Team 38

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COMP3004A

3004 Team Project - Use Cases

Use Case 1: Power On

Primary Actor: User

Scope: OASIS System

Level: Basic function

Stakeholders and interests:

User: Wants to use the device

Pre-condition: Battery is inserted and has charge

Main success scenario:

1. User presses and holds power button until power LED lights up.
2. Battery Indicator displays the current battery level

Extensions:

Use Case 2: Power Off

Primary Actor: User

Scope: OASIS System

Level: Basic function

Stakeholders and interests:

User: Wants to shut off the device, save current session

Pre-condition: Device is currently on

Main success scenario:

1. User presses and holds power button until unit shuts off
2. Device turns off

Extensions:

1a. Device is idle for 2 minutes

      1a1. If no session is selected for 2 minutes, the device shuts off

2a. If user is mid session, proceed with "Soft Off™"

      2a1. Graph scrolls from 8 to 1, reducing CES stimulation gradually

      2a2. Device shuts off

Use Case 3: Low Battery

Primary Actor: User

Scope: OASIS System

Level: Basic function

Stakeholders and interests:

Device: Wants to alert user of battery status

Pre-condition: Battery is low charge

Main success scenario:
1. Calculate current remaining battery based on length of therapy, intensity, and connection to skin.
2. If battery is low, display to the user indicating they should change it

Extensions:
2a. Battery is low
       2a1. Display 2 blinking bars on graph to indicate low battery
2b. Battery is critically low
       2b1. Display 1 blinking bar on the graph to indicate critical battery
       2b2. If in a session, end the session early and require new battery before next use

Use Case 4: Selecting a Session
Primary Actor: User
Scope: OASIS System
Level: Basic function
Stakeholders and interests:
User: Wants to begin a session
Pre-condition: Battery has charge, device is on
Main success scenario:
1. Remove any and all metal jewelry from ears
2. Wet earlobes with tap water, silva, or conductive gel
3. Attach clips to ears, black to left, red to right
4. Attach ear clip cable to CES jack
5. When device is powered on, display the session groups (20 minute, 45 minute, user designed)
6. Display current session number from the group, if no session number is displayed the group is empty
7. Press and release power button to switch between group until desired group
8. Press INT▲ or INT ▼ arrows to cycle between sessions, current selection number is highlighted
9. Press the Checkmark button to start highlighted session
10. Session number flashes and session begins after 5 second delay

Extensions:
4a. Frequency and mode icons for the session light up, indicating the frequency range and CES pulse types used for that session
10a. See UC5 for next steps

Use Case 5: Connection test
Primary Actor: User
Scope: OASIS System
Level: Basic function
Stakeholders and interests:
User: Has booted the device

Device: Wants to check connection quality

Pre-condition: A session has been started

Main success scenario:

1. The device enters test mode
2. The CES Mode light blinks while the graph displays the status of the connection
3. The connection is confirmed
4. The connection test is complete and the user can now adjust the intensity

Extensions

2a. Ear clips are disconnected / can't get a usable connection

      2a1. The device will pause the session and wait until a good connection is established.

      2a2. 7 & 8 will blink for a couple seconds to indicate "No Connection"

      2a3. The graph will scroll up and down the numbers to indicate the device is returning the voltage to testing level (may take up to 20 seconds)

3a. User was in the middle of a session when connection dropped or is restoring a saved preference

      3a1. Display "Soft On" animation if connection is good and user is resuming a session or restoring a saved preference

Use Case 6: Intensity

Primary Actor: User

Scope: OASIS System

Level: Basic function

Stakeholders and interests:

User: Wants to change the intensity of the device

Pre-condition: A session has begun

Main success scenario:

1. User presses INT▲ or INT ▼ to adjust the intensity to the desired level
2. As the buttons are pressed, the graph lights according to the current intensity

Extensions:

1a. User tries to increase or decrease intensity beyond boundaries

      1a1. If too low numbers 1,2,3 will blink

      1a2. If too high numbers 7,8 will blink

Use Case 7: Record

Primary Actor: User

Scope: OASIS System

Level: Basic function

Stakeholders and interests:

User: Wants to record a therapy

Pre-condition: A session being started

Main success scenario:

1. User holds the Select button for 1 second.
2. Graph displays a short animation

3. User may start the session or press stop to save preferences but not start the session.
4. Session type, duration, & intensity level are saved in the user's treatment history.

<u>Extensions:</u>

3a. User continues the sessions and changes intensity after recording their preferences.

   3a1. The highest used intensity before the session ends is the one that is saved.

Use Case 8: Replay
<u>Primary Actor:</u> User
<u>Scope:</u> OASIS System
<u>Level:</u> Basic function
<u>Stakeholders and interests:</u>
User: Wants to replay a selected treatment from their treatment history.
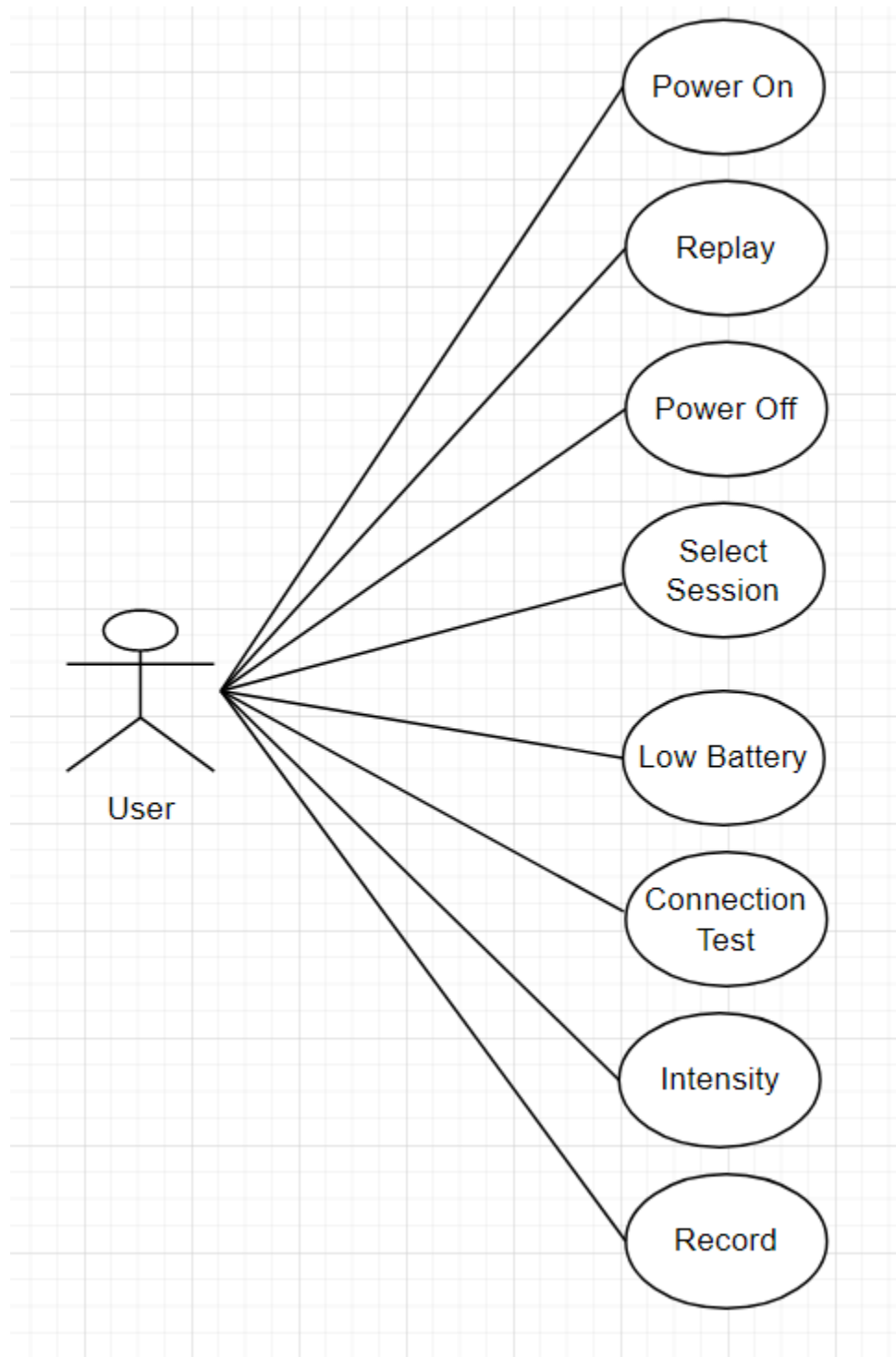<u>Pre-condition:</u> User has a previously recorded treatment
<u>Main success scenario:</u>
1. User presses "Print History" button to view previous sessions
2. Finds and selects the treatment they wish to re-use.
3. User presses "Play Replay" on desired treatment and the session begins

<u>Extensions:</u>

1a. User has no previously recorded treatment

   1a1. Display "No History Found"

Use Case Diagram

Traceability Matrix

ID	Requirement	Related Use Case	Fulfilled By	Tested By
1	Power button turns device on	Power On	User, MainWindow, Button, Device	Power On Scenario
2	Battery Level displayed when powered on	Power On	User, MainWindow, Battery, Device	Power On Scenario
3	Power button when held turns device off	Power Off	User, MainWindow, Battery, Device	Power Off Scenario
4	When idle after starting, device turns off after 2 minutes	Power Off	MainWindow, Device	Power Off Scenario
5	Display low battery to the user	Low Battery	User, MainWindow, Device, Light	Low Battery Scenario
6	User is able to select a session using the up/down arrows then confirm with the check button	Selecting a Session	User, MainWindow, Device, Button	Select a Session Scenario
7	Selected session lights up	Selecting a Session	User, MainWindow, Light, Group	Select a Session Scenario
8	Session begins 5 seconds after selection	Selecting a Session	MainWindow, Device, Group, Session	Select a Session Scenario
9	Session frequency and mode icons light up to indicate levels to user	Selecting a Session	User, MainWindow, Light, Device, Group	Select a Session Scenario
10	Able to test connection, lights indicating the results of the connection test	Connection Test	User, MainWindow, Light, Device	Connection Test Scenario
11	If connection drops in a middle of a session, implement a "soft on" to show reconnection and put	Connection Test	User, MainWindow, Device	Connection Test Scenario

	user back in session if they want			
12	Up and Down arrows allow user to adjust intensity, displaying the change on the graph	Intensity	User, MainWindow, Device, Light	Change Intensity Scenario
13	User is alerted if intensity is below or above acceptable values	Intensity	User, MainWindow, Device, Light	Change Intensity Scenario
14	User is able to record session, saving duration, type, intensity levels in their treatment history	Record	User, MainWindow, Device, Recording	Record a Session Scenario
15	User can choose to continue session or simply to record	Record	User, MainWindow, Device, Recording, Session	Record a Session Scenario
16	User able to run a session based off recordings by pressing the 'Play replay' button	Replay	User, MainWindow, Device, Session, Button, Recording	Replay a Session Scenario
17	If there is no history when user searches for recordings, inform user	Replay	User, MainWindow, Device, Session, Button, Recording	Replay a Session Scenario