**Device Use Cases:**

**Setup Device for use. Use Case (UC1):**

Primary Actor:

* Device User

Precondition:

* User has a device and all its components.

Main Success Scenario:

1. User plugs in connection cable to device
2. User dampens their earlobes with suitable liquid (water, saliva, etc…)
3. User attaches the earclips to the corresponding ears

Post-Condition:

* The User has set up a connection between themselves and the device, and it is now able to be used.

**Power On Device Use Case (UC2) :**

Primary Actor:

* Device User

Precondition:

* User has a device that is off

Main Success Scenario:

1. User presses the power button while the device is off
2. The device illuminates the power indicator light.
3. The device turns on.
4. The device displays the amount of remaining battery life.

Post-Condition:

* The device has turned on and begins at the user selection screen.

Extensions:

* 3a. Device does not turn on.
  + 3a1. User replaces the battery and attempts to turn the device on again.
  + 3a2. User contacts customer service about the device should 3a1 fail.

**Power Off Use Case (UC3) :**

Primary Actor:

* Device User

Precondition:

* User has a device that is on

Main Success Scenario:

1. Main cases:
   1. If User presses the power button while the device is on, OR
   2. If Battery out of charge
2. The device turns off the power indicator light.
3. The device turns off.

Post-Condition:

* The device has turned off

**Select User Profile Use Case (UC4) :**

Primary Actor:

* Device User

Precondition:

* User has a device with at least one previously recorded user.

Main Success Scenario:

1. User selects a user profile that they would like to use
2. The device loads the main menu using the related user data.

Post-Condition:

* The device remembers the user profile and changes the results of later option selections based on the user profile (noted in use cases: UC5, )

Extensions:

* 1a. There are no user profiles
  + 1a1. User is prompted to create a new user profile as specified in UC4.

**Create User Profile Use Case (UC5) :**

Primary Actor:

* Device User

Precondition:

* User has a device.

Main Success Scenario:

1. User requests to create a new profile.
2. Device sends user to the user creation menu, where the user is asked to select a username for their profile
3. User selects a username for their profile
4. Device records the new user profile and signs them in, sending them to the main menu with their new profile.

Post-Condition:

* The device remembers the new user profile and the new user profile can be signed in when the device is powered on (eg: will be an option given in U3:1)

Extensions:

* 3a. The username selected by User cannot be used because it is already in use:
  + 3a1. User is notified that the username has already been taken and is prompted to select a new username.
* 3b. The username selected by the User cannot be used because it violates the username limits (too short, long, invalid characters, etc…)
  + 3b1. User is notified why the username cannot be used and is prompted to create a different one.

**Select Session Use Case (UC6) :**

Primary Actor:

* Device User

Precondition:

* User has a device that they have signed into. The device is displaying the main menu.

Main Success Scenario:

1. User presses a button to specify the type of session that they want.
2. User uses Setup Device for use. *Use Case (UC1)*
3. User presses a button to specify the intensity of the session that they want.
4. User presses a button to begin the session.
5. Device begins session startup (*specified in UC8*)

Post-Condition:

* The device has received information on the type of session the user would like and will attempt to run the session.

Extensions:

* 4a. Device sees that the specified session cannot be run due to lack of battery power.
  + 4a1. User is returned to the main menu, and can reduce the length or intensity of the session to run it, or otherwise power the device off to replace the battery.

**Replay User Session Use Case (UC7) :**

Primary Actor:

* Device User

Precondition:

* User has a device that they have signed into. The device is displaying the main menu.

Main Success Scenario:

1. User presses a button/icon to enter the replay menu.
2. User selects a previously recorded session to replay.
3. User presses a button to begin the session.
4. Device uses *startup session* (specified in UC8)

Post-Condition:

* The device has received information on the type of session the user would like and will attempt to run the session.

Extensions:

* 2a. Device has no previously recorded sessions.
  + 4a1. User cannot complete this user case, as the replay menu will be blank.

**Startup Session Use Case (UC8) :**

Primary Actor:

* Device

Precondition:

* User has selected session specifications and has attempted to start the session.

Main Success Scenario:

1. Device uses *Check Battery charge* specified in *UC 14*
2. Device checks the intensity and session type against the remaining battery power.
3. Device enters test mode, uses *Test Connection specified in UC 12*
4. Device establishes a connection between itself and the user, exits test mode, and commences the session (which runs as specified in UC 9)

Post-Condition:

* The device has received information on the type of session the user would like and will attempt to run the session.

Relevant Information:

* Step 2 in the Main Success Scenario happen concurrently with each other until a connection is established or the session is cancelled.

**Run Session Use Case (UC9) :**

Primary Actor:

* Device

Precondition:

* User has selected the session specifications and the device has established a connection.

Main Success Scenario:

1. Device uses Check Battery charge *UC 14*.
2. Device runs the session for the specified amount of time and with the selected intensity.
3. Near the end of the session time, the device gradually reduces intensity until it reaches 0 at the end.
4. The device turns off.

Post-Condition:

* The device has completed the therapy and it has powered off.

Extensions:

* 1a. Device cannot establish connection
  + 1a1. Session is paused until the connection is reestablished.
* 1b. User changes intensity during the session
  + 1b1. The session runs at the newly specified intensity for the rest of the session.
* 1c. User taps the power button.
  + 1c1. Regardless of time remaining, the device changes to "Soft Off" mode, moving to step 2.

**Browse User Profile Treatment History Use Case (UC10) :**

Primary Actor:

* User

Precondition:

* User has logged in and is on the main menu.

Main Success Scenario:

1. User presses the "Treatment History" button in the main menu.
2. The device displays the treatment history menu, containing information about all recorded sessions.

Post-Condition:

* The user can see all previous treatments they have chosen to record.

Extensions:

* 2a. The user has no previous treatments
  + 2a1. Nothing will be displayed.

**Record User session Use Case (UC11) :**

Primary Actor:

* User

Precondition:

* User has logged in and is on the main menu.

Main Success Scenario:

1. User checks the "Record Session" box before attempting to start a session.
2. The device records information on the session to the user profile during the "Soft Off" in UC8.

Post-Condition:

* The user can record a session.

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| USE CASE 12: Test Connection |
| Primary Actor: Session |
| Precondition: start of a session |
| Postconditions:   1. Connection is Okay (between 4 and 6 inclusive), OR 2. Connection is Excellent (between 1 and 3 inclusive). |
| Main success scenario:   1. Session enters a test mode. 2. Session blinks The CES Mode light. 3. Session confirms the connection, that is Okay or Excellent connection. 4. The graph will display the status of the connection. 5. Session confirms the connection 6. If new session, then Session blanks the display and go to step 8 7. If resuming or restoring a saved session, then session displays a soft On animation 8. Session enables (activates) the intensity buttons, so patient can adjust intensity. |
| Extensions:  3.a Session confirms no connection (between 7 and 8 inclusive).  3.a.1 No Connection (7 and 8 blinking) will display for a couple of seconds.  3.a.2 Session makes graph scroll up and down.  3.a.3 Session is returning the voltage to a safe testing level  3.a.4 Session is starting the test connection main scenario from step 1. |

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| USE CASE 13: Adjust Intensity |
| Primary Actor: Patient |
| Precondition: session in progress |
| Postconditions:   1. intensity is increased and less or equal the max intensity of the machine 2. intensity is decreased and greater or equal the min intensity of the machine 3. intensity is at the same level |
| Main success scenario:   1. Patient presses the increase/decrease intensity buttons. 2. Session increases/decreases intensity of the session. 3. If intensity at the min/max intensity no change of intensity level. |
| Extensions: |

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| USE CASE 14: Check Battery charge |
| Primary Actor: control system |
| Precondition: session in progress |
| Postconditions:   1. Battery charge is measure using charge sensor. 2. Battery charge value is sent to device control system |
| Main success scenario:   1. Battery charge is measure using charge sensor. 2. Battery charge value is sent to device control system. |
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