Use Cases

1. Use Case: CES Device Session

Primary Actor: CES Device User
Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:
There is enough battery to activate the CES device. The device must also be powered on. The connection level should be sufficient (Okay, Good).
Success Guarantee:
The device emits an electrotherapeutic treatment for the desired length of time, or until the battery is no longer charged.
Main Success Scenario:

1. Turn on device (include Power On)
2. CES Device battery level is shown with a battery percentage of 100%.
3. User presses the power button again to select the time period (twenty-minutes, forty-five-minutes).
4. User choose whether to record session (include Save Therapy)
5. CES does a routine check (include Check Connection)
6. User chooses a session (ALPHA, THETA, DELTA, MET).
7. Session is confirmed with the start session button.
8. User adjusts intensity until the stimulation can barely be felt (include Change Intensity).

Extensions

3a. Arbitrary session length.

- The CES device user can select the length in minutes button, and assign an arbitrary amount of time for a custom session.

2. Use Case: Power On

Primary Actor: CES Device User
Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:
CES Device user has a device with sufficient battery power.
Success Guarantee:
The device will startup into the main GUI.
Main Success Scenario:

1. User pushes the power button to turn on the CES device.
2. The device turns on.

Extensions:
1a. Battery level is low.

- Battery low warnings will be shown visually as a function of the length and intensity.

3. Use Case: Power Off

Primary Actor: CES Device User
Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:
CES Device user has a device that is powered on.
Success Guarantee:
The device will shut down.
Main Success Scenario:

1. User pushes the power button to turn off the CES device.
2. The device turns off.

4. Use Case: Save Therapy

Primary Actor: CES Device User
Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:
CES Device user has a device that is powered on. Adequate connection level (Okay, Good).
Success Guarantee:
The record is appended to the SavedTherapies.txt logging file.
Main Success Scenario:

1. User clicks on the “Record Session” radio button.
2. After the treatment, the user can add the therapy to persistent memory, containing the session type, duration, and intensity level.

Extensions:
2a. The CES device session finishes.

- After a completed session the therapy information is saved in the logging file.

2b. The CES device runs out of battery.

- After an abrupt power off the device saves the record, before shutting off.

5. Use Case: Change Intensity

Primary Actor: CES Device User
Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:
CES Device user has a device that is powered on. There is sufficient power to change to the specified intensity. Adequate connection level (Okay, Good).
Success Guarantee:
The intensity meter changes to the specified level.
Main Success Scenario:

1. User presses the decrement/increment button to adjust the intensity of the CES device.
2. The UI is updated to represent the intensity change.

6. Use Case: Check Connection

Primary Actor: CES Device User

Stakeholders and Interests:

- CES Device User - wants to use Cranio-Electro stimulation to treat their condition(s).
- Manufacturing Company - wants to make sure that the electrotherapy is working as intended.

Precondition:

CES Device user has a device that is powered on. There is sufficient power to change to the specified intensity.

Success Guarantee:

The intensity meter changes to the specified level.

Main Success Scenario:

1. CES Device does a connection test.

Extension:

1a. *"Left Ear Disconnected"*:
- The left ear is disconnected, causing the session to stop momentarily until reconnected.

1b. *"Right Ear Disconnected"*:
- The right ear is disconnected, causing the session to stop momentarily until reconnected.

1c. *"Left and Right Ear Disconnected"*:
- The left and right ear is disconnected, causing the session to stop momentarily until reconnected.

1d. *"No Connection"*:
- If there is no connection to the device for 20 seconds, the device stops stalling and powers off.

1e. *"Okay Connection"*:
- If the connection is *"Okay"* then the session proceeds, though drains more battery than if the connection was *"Excellent"*.

1e. *"Excellent Connection"*:
- If the connection is *"Excellent"* then the device proceeds with minimal entropic loss.

Use Case Diagram: CES Device