Guidance for My Care Shoe Mobile Application Users

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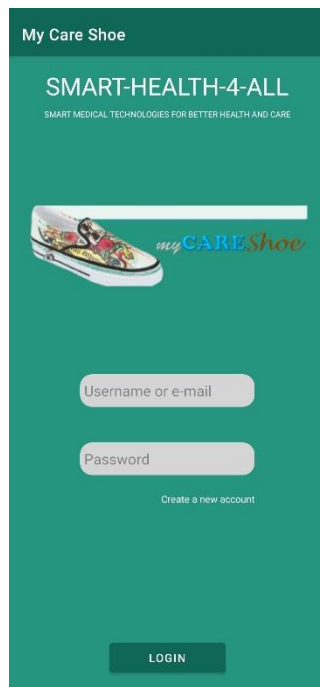
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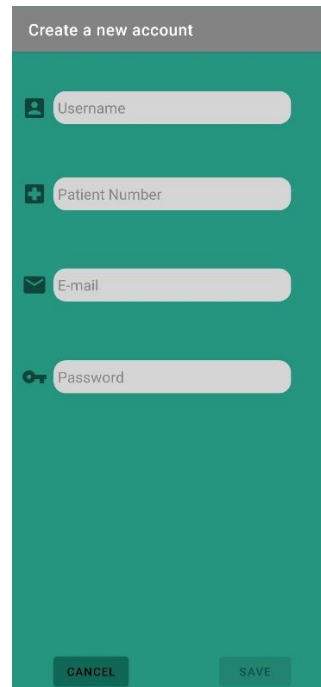# 1. APPLICATION USAGE INSTRUCTIONS

1.1. LOGIN AND REGISTRATION

When starting the application, the user is faced with **Figure 1** (a), which represents the login activity, where only patients can connect. If the credentials are not found in the database, an error message will be exposed, and access will be denied. The same will happen to healthcare professionals or administrators who attempt the same, however this message will say that access is restricted to patients.

If the patient has not yet registered, he will have the option "Create a new account", whose activity is illustrated in **Figure 1** (b).

In this registration, if the patient inserts a patient number, e-mail or username already used by someone else, there will be an error message precisely informing this. The same will happen if the patient number does not have 9 digits or if the e-mail does not have an adequate format.

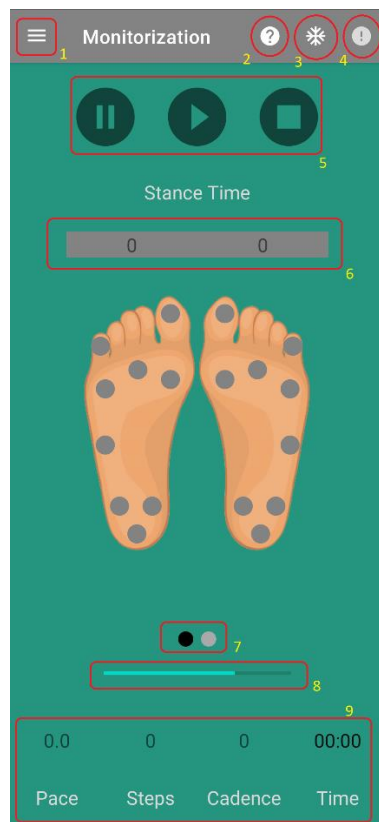(a)   (b)

Figure 1 APP opening activity view: (a) - Login user interface; (b) - Registration user interface
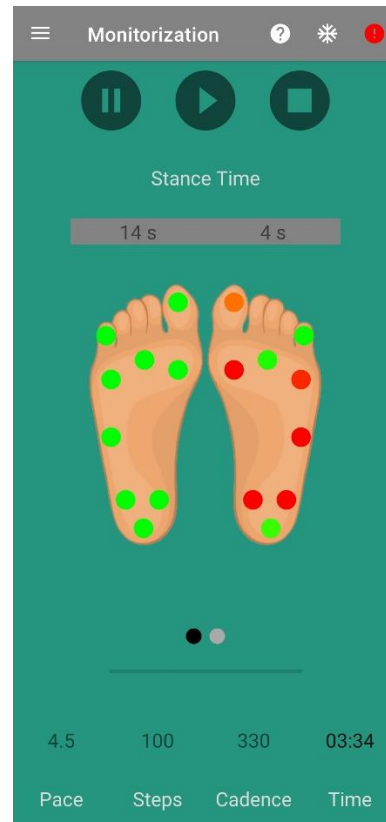
After registration, the patient will have to wait for the administrator's permission to access the application, otherwise, even if the correct credentials are entered, an error message will be displayed saying "Access denied".

1.2.   PATIENT LANDING PAGE

Once the patient enters the correct credentials and has permission to do so, they will encounter **Figure 2** (a). If Bluetooth connections are established, and the stopwatch is counting, the interface will look like **Figure 2** (b).
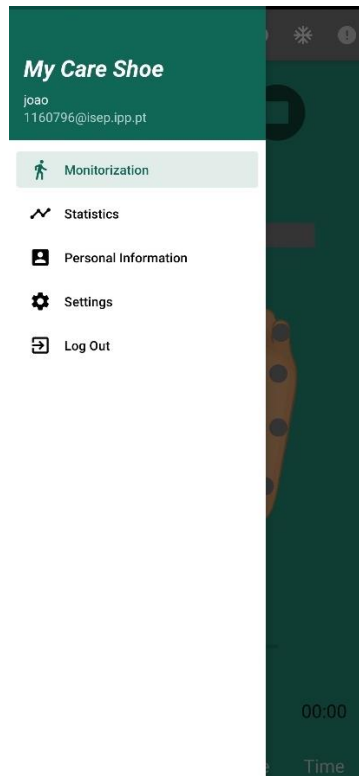
Figure 2 Monitorization interface: (a) - Patient's landing page; (b) – example of the interface when the patient is being monitored.
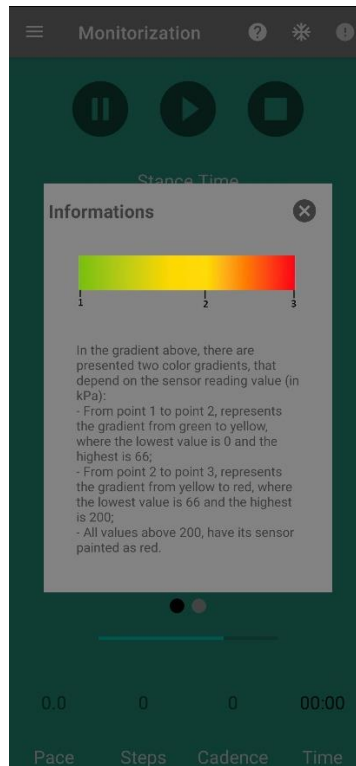
As can be seen in the **Figure 2** (a) above, there are several sections numbered 1 to 9, which correspond to:

1. My care shoe navigation drawer: once opened, several menu options will be displayed that can be accessed by the patient, described in **Figure 3**, which are: Monitorization, Statistics, Personal Information, Settings and Log Out.
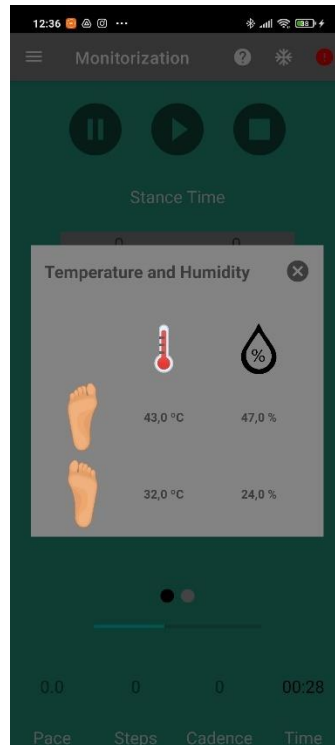
Figure 3 APP navigation drawer

2. Additional information: when pressed, it will provide the user with an explanation of how the color gradient relating to the pressure values of the sensors is calculated and displayed, an illustration of which is shown in **Figure 4**.

Figure 4 Addition information's popup

3. Temperature and humidity values: this pop-up will only be displayed if there is monitoring data collected in this session, with the appearance shown in **Figure 5**.
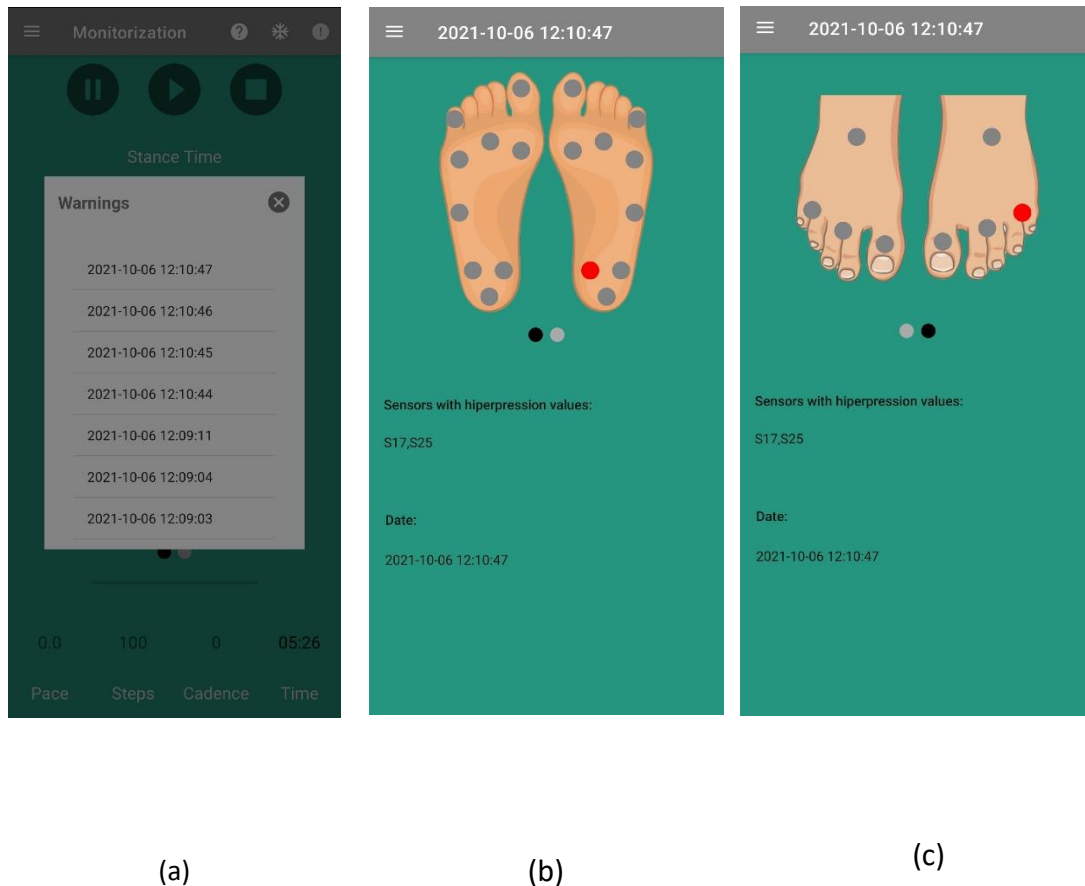
Figure 5 Temperature and humidity values pop-up

4. List of warnings generated: in this menu, the user may access the warnings that have been generated, as shown on **Figure 6** (a), ordered from the most recent to the oldest. Whenever a new warning was created, the button that generate this list will become red. Once the patient clicks on a warning, they will be taken to the screen as shown in **Figure**

6 (b) and (c) with details about the warning such as time and the sensors that caused it to be created, filled with red color.

(a)   (b)   (c)

Figure 6 List of warnings: (a) – List of warnings; (b) – once a warning is selected, the details are shown with front view, and in (c) with upper view.

5. Stopwatch-related action buttons, such as play, pause, and stop.
6. Stance time of each foot in seconds. This value is only updated when on one foot there is a heel strike situation, followed by the toe off phase, and the value displayed is the time difference between these events.
7. Foot view that is selected. In this situation, it was used a *ViewPager* that serves as a slider between different images, in this case, when the left point is black, it means that the

bottom view is visible, and when the right point is black, it means that the top view is visible.

8. Illustrative representation of the balance sheet value. This value is calculated based on the portion of the total pressure of the two feet that is exerted by the left foot, ranging from 0 to 100%.

9. Variables that are updated every time the stopwatch is running, these being pace (in minutes per kilometer), number of steps, cadence (in number of steps per minute) and time.

1.3. PERSONAL INFORMATION'S VIEW

Once the user accesses the "Personal Information" menu in **Figure 3**, his personal information will be displayed, as shown in **Figure 7**, and the following information cannot be changed: name, patient number and date of birth. This is due to the fact that they are data that can only be changed under very specific conditions, and therefore who can do it is exclusively the health professional.

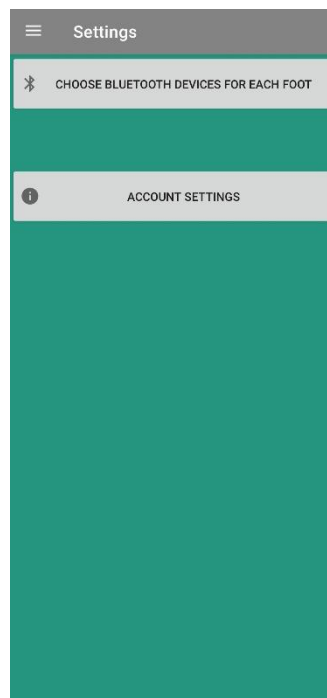**Figure 7** Patient's personal information interface

There are some restrictions regarding the inputs of some fields that are displayed in this figure, such as:

- Weight cannot be less than 20kg nor more than 700kg, as it is considered the range where the target population will be inserted;
- The height must be between 0.5m and 3m;
- The foot size must be between 15 and 75 (using European foot size scale).

This way, the "Save" button will only be enabled when at least one field has its value changed from the previous value, and there is no input with a value outside the established ranges.
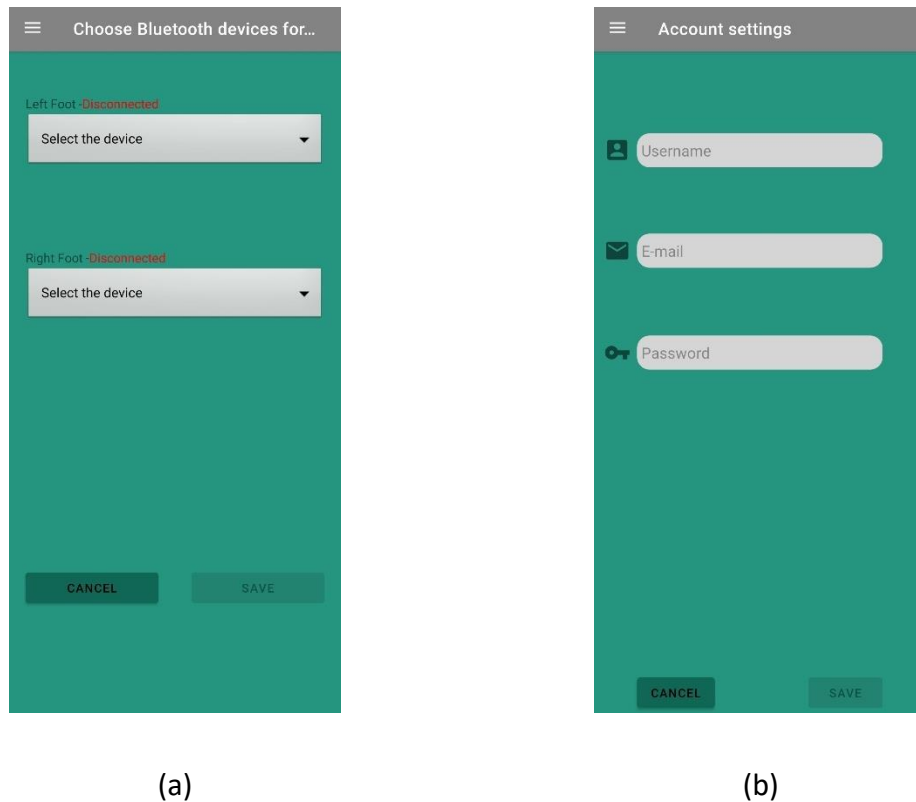
1.4.   SETTINGS VIEW

If the patient clicks in the "Settings" menu, he will find the option to choose the Bluetooth devices "Choose Bluetooth devices for each foot" and the option to change his access credentials "Account settings", as shown in **Figure 8**.

Figure 8 Settings menu interface

In **Figure 9**, it is possible to visualize the two menus available in the settings. In **Figure 9** (a), it is possible to choose the Bluetooth device to associate to each foot, and the list shows the device name and the MAC address. In **Figure 9** (b), the patient can change the credentials, as long as the username and e-mail are not already being used by another user.

(a)   (b)

Figure 9 Settings menu options: (a) - user interface for choosing Bluetooth connections; (b) - interface for changing credentials.
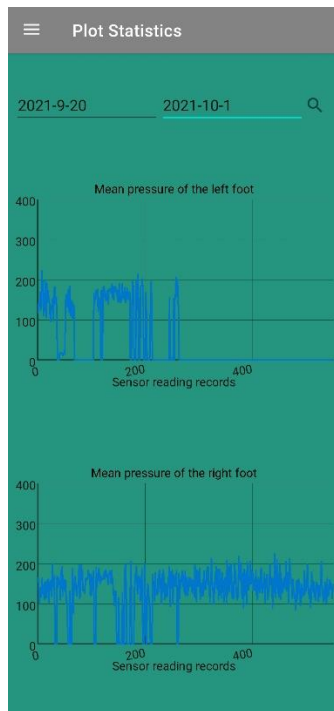
1.5.   STATISTICS MENU INTERFACE

Inside the statistics menu, the user is faced with two possible views to be displayed: a view with graphs ("Pressure statistics (plot)"), and another view that is illustrated and easier to understand ("Pressure statistics (illustrated)"), as shown in **Figure 10**.
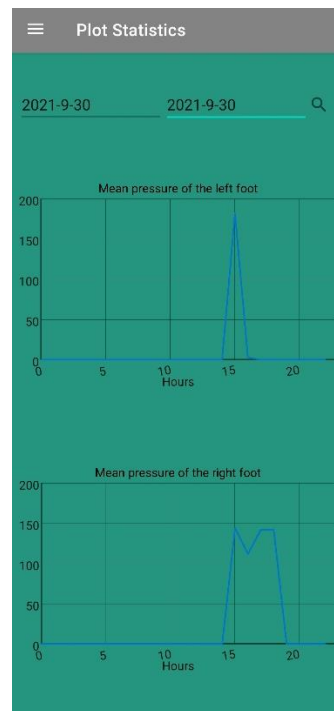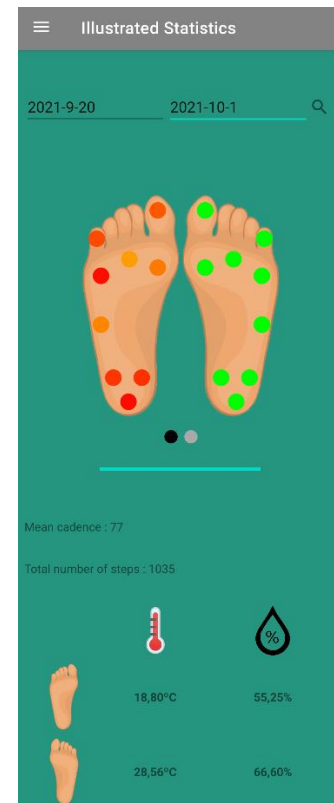
Figure 10 Statistics menu interface

Figure 11 shows the different perspectives of the statistics. In both **Figure 11** (a) and (b), the statistics are presented in graphical form, but while in (a) the x-axis is in order of the number of records, in (b) as it is a one-day perspective, the x-axis is in order of the time of day. In **Figure 11** (c), the average values of the sensors, number of steps, average cadence, and temperature and humidity values in each foot are shown.

(a)   (b)   (c)

Figure 11 Representation of the different types of statistics views: (a) and (b) - in these figures the view of these statistics with graphs is represented; (c) - represents the illustrative view of statistics.