USE CASES

Use Case 01

Name: Base Neureset use case

Primary Actor: User

Stakeholders and Interests:

User - Wants to use neurofeedback to control their brainwaves

Neuereset Device - displays the starting menu to user

Battery - Powers the device, when it reaches 0, device turns off

Precondition:

The device is powered off

Main Success Scenario:

1. User presses power button to turn device on
2. The selection menu is displayed to the user. The options are "new session," "session log," and "date and time settings"
3. User selects an option from the menu, the appropriate program runs (see extensions 3a-3c)
4. User presses power button to turn device off

Extensions

2a. If the battery reaches 0 (at any point), the device turns off and session log is erased

2b. If the user presses power off (at any point), the device turns off and session log is erased

3a. User selects "new session" go to **Use Case 02**

3b. User selects "session log" go to **Use Case 03**

3c. User selects "date and time settings" go to **Use Case 04**

Use Case 02

Name: New session use case

Primary Actor: User

Stakeholders and Interests:

User - Wants to start a new neurofeedback therapy session

Neureset Device - Provides LENS neurofeedback therapy for the user

Battery - Powers the device, when it reaches 0, device turns off

Precondition:

Power is on, user selected "new session" from menu, AND EEG Headset is on

Success Guarantees:

User gets full neurofeedback therapy over all 21 EEG sites

Main Success Scenario:

1. A timer starts on the Neureset Device, indicated by a blue light on the device. The timer displays approx. time remaining and session progress bar indicated by a percentage
2. Neureset software calculates an overall baseline for all 21 EEG (Electroencephalography) sites
3. Neureset software calculates a baseline for an individual EEG site, takes approx. 1 minute
4. Software applies treatment over 1 second, indicated by a green light flashing
5. Repeat step 3-4 for all 21 EEG sites
6. Neureset software calculates an overall baseline for all 21 EEG sites again
7. Return to menu (Use Case 01 step 2)

Extensions

1a. If the battery reaches 0 (at any point), the device turns off and session log is erased

1b. If the user presses power off (at any point), the device turns off and session log is erased

1c. If contact is lost ((at any point), the session is paused, a red light flashes, and the device starts beeping until contact is reestablished.

1c1. If contact is not reestablished after 5 minutes, the device turns off and session log is erased

1d. The user can press pause, to pause the session (and press resume button to resume)

1d1. If contact is not reestablished after 5 minutes, the device turns off and session log is erased

1e. If the user presses the stop button, session is stopped and user is returned to the main menu

Use Case 03

Name: Session log use case

Primary Actor: User

Stakeholders and Interests:

User - Wants to view session log

Neureset Device - Holds the sessions logs, which can be uploaded to a PC

PC - Displays before and after frequencies of a session to the user (only if the user chooses to upload to PC)

Battery - Powers the device, when it reaches 0, device turns off

Precondition:

Device is powered on, user selected “session log” from menu

Success Guarantees:

The user can view the date and time of their sessions

Main Success Scenario:

1. The date of time of previous sessions is displayed to the user and the user can scroll through
2. The user presses the menu button to return to the menu

Extensions

1a. If the battery reaches 0 (at any point), the device turns off

1b. If the user presses power off (at any point), the device turns off

1c. The user uploads the before and after baselines of a session to a PC

1c1. The PC displays the before and after dominant frequencies for each EEG site to the use, compared side by side as a numerical value

Use Case 04

Name: Date and time use case

Primary Actor: User

Stakeholders and Interests:

User - Wants to change date and time

Neureset Device - gets the date and time updated

Battery - Powers the device, when it reaches 0, device turns off

Precondition:

Device is powered on, user selected “date and time” from menu

Success Guarantees:

The device’s date and time gets updated

Main Success Scenario:

1. The user changes the date and time on the device
2. The device saves the changes and updates its clock
3. Return to menu (Use Case 01 step 2)

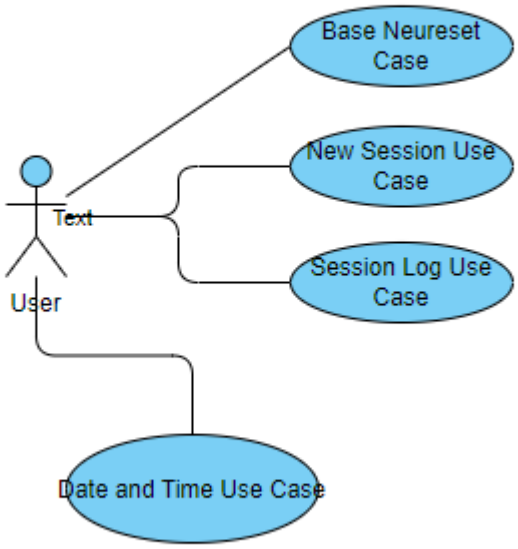
Extensions

1a. If the battery reaches 0 (at any point), the device turns off

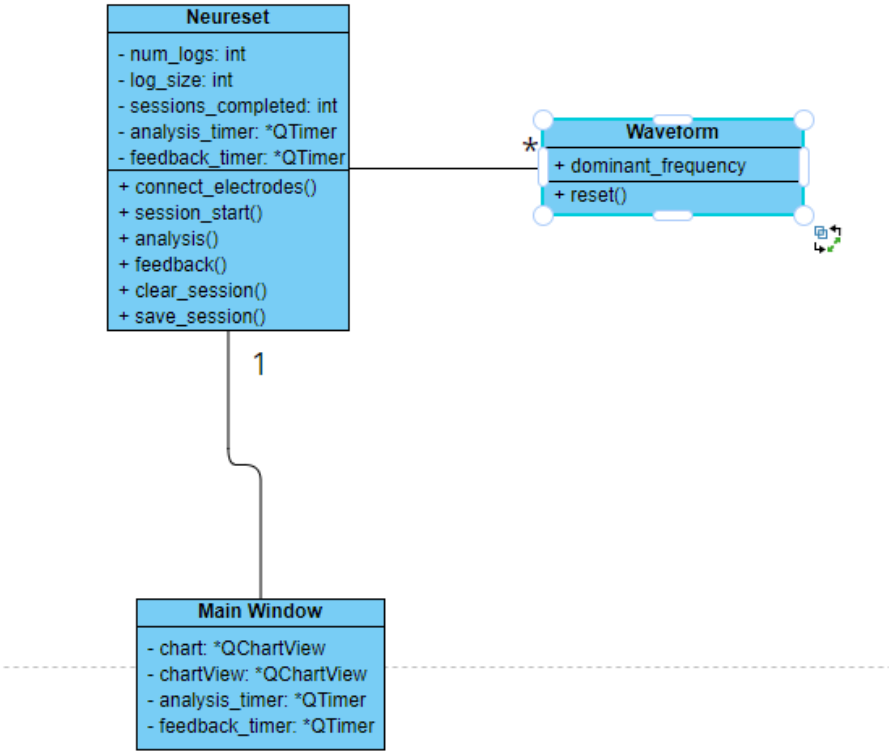
1b. If the user presses power off (at any point), the device turns off

1c. If the user presses the menu button, they are returned to the main menu

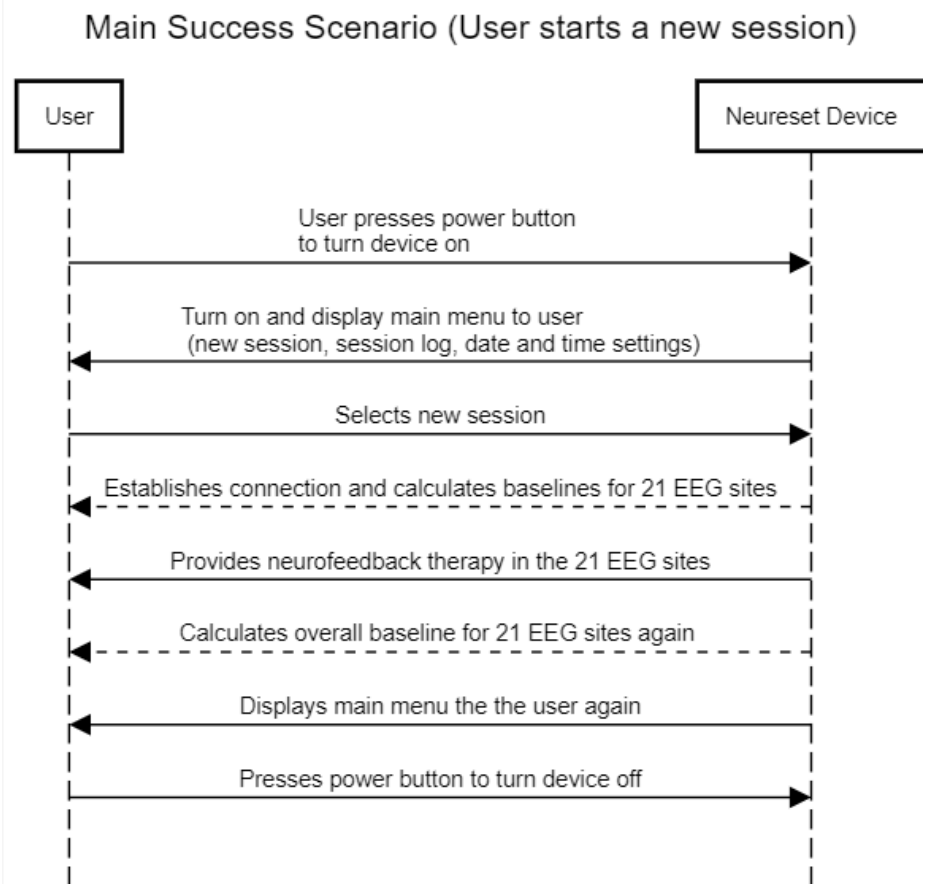
USE CASE DIAGRAM

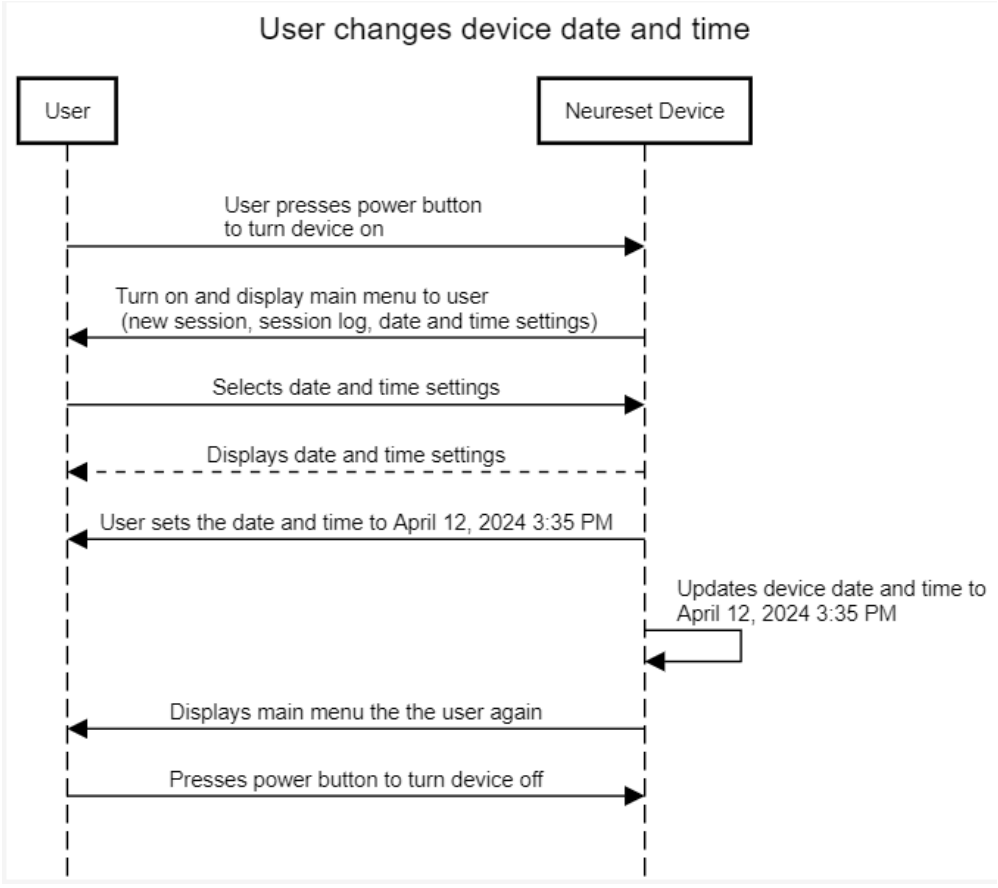


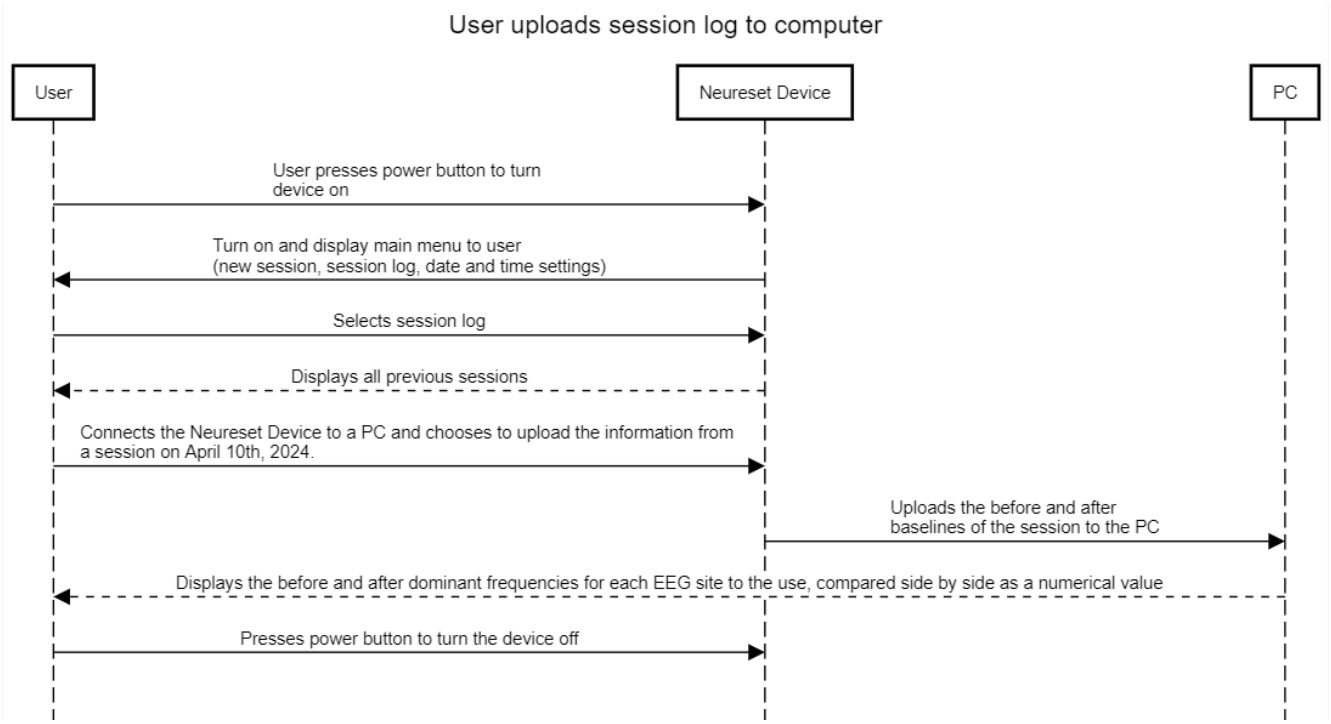
UML CLASS DIAGRAM

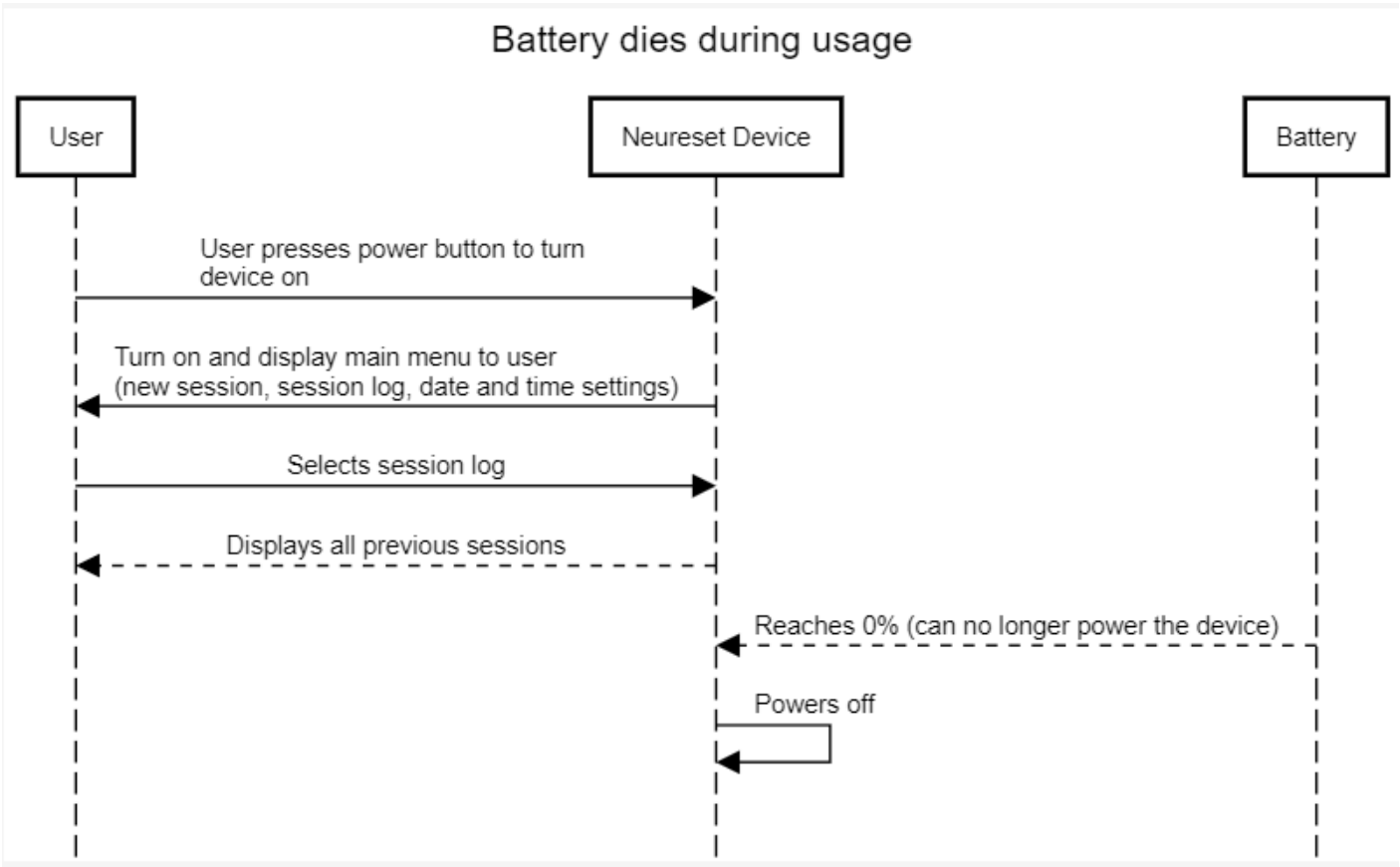


SEQUENCE DIAGRAMS

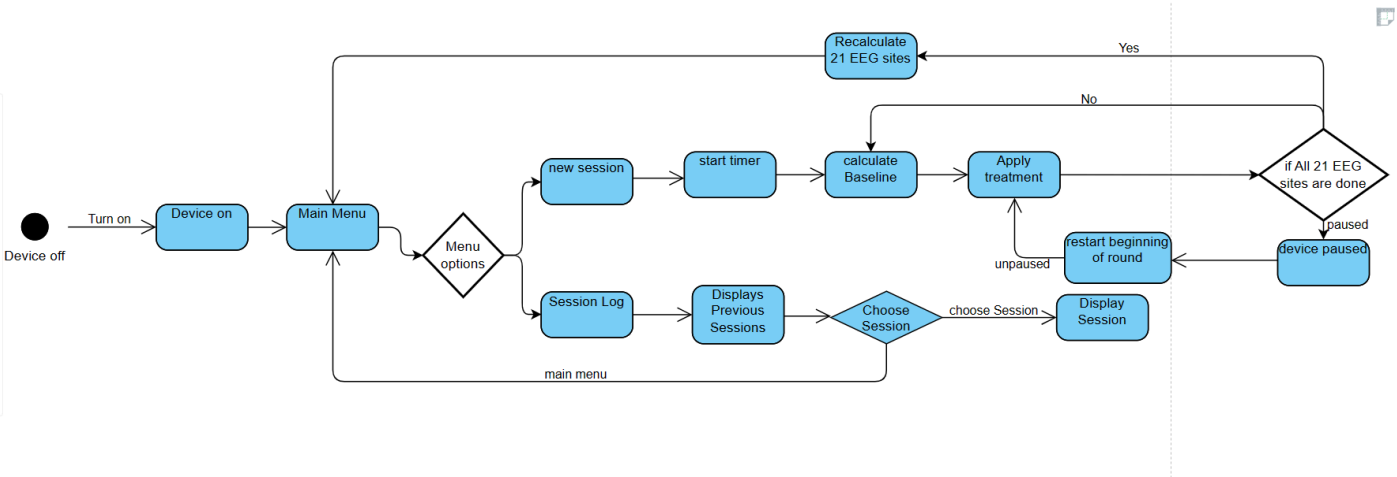








UML State Machine Diagram


Recalculate 21 EEG sites
Yes
No
Device off
Turn on
Device on
Main Menu
Menu options
new session
start timer
calculate Baseline
Apply treatment
if All 21 EEG sites are done
paused
device paused
restart beginning of round
unpaused
Session Log
Displays Previous Sessions
Choose Session
choose Session
Display Session
main menu