Team 33 COMP 3004 Final Project

Use Case 1: Normal Operation of Treatment with Neureset Device

Primary Actor(s): Patient

Stakeholders and Interests:
- Patient: Wants a simple, effective, and automated treatment session.
- Neureset System: Aims to deliver accurate and efficient brainwave treatment according to the LENS protocol.

Precondition(s):
- The Neureset device is charged.
- The EEG headset is properly connected to the device and worn by the user.

Success guarantee(s):
- Treatment is delivered across all 21 EEG sites without interruption.

Main success scenario:
1. The patient selects the "new session" option from the menu.
2. The device establishes a baseline frequency for the first EEG site.
3. Treatment is delivered according to the LENS protocol for one second.
4. The device moves to the next EEG site, repeating the process until all 21 sites have been treated.
5. The session ends with the device calculating the end-of-session baselines for all EEG sites.

Extensions:
- 2a. If contact is lost, the device indicates this with a red light and pauses the session.
- 5a. If the patient wishes to pause the session, they can do so, with the session automatically ending if contact isn't reestablished within 5 minutes.

Use Case 2: Therapy History Viewing with PC

Primary Actor(s): Patient

Stakeholders and Interests:
- Patient: Wants to view and analyze the session log.

- Doctor: Wants to view and analyze the session log for historical or medical analysis.
- Neureset System: Aims to provide accurate session data for review and analysis.

Precondition(s):
- The Neureset device has completed one or more treatment sessions.
- The device is connected to a PC.

Success guarantee(s):
- The user can view each session's date, time, and before-and-after baseline frequencies.

Main success scenario:
1. The user connects the Neureset device to a PC.
2. The user accesses the session log history through a designed UI on the PC.
3. The software displays the sessions' time, date, and baseline frequencies.
4. The user scrolls through the session logs as needed.

Extensions:
- N/A

Use Case 3: Battery Low Response of the Device

Primary Actor(s): Neureset Device

Stakeholders and Interests:
- Patient: Wants uninterrupted treatment sessions.
- Neureset System: Aims to ensure the device operates within its power capacity.

Precondition(s):
- The Neureset device is turned on and operational.

Success guarantee(s):
- The patient is informed about the low battery status before the device shuts down.

Main success scenario:
1. The device detects a low battery level.
2. A low battery warning is displayed/indicated to the patient.

3. If the battery level becomes critically low, the device saves the current session and shuts down safely.

Extensions:
- 3a. If the device is in the middle of a treatment, it aborts the attempt before shutting down.

Use Case 4: Connection Loss Between Electrodes and the Device

Primary Actor(s): Neureset Device

Stakeholders and Interests:
- Patient: Wants a seamless treatment session without interruptions.
- Neureset System: Aims to maintain a continuous connection for accurate treatment delivery.

Precondition(s):
- The Neureset device is turned on and in the middle of a session.

Success guarantee(s):
- The device alerts the user to re-establish the connection for a smooth treatment process.

Main success scenario:
1. The device detects a loss of contact between the electrodes and the user's scalp.
2. The device pauses the session, displays a red light, and starts beeping.
3. The user reestablishes contact, and the session resumes from where it was paused.

Extensions:
- 2a. If contact is not re-established within 5 minutes, the session is terminated, and the device shuts off automatically.