Use Cases

Use Case 1: Normal Operation of Device

Primary Actor: User

Goal in Context: To test the user’s coherence, breath, heart rate, and display the results on the device screen during a session.

Scope: One user for one device.

Stakeholders and interests:

* User: Wants an accurate, informative, and user-friendly experience while testing their coherence, breath, and heart rate.
* Device Manufacturer: Aims to provide a reliable, easy-to-use device that satisfies users’ needs for personal health monitoring.

Preconditions:

* The user has the device, and it is fully charged or connected to power.
* The device is in a ready state, with no ongoing sessions.

Main Success Scenario:

1. The user turns on the device by pressing the power button.
2. The user navigates to the “Start New Session” menu option using the directional buttons and confirms by pressing the “OK” button.
3. The device initiates the session. It measures and displays the user’s breath rate, coherence level, and heart rate on the screen. The pulse reading light is activated to indicate the session is in progress.
4. The user completes the session by following on-screen instructions or waits until the device automatically concludes the session.
5. Upon session completion, the user can press the “Back” or “Menu” button to view a session overview, including summaries of measured metrics.
6. The device automatically saves the session data for future reference.

Extensions:

* 2a. The device fails to start a new session:
  + 2a1. The device displays an error message detailing the problem (e.g., “Device error, please restart”).
  + 2a2. The user restarts the device and attempts to start a new session again.
* 4a. User removes contact from the device, or the device loses the ability to measure the user’s metrics:
  + 4a1. The device immediately ends the session and displays a prompt, “Session ended. Returning to main menu.”
* 6a. The device encounters an error while saving session data:
  + 6a1. The device displays an error message, “Error saving session data. Please try again.”
  + 6a2. The user is given the option to retry saving the session data or to skip saving.

Use Case 2: Check Previous Sessions

Primary Actor: User

Scope: Interaction between a single user and the device, focusing on the retrieval and display of session history.

Stakeholders and Interests:

* User: Interested in reviewing the summaries of their previous sessions for tracking progress, identifying trends, and reflecting on their health metrics over time.
* Device Manufacturer: Seeks to provide a device that supports easy access to historical data, enhancing user engagement and satisfaction with the product.

Preconditions:

* The user has completed at least one session with the device.
* The device is operational and has not encountered any errors that would prevent access to historical data.

Main Success Scenario:

1. The user turns on the device by pressing the power button.
2. Using the directional arrows, the user navigates to the "History" option in the device menu.
3. The user selects the "History" option by pressing the "OK" button.
4. The device displays a list of previous sessions, each identifiable by date and time.
5. The user scrolls through the session history using the directional arrows and selects a specific session to view more details by pressing the "OK" button.
6. The device displays an overview of the selected session, including metrics like breath rate, coherence level, and heart rate recorded during that session.
7. The user reviews the session details and may press the "Back" or "Menu" button to return to the session list or main menu.

Extensions:

* 2a. There are no previous sessions to display:
  + 2a1. The device displays a message indicating there are no session histories, e.g., "No previous sessions found."
  + 2a2. The user presses the "OK" button to acknowledge the message and is returned to the main menu.
* 4a. The device encounters an error retrieving session history:
  + 4a1. The device displays an error message, e.g., "Error accessing session history. Please try again later."
  + 4a2. The user is returned to the main menu and encouraged to retry accessing the history later.

Use Case 3: Clear Previous Sessions

Primary Actor: User

Scope: User interaction with the device for managing session history by deleting past session data.

Stakeholders and Interests:

* User: Wants the ability to delete their previous session data for privacy reasons or to reset their progress.
* Device Manufacturer: Aims to provide a secure and user-friendly interface for managing session data, including deletion, to meet users' privacy needs.

Preconditions:

* The user has completed at least one session, and the device stores this data.
* The device is operational, and the session history is accessible.

Main Success Scenario:

1. The user turns on the device by pressing the power button.
2. The user navigates to the "History" or "Session Log" option in the menu using the directional arrows.
3. Upon selecting the "History" option by pressing the "OK" button, the device displays the session history.
4. The user scrolls to and selects the "Clear All" option using the directional arrows and confirms by pressing the "OK" button.
5. The device prompts the user for confirmation to delete all session history to prevent accidental data loss, e.g., "Are you sure you want to delete all session data? Yes/No."
6. The user confirms the deletion by selecting "Yes" and pressing the "OK" button.
7. The device deletes all stored session data and displays a confirmation message, e.g., "All session data has been deleted."
8. The user is returned to the main menu or the history page, which now indicates that no session data is available.

Extensions:

* 5a. User selects "No" at the confirmation prompt:
  + 5a1. The device cancels the deletion process and returns the user to the previous screen without deleting any data.
* 6a. The device encounters an error while attempting to delete the session data:
  + 6a1. The device displays an error message, e.g., "Unable to delete session data at this time. Please try again."
  + 6a2. The user is returned to the session history screen to attempt deletion again or perform other actions.

Use Case 4: Change Breath Pacer

Primary Actor: User

Scope: User interaction with the device to adjust the breath pacer settings, tailoring the breathing pace to personal comfort or challenge levels.

Stakeholders and Interests:

* User: Seeks to customize the breath pacer's settings to enhance their coherence and relaxation experience during sessions.
* Device Manufacturer: Aims to provide a customizable experience that allows users to adjust device settings for personalized use, improving user satisfaction and engagement.

Preconditions:

* The device is powered on and is in a state where settings can be modified (i.e., not during an active session).
* The breath pacer feature is available and can be adjusted through the device’s settings menu.

Main Success Scenario:

1. The user activates the device by pressing the power button.
2. The user navigates to the "Settings" menu using the directional arrows on the device.
3. Upon reaching the "Settings" menu, the user selects it by pressing the "OK" button.
4. Inside the "Settings" menu, the user navigates to the "Breath Pacer" option using the directional arrows.
5. The user selects the "Breath Pacer" setting by pressing the "OK" button.
6. The device presents options for different breaths per minute (BPM) settings. The user scrolls through these options using the directional arrows.
7. The user selects their desired BPM setting for the breath pacer and confirms the selection by pressing the "OK" button.
8. The device updates the breath pacer setting to reflect the user's choice and displays a confirmation message, e.g., "Breath Pacer set to [selected BPM]."
9. The user returns to the main menu or continues adjusting other settings as desired.

Extensions:

* 6a. User selects a BPM setting that is outside the recommended range:
  + 6a1. The device displays a warning message, e.g., "Selected BPM is outside the recommended range. Proceed? Yes/No."
  + 6a2. If the user chooses "No," they are returned to the list of BPM options. If "Yes," the device updates the setting as per the user's choice.
* 8a. The device fails to update the breath pacer setting:
  + 8a1. The device displays an error message, e.g., "Failed to update Breath Pacer settings. Please try again."
  + 8a2. The user is prompted to retry the selection or return to the main settings menu.

Use Case 5: Change Challenge Level

Primary Actor: User

Scope: User interaction with the device to adjust the challenge level, allowing customization of session difficulty or intensity.

Stakeholders and Interests:

* User: Interested in personalizing the challenge level to suit their training needs, progress, or comfort, thereby enhancing their experience, and achieving desired outcomes.
* Device Manufacturer: Aims to provide a versatile device that caters to users at different stages of their training or therapy, offering adjustable settings to maintain user engagement and satisfaction.

Preconditions:

* The device is turned on and is not in the middle of an active session.
* The user is familiar with navigating the device's menu and adjusting settings.

Main Success Scenario:

1. The user powers on the device by pressing the power button.
2. Using the directional arrows, the user navigates to the "Settings" option displayed on the device's menu.
3. The user selects the "Settings" option by pressing the "OK" button.
4. Within the "Settings" menu, the user finds and selects the "Challenge Level" option by pressing the "OK" button.
5. The device presents a range of challenge levels (e.g., Easy, Medium, Hard), and the user scrolls through these using the directional arrows.
6. The user chooses a preferred challenge level and confirms their selection by pressing the "OK" button.
7. The device updates the challenge level to the user's selected setting and displays a confirmation message, e.g., "Challenge Level set to [selected level]."
8. The user exits the settings menu and returns to the main menu or continues to adjust other settings as needed.

Extensions:

* 5a. User selects a challenge level that might be too advanced based on their previous session data:
  + 5a1. The device displays a cautionary message, e.g., "Selected level may be too challenging based on past performance. Continue? Yes/No."
  + 5a2. If the user selects "No," they are returned to the challenge level options. If "Yes," the device updates to the chosen level despite the warning.
* 7a. The device encounters an error while attempting to update the challenge level:
  + 7a1. The device shows an error message, e.g., "Unable to update Challenge Level. Please try again."
  + 7a2. The user is prompted to retry or can choose to exit back to the main settings menu without making changes.

Use Case 6: Battery Runs Out

Primary Actor: User

Scope: The device's interaction with the user when the battery level becomes critically low or runs out.

Stakeholders and Interests:

* User: Wants to ensure the device is operational for as long as needed and expects clear communication about the device's power status to manage usage and recharge accordingly.
* Device Manufacturer: Interested in providing a reliable user experience by ensuring the device communicates its battery status effectively, preventing unexpected shutdowns during use.

Preconditions:

* The device is operational and being used by the user.
* The battery level is critically low (e.g., below 5%).

Main Success Scenario:

1. As the battery level reaches a critically low point, the device detects the low battery status.
2. The device immediately displays a warning on the screen, alerting the user that the battery is low, e.g., "Battery low. Please recharge the device."
3. The user acknowledges the warning and begins to end their current session or prepares the device for charging.
4. If the user does not respond and the battery level depletes further, the device displays a final warning, e.g., "Battery critically low. The device will shut down soon."
5. The device automatically saves any active session data to prevent loss of information.
6. The device shuts down to preserve the remaining battery life and protect the device's electronic components.

Extensions:

* 3a. The user connects the device to a power source before it shuts down:
  + 3a1. The device stops displaying the low battery warning and shows a charging indicator instead.
  + 3a2. If the device was in the middle of a session, the user can choose to continue the session or end it to allow the device to charge more rapidly.
* 5a. The device is unable to save session data before shutting down:
  + 5a1. Upon the next power on, the device informs the user that it was unable to save the last session data, e.g., "Failed to save session data before shutdown."
  + 5a2. The device recommends keeping the device charged to prevent future data loss.
* 6a. The user attempts to turn on the device without charging it after it shut down due to low battery:
  + 6a1. The device does not turn on or briefly displays a message indicating the battery is too low for operation, prompting the user to charge the device.

Use Cases Diagram

A diagram of a person with text

Description automatically generated