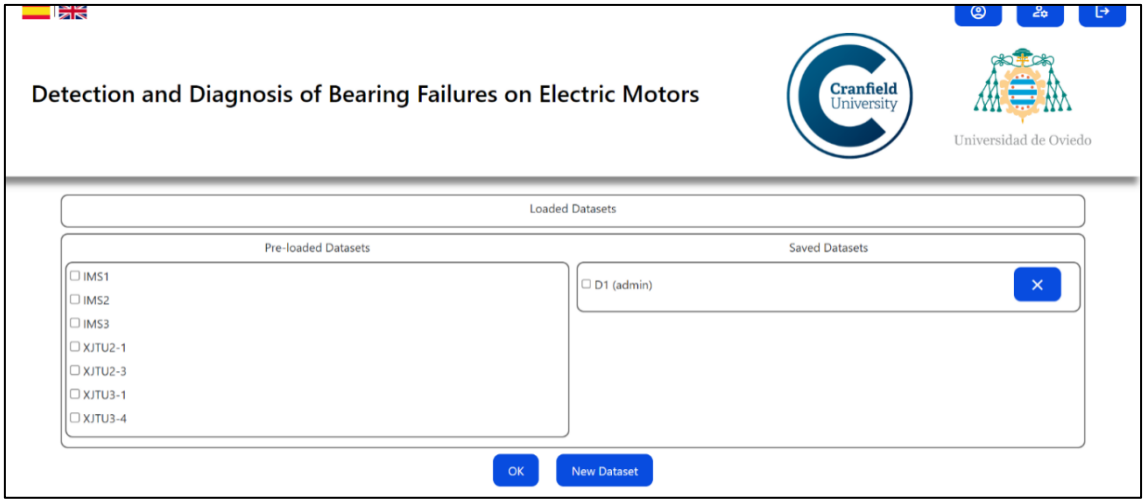
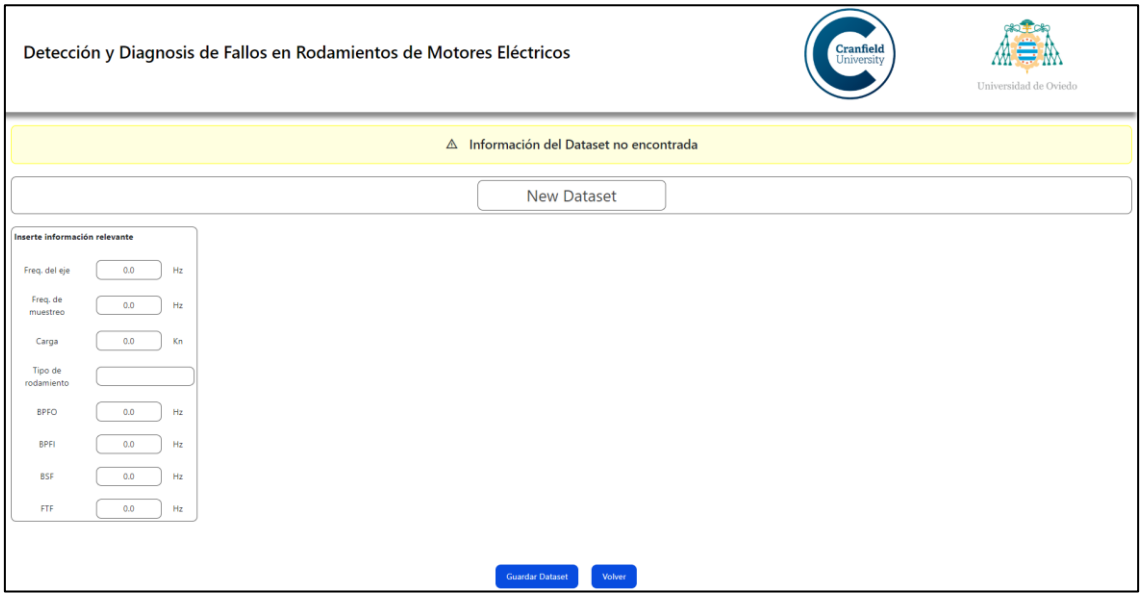
Application User Manual

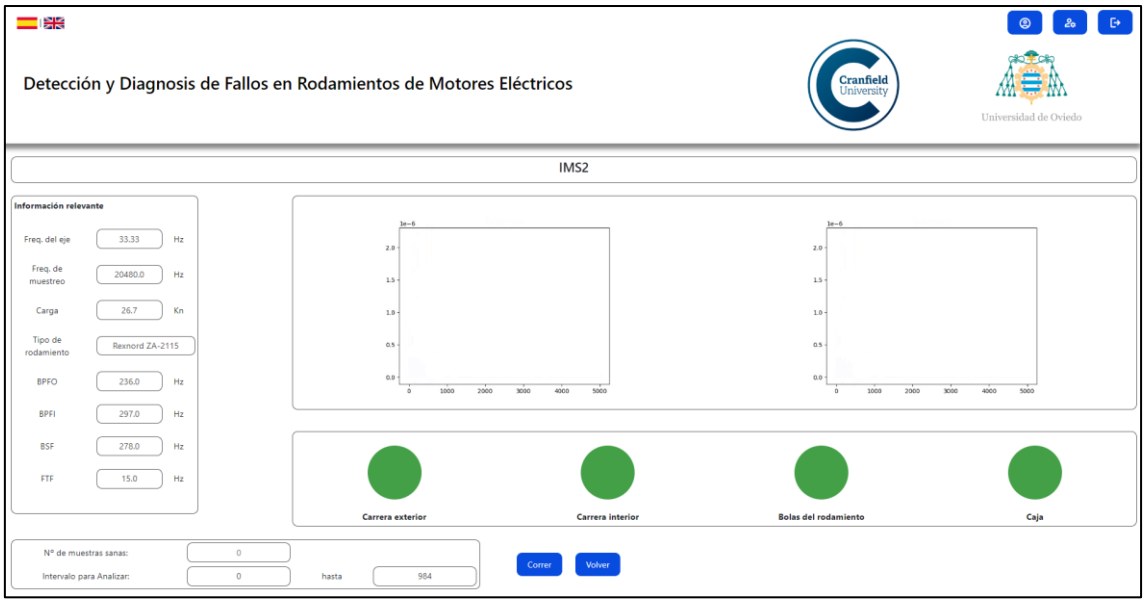
From this view, the user has access to access options for preloaded datasets and datasets that each user has privately uploaded. If no private datasets are loaded, the table on the right will appear empty.



If the user wants to load a new dataset, they will do so using the new dataset button that appears at the bottom of the tables, redirecting the dataset to a view like the one below:



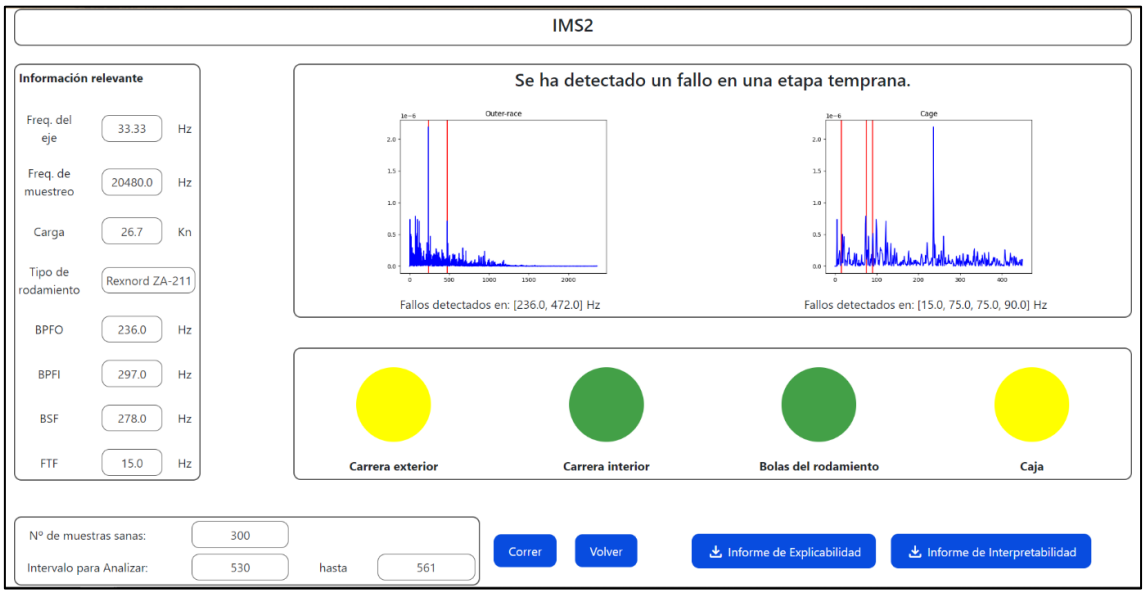
From the main view, the user will now be able to choose a dataset from the preloaded ones or from the one that has just been uploaded to proceed with the analysis. You'll start by exposing the preloaded datasets part. To access these, the user must select one and then click on the "OK" button. The view that the user accesses would be as follows:



As can be seen in this view, the relevant information of the dataset in the left column, the graphs where the information of the failures will appear, if they are detected, and traffic lights corresponding to the four main types of failures where the possible appearance of each of them will be marked.

Below this appears a box to enter the relevant parameters for the analysis, these being the number of healthy samples and the number of healthy samples and the sample numbers marking the beginning and end of the analysis.

Below you can see the results of a scan that was just run:



As can be seen above the graphs, a message has appeared indicating to the user that faults have been detected in the first (outer race) and last (box) element to be checked, hence the colors in the "traffic light" are changed and the graphs of both failures appear with the values of the hertz in which the faults have been detected. The colors of the traffic light will vary depending on the

phase in which the fault has been detected, and may take yellow for faults detected in an early phase, orange for those detected in an intermediate phase or red for those detected in an advanced phase. In the event that faults are detected at any of the other checkpoints, their corresponding graphs would also appear. If the user wished, they could enlarge each chart by clicking on it.

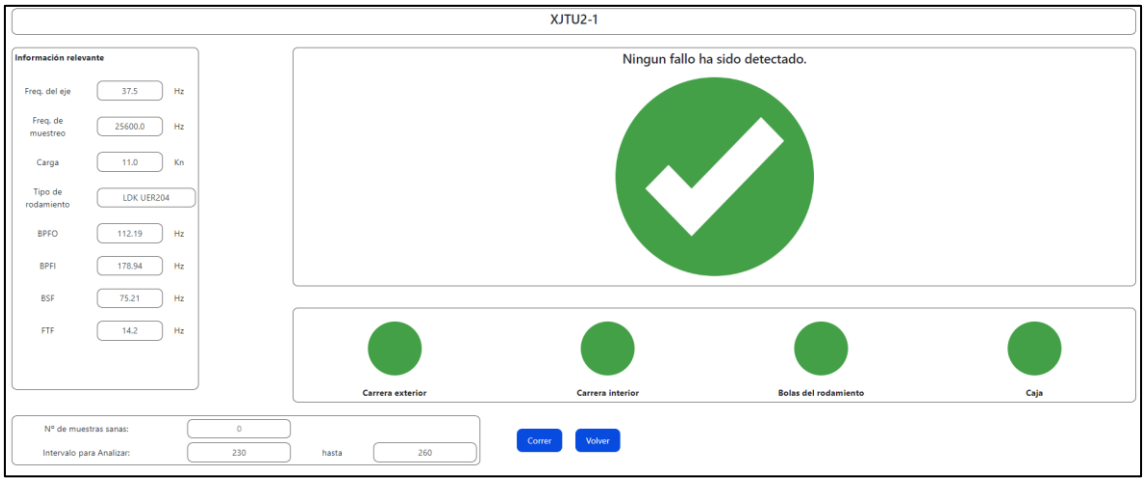
As can be seen in the figure above, the download buttons for the reports of the detected bugs have also appeared. The first of these allows the user to download the explainability report, which shows a series of four matrices:

- Global correlation matrix between HI and time domain characteristics.
- Temporal correlation matrix between HI and time-domain characteristics.
- Global correlation matrix between HI and frequency domain characteristics.
- Temporal correlation matrix between HI and frequency domain characteristics.

And a brief explanation of those values that exceed the threshold of 0.6 in the first column of the global correlation matrices.

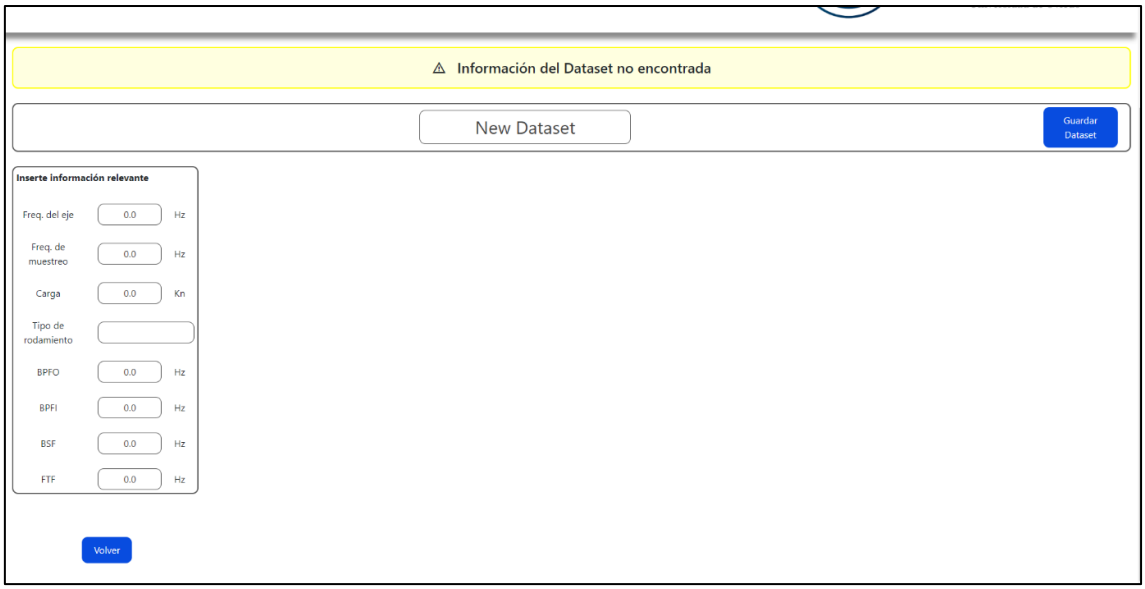
The other button displayed allows the user to download the interpretability report. This report will show the graphs of those elements where faults have been detected (outer stroke, inner stroke, bearing balls and/or housing) and a brief explanation of the frequencies at which these faults have been detected.

In the event that no faults had been detected, the view would be as follows:



In this case, as the analysis has been flawless, we can see in the previous figure that the buttons to download the reports have not appeared.

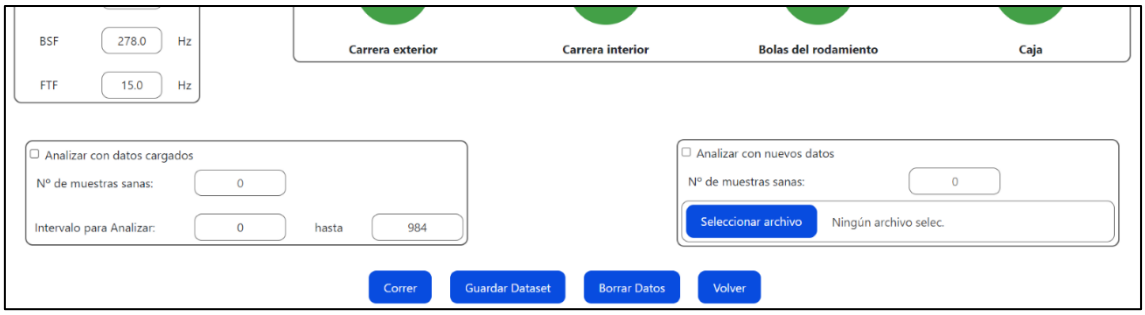
Once you have seen the Preloaded Dataset section, you go back to the user-uploaded dataset section.



As you can see, a box tells the user that the information in the dataset has not been found, because it is a new dataset to be created. This would be done by entering data into the table on the left of the figure and then clicking the "Save Dataset" button. Additionally, the user can also change the name of the new dataset at any time if desired, since the box where the name of the dataset appears is an editable text field.

Once all this information has been uploaded and saved, the information message will disappear and below the table of relevant information a new box will appear to add a file that can only be ".csv".

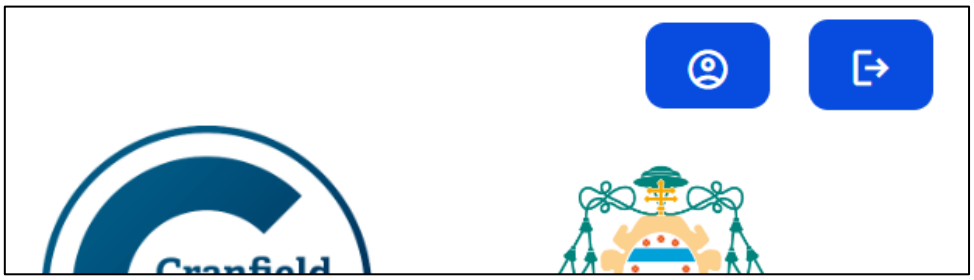
Once the file has been uploaded, this box will disappear from view and a new box will appear with a text field to be able to enter the number of healthy/healthy samples and the interval to be analyzed. Next to this, another box will appear with a text field to be able to enter the number of healthy/healthy samples and a box that will allow you to upload a new file to be analyzed.



From here, the user will have the option to perform an analysis on the data they have uploaded or to upload new data to run the analysis on them.

The operation of the analysis run is identical to that of the Preloaded Datasets page. Subsequently, the graphs with the faults are shown, if they are detected, the color of the "traffic light" corresponding to the area where the fault has been detected will change and the user will be allowed to download the reports.

Going back to the main page of the webApp, at the top, as can be seen in the figure, there are two buttons, one to log out of the webApp on the right and another to manage the account of the logged-in user on the left.



When you access the menu to manage the user's account, you will see a form like the one shown in the figure with all the fields loaded with their current values and that can be modified except for the username. All fields need to be entered for the changes to be effective.