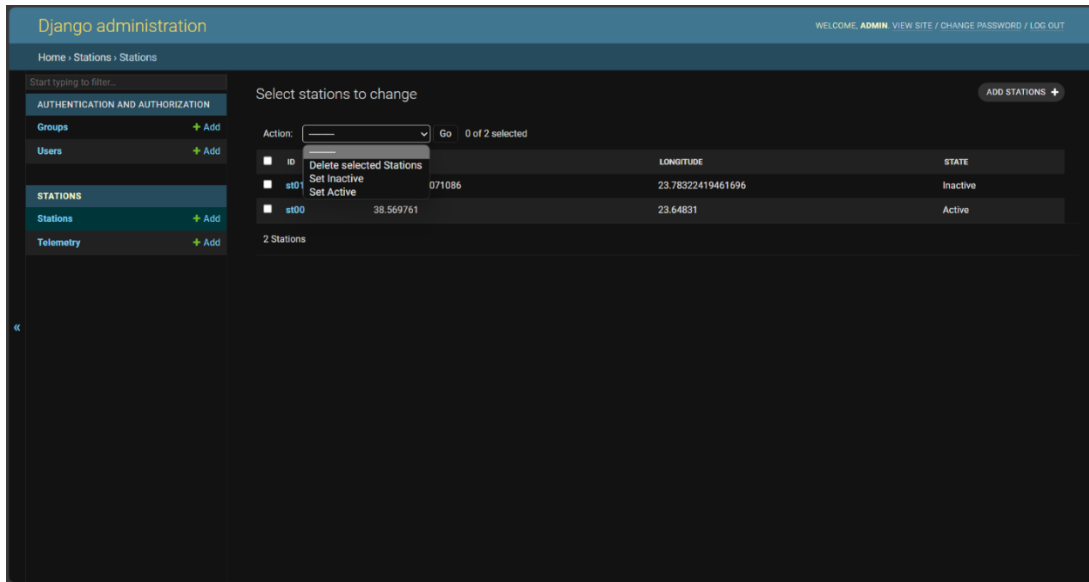


Figure 22 Actions for Station control panel

After clicking the id's button, a form will appear allowing the administrator to see the data for the selected station and edit them. When the editing is completed, the changes will be applied by clicking the Save button.

Figure 23 Editing a station using Admin Interface 2

To create a new station the ADD STATIONS button must be clicked and then an empty form will be shown. When the administrator is done adding the information needed the button SAVE must be pressed to complete the creation of the station.

Figure 24 Adding a Station

## Adding and Editing a User

This Feature can be accessed from the panel by clicking the Users button.

USERNAME	EMAIL ADDRESS	FIRST NAME	LAST NAME	STAFF STATUS
Admin	remoteSensinLabAeroST@gmail.com			✓
debug_user	ronaldo.tsela23@gmail.com	Ronaldo	Tsela	✗

Figure 25 User control panel for Admin 2

Editing a User can be done by pressing the username of the user that needs to be edited. When editing the user's data will be shown except the password for privacy reasons. When the administrator is done editing the user's info the button SAVE must be clicked to save the changes.

The screenshot shows the Django administration interface for editing a user. The page title is "Django administration" and the user is logged in as "ADMIN". The breadcrumb trail is "Home > Authentication and Authorization > Users > Admin". The left sidebar shows the "AUTHENTICATION AND AUTHORIZATION" section with links for "Groups" and "Users", and the "STATIONS" section with links for "Stations" and "Telemetry". The main content area is titled "Change user" and shows the "Admin" user. The form includes fields for "Username" (set to "Admin"), "Password" (showing algorithm, iterations, salt, and hash), "Personal info" (First name, Last name, Email address), and "Permissions" (Active, Staff status, Superuser status). The "Groups" section shows "Available groups" and "Chosen groups".

Figure 26 Editing a user in Admin 2

Similarly, when creating a user an empty form is displayed and when the administrator is done adding the data the SAVE button must be pressed for the user to be created.

The screenshot shows the Django administration interface for adding a new user. The page title is "Django administration" and the user is logged in as "ADMIN". The breadcrumb trail is "Home > Authentication and Authorization > Users > Add user". The left sidebar shows the "AUTHENTICATION AND AUTHORIZATION" section with links for "Groups" and "Users", and the "STATIONS" section with links for "Stations" and "Telemetry". The main content area is titled "Add user" and shows a form for adding a new user. The form includes fields for "Username", "Password", and "Password confirmation". The "Password" field has a warning message: "Your password can't be too similar to your other personal information. Your password must contain at least 8 characters. Your password can't be a commonly used password. Your password can't be entirely numeric." The "Password confirmation" field has a warning message: "Enter the same password as before, for verification." The form has three buttons: "Save and add another", "Save and continue editing", and "SAVE".

Figure 27 Adding a new user.

## Showing Telemetry

Telemetry is accessed by the panel on the left from the Telemetry button .

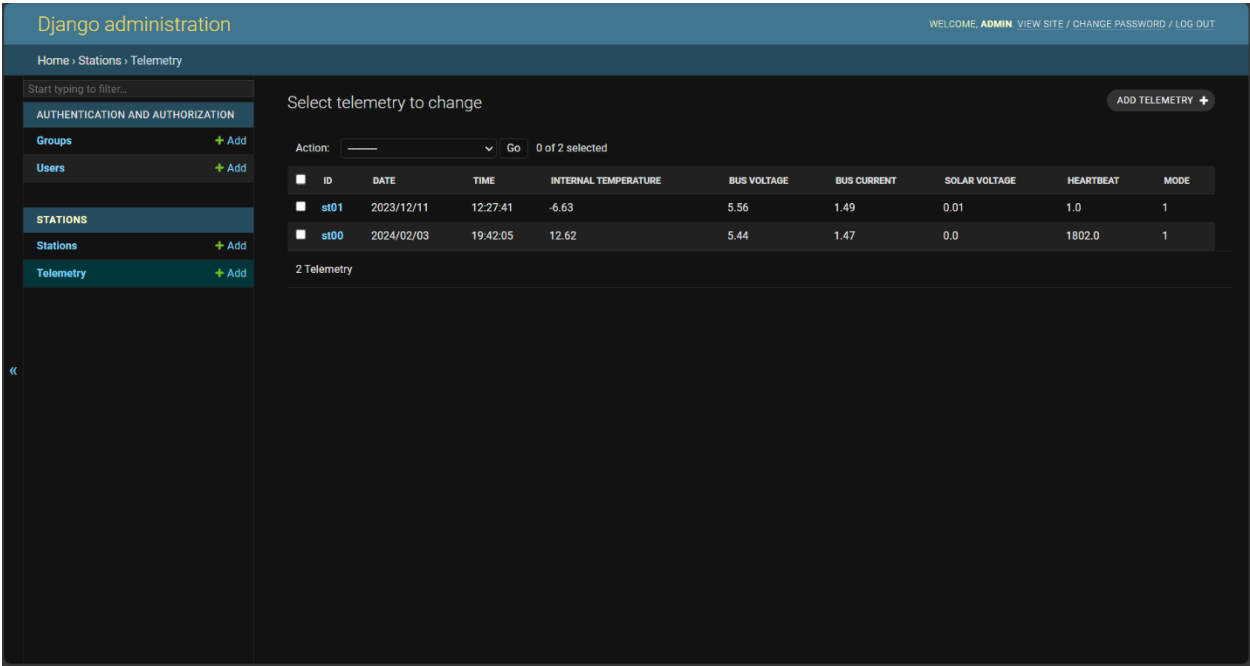


Figure 28 Telemetry control pane Admin Interface 2

There are two actions that can be done, Delete and Update telemetry. To do either of those at list one station id from the list needs to be checked and then the action that needs to be done must be selected, when the button Go gets clicked the action for the selected station id will be done.

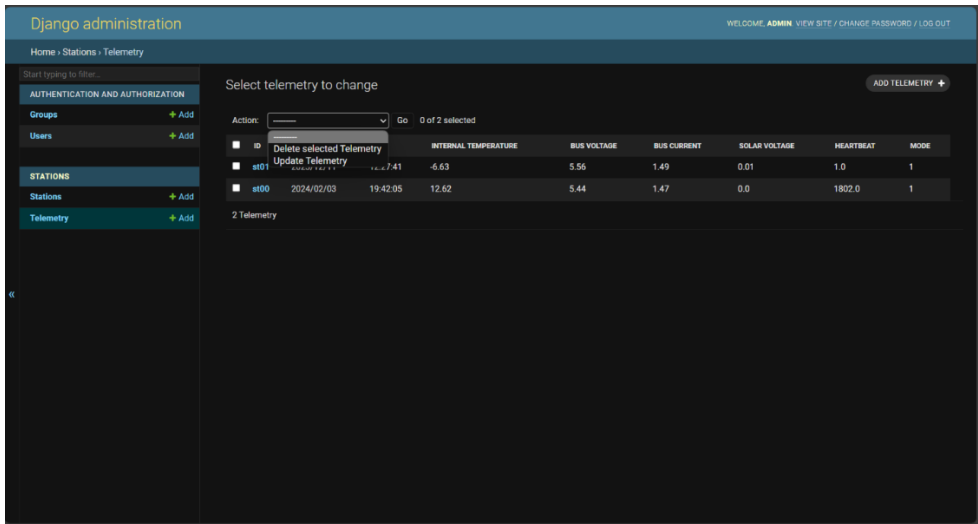


Figure 29 Actions in Telemetry panel

# User Interface

## Description:

The user interface was designed in order to be as easily understood for a new user intuitively. The main feature of this interface is that the user can have access to that days data and a graphical representation of the data as well as the next predictions using the LSTM algorithm for 30', 60' and 120'.

## Features:

- Login

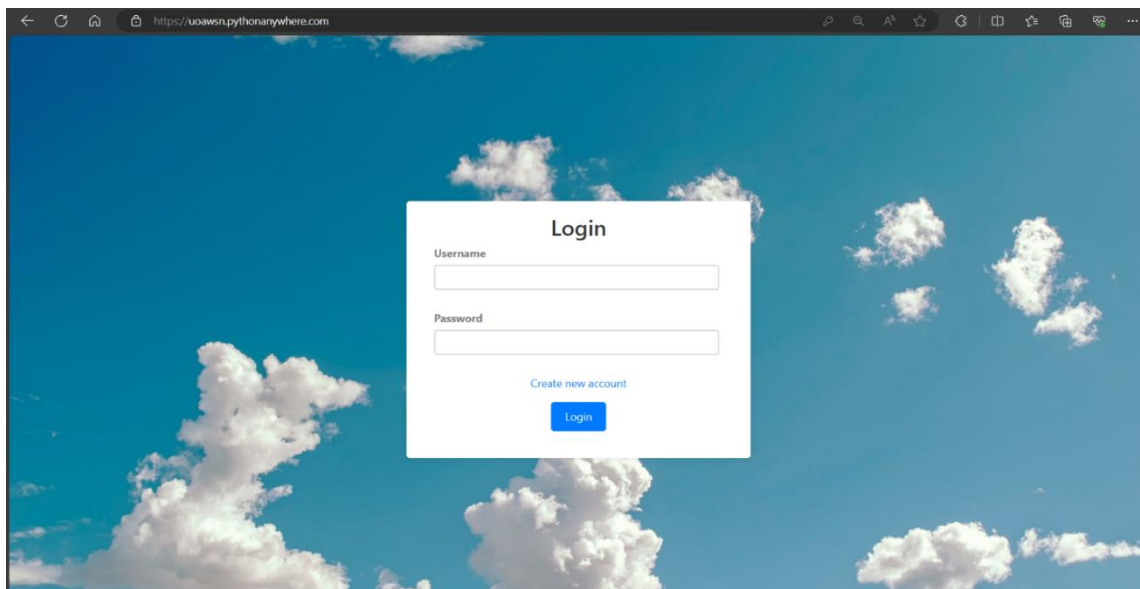


Figure 30 Login Page for users.

- Creating an account

When a visitor wants to register for an account the form shown below must be filled in and after that is done our team will be in contact with the user via email and get their username and password.

Registration Form

Fields with \* are mandatory

First Name\*:

Last Name\*:

Email\*:

User Type\*:  
☐ Personal  
☐ Student  
☐ Organization  
☐ Other

Organization/University Name:

Comments\*:

Figure 31 Registration Page

- Monitoring and Data access

After login in the monitoring panel is the first to be shown. The page is composed of two panels the map panel on the left and the dynamically changing panel on the right. On the map panel there are pins for every station, gray means inactive station, blue means active and green when a station is selected. This page gives access to the user to all the data selected that day, and a 2-hour prediction for any active station and also the user can download all the data that was measured that day.

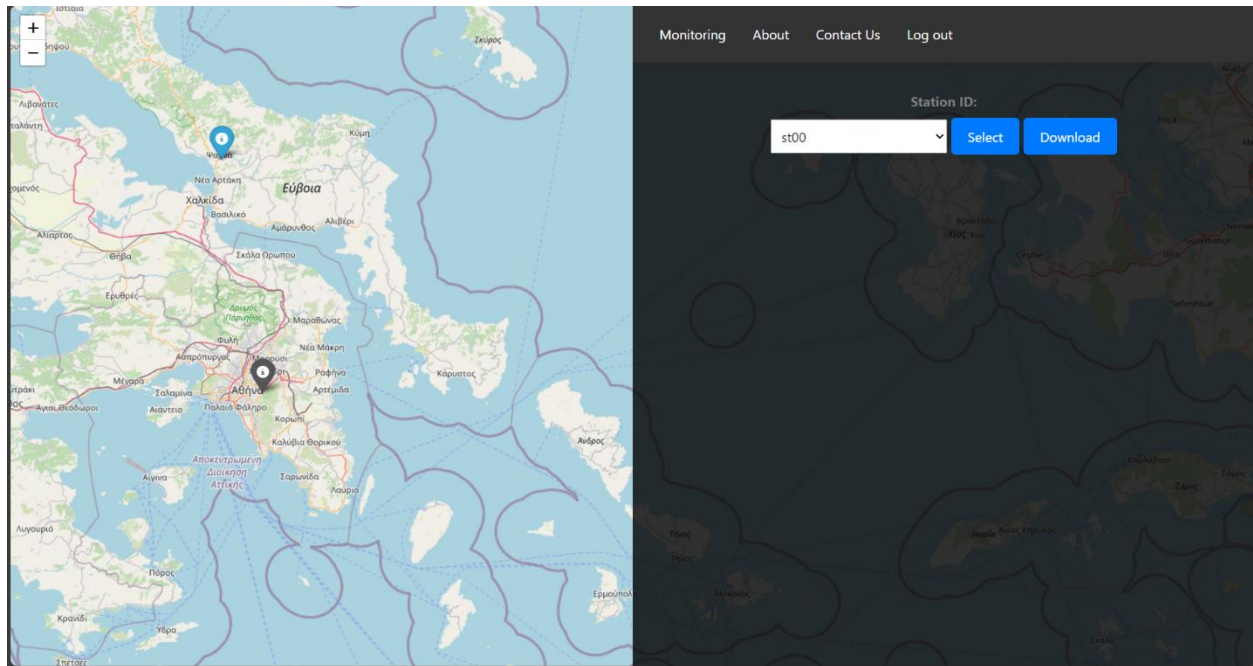


Figure 32 Main page.

- Contact form.

In case there are any problems, or the user needs to communicate with our team they can do so by going to the Contact us button.

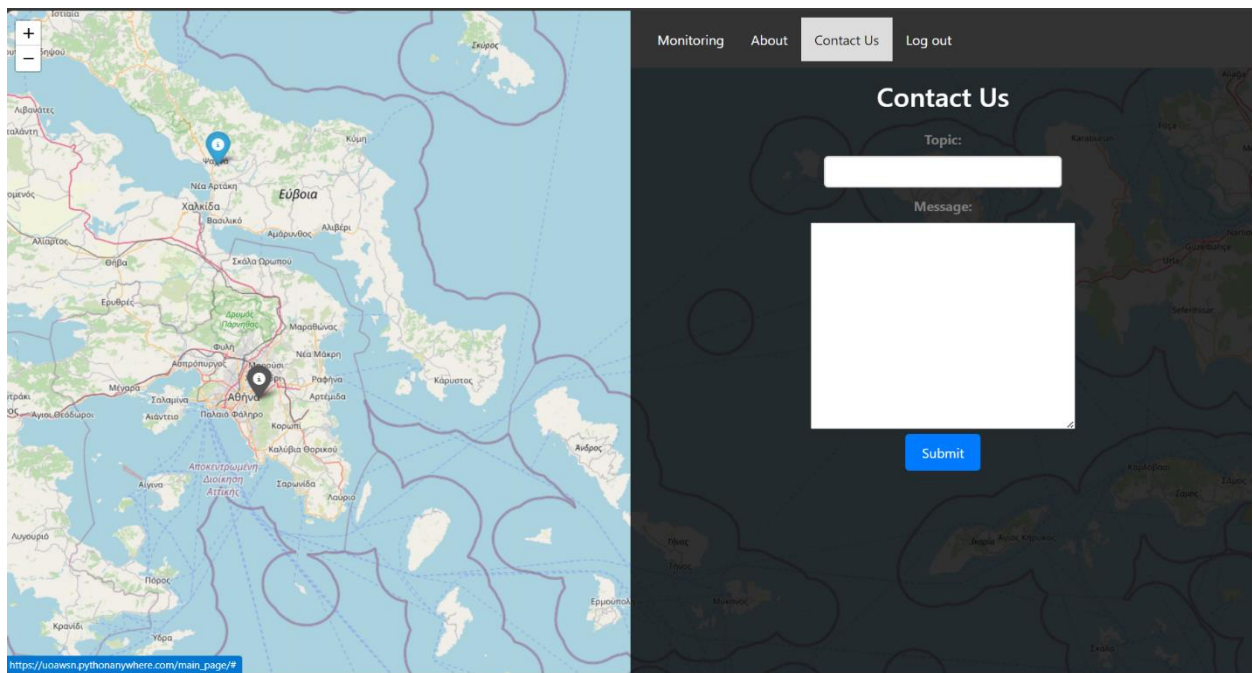


Figure 33 Contact us page

## Instructions:

### Data access and Monitoring

- *Select button.*

To select which stations data the user wants to see the id must be selected first.

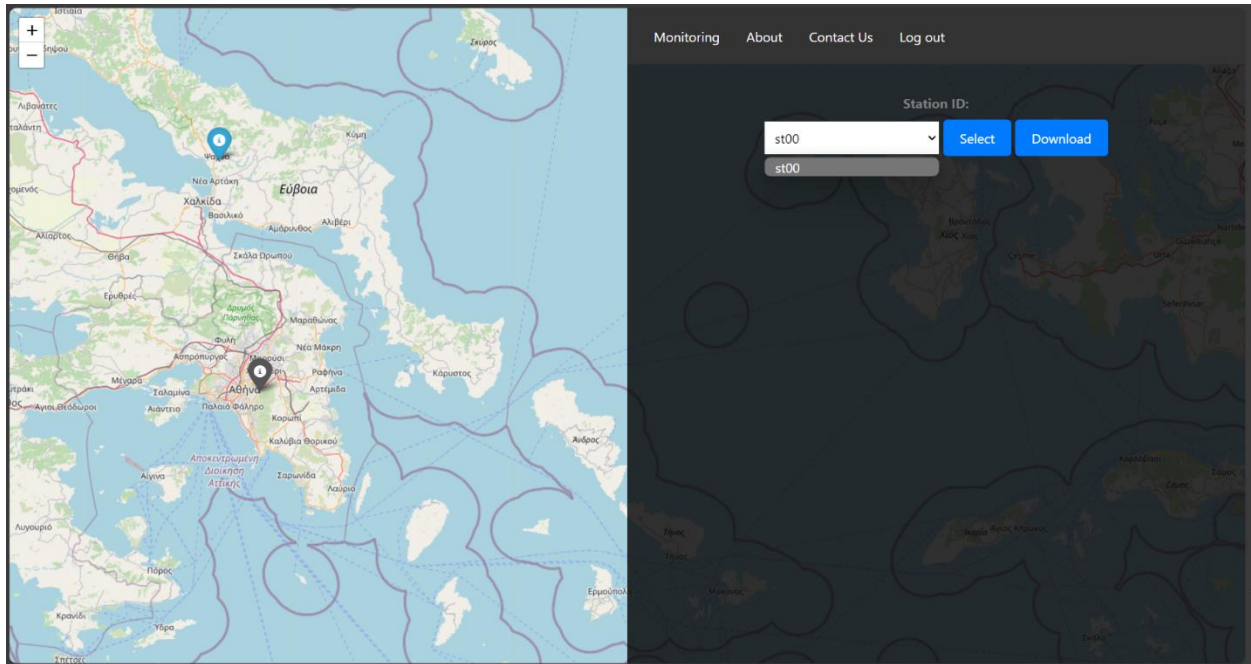


Figure 34 Selecting a station via id to download daily data.

Now that the preferred id is selected when the Select button is clicked the user can first see the min, ma, avg for Temperature, humidity, Pressure, Wind Speed and Rainfall also total daily accumulated rain and Average Rain Intensity.



- Click the select button.

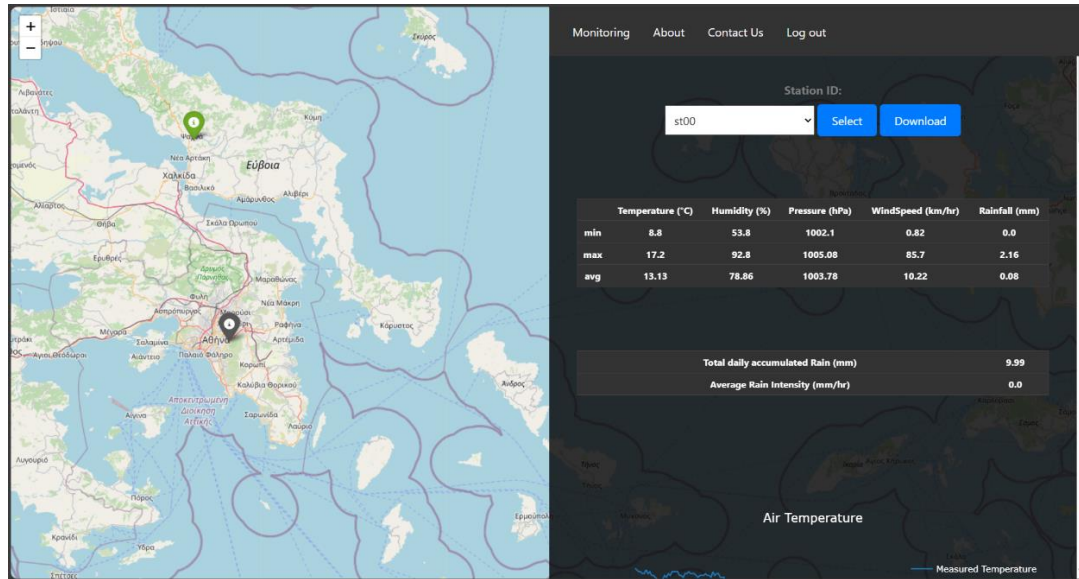


Figure 35 Statistics for daily data from selected Id.

After that plots for that day's, data are shown with blue and with orange the predicted 2 hr. forecast for Temperature, humidity, Pressure and Wind Speed.

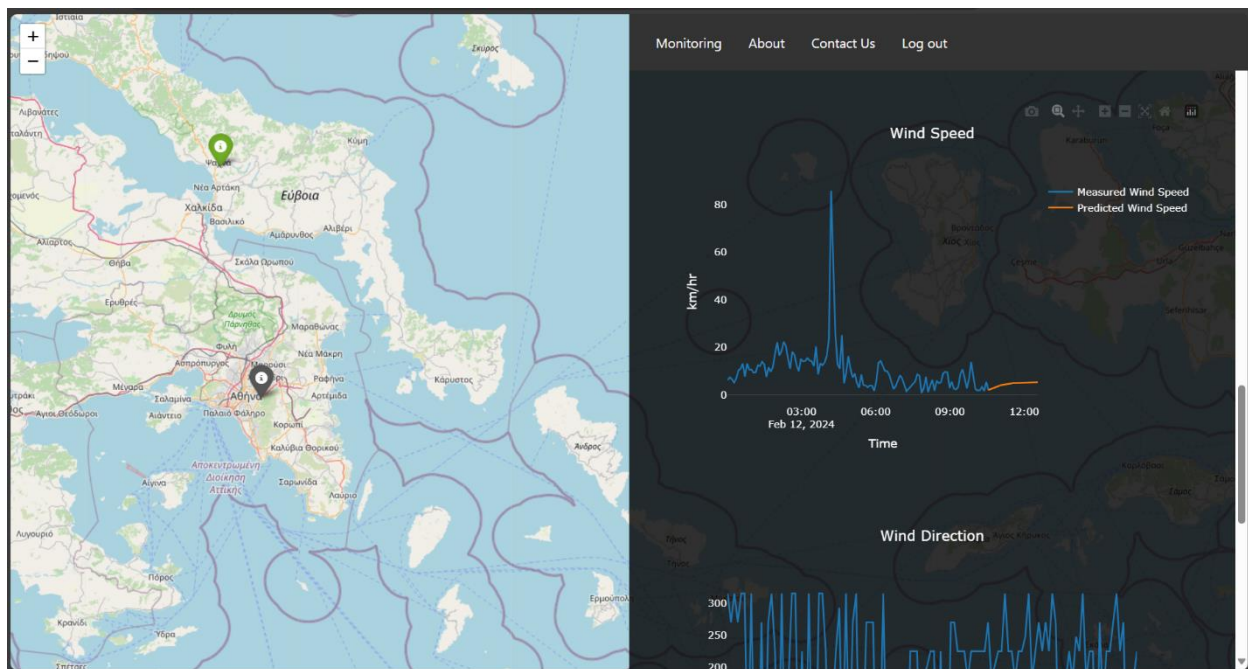


Figure 36 Graphs for daily data from selected Id

- Download button.

Now that the preferred id is selected when the Download button is clicked a csv with the name “username””id””today’s date”.csv with all the data that have been collected during that specific day .

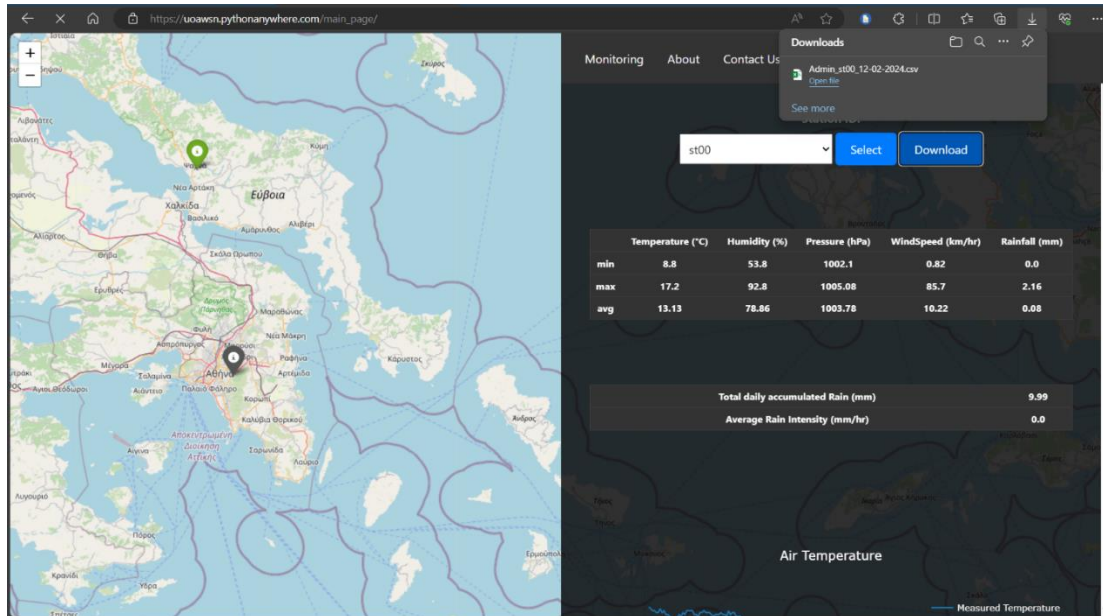


Figure 37 Downloading a dataset.

## Contact us.

To contact our team the user can fill in the form shown below. There are two inputs, a topic one and a message one. When the user wants to send the email the submit button should be clicked.

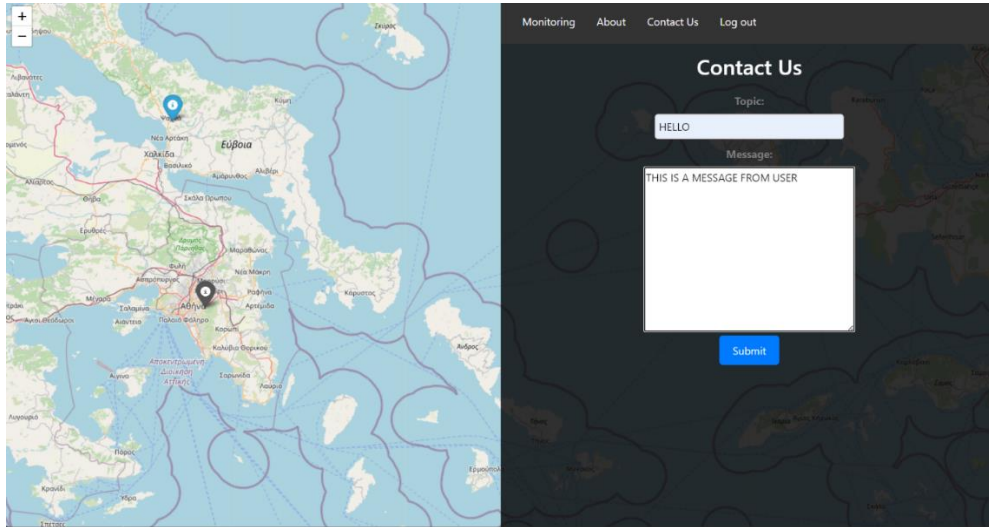


Figure 38 Contact us form.

## Conclusion

This user manual provides an overview of the web app and instructions for using the three interfaces. Refer to this manual whenever you need assistance with the app's functionalities.

For more information contact: [maladakistella@gmail.com](mailto:maladakistella@gmail.com)