

# Traceability Matrix

ID	Requirement	Related Use Case	Fulfilled By	Test	Description
1.	The application interface contains buttons, display	N/A	MainWindow.ui	Run the simulator in Qt to observe the ui	Using QT's built in user interface framework, the CES device was replicated. Also, all the buttons are clickable with the mouse, and extra interface was implemented to support different users
2.	The application can be powered on and off	Turn on, Turn off	MainWindow	Hold the power button to power on the device and hold the power button again to power it off	A battery variable is responsible for keeping track of the battery level of the device, furthermore, the battery status is displayed on the interface at all times on the simulation. The battery level decreases consistently and by different amounts if a session is running.
3.	Selecting session	selecting session	MainWindow, User, Session	Select a user by clicking the power button and the int buttons, then click the select button. Observe the session time	MainWindow keeps track of the currently selected session, and if the select button is pressed, the current session begins. If it is a user session, it gets loaded into currentSession and starts. A session timer also starts which stops the session when the timer is up.
4.	Switching between different users	Change User	MainWindow, User	Click the switch user button on the top right of the application, observe the highlighted user change	MainWindow holds information about all the users, and switches the current user to the next one when the button is pressed.
5.	Device supports multiple users	N/A	MainWindow, User	Observe the ui, in the top right, there is a list of users available	A QVector holds a list of users, and switches between them when required
6.	Device supports user sessions	Change User	MainWindow, User, Session	Observe the list on the right side	Each User object holds a list of saved sessions that gets loaded

				of the ui	when the user is loaded, and is saved into a json file
7.	Device supports 3 different groups	Selecting Session	MainWindow	At the top of the ui, there are three images, each for each group, pressing the power button when the device is powered, switches between them	There are three groups defined, 20 min, 45 min and user designated. Pressing the power button updates currentSession and the highlighted group icon.
8.	Device supports 4 different sessions	Selecting Session	MainWindow	Below the group icons are the session icons, press the INT buttons to choose between them	Similar to the implementation of the groups, the currentSession gets updated when an INT button is pressed. An enum is used to store the predefined session types
9.	History of treatments can be viewed	N/A	MainWindow, User, Session	The box under the highlighted users show the history of treatments (recorded treatments) if any	Each User object holds a list of sessions that can be selected and started.
10.	User information is stored in persistent storage	N/A	User	Record a treatment and close the application. Open the application again	The user object writes to a json file which saves each session information of the user. A toJson() function is present in the Session class to convert a session object into a QJsonObject.
11.	Intensity can be adjusted	Adjusting Intensity	MainWindow, User, Session	When a session is playing, click the INT buttons to update the intensity of the session	If a session is running the INT buttons are repurposed to change intensity rather than switch between session choices.
12.	The device performs softOff when a session ends	N/A	MainWindow	When a session ends, observe the device turn off slowly, the INT indicators lights from 8 to 1	When a session ends, a special function to power off the device is called, the softOff function, which is shown when the INT lights decrease slowly before powering off.

13.	Connection test is performed	N/A	MainWindow	At the start of a session, connection test is performed	The connection test is to indicate the connectivity of the electrodes, since this is a simulation, actual connection cannot be tested.
14.	User can record session into the device	Recording a session	MainWindow, User	Press the record button, adjust duration, session type, then click save.	On pressing record, the save button is enabled, allowing the user to save the current settings as a session. This session is saved into persistent storage through the User class