

UC1: Main/ General Use Part 1 (Starting a session)

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery

Success Guarantee: User can turn on the device and start a session that will start recording their heart rate and display relevant information such as HRV, coherence, etc. on the screen.

Main success scenario:

1. User attaches sensor (checks sensor checkbox)
2. HR contact button "Lights up"
3. User turns device on by pressing the power button
4. Device displays menu options on main menu screen (Start session, settings, log/history, reset)
5. User selects *Start Session* option
6. User presses selector
7. Device screen changes to display session information (HRV, Coherence, Time elapsed, etc)

Extensions:

- 1.a User does not check sensor checkbox, session continues, flatline data used. Continue as if normal

UC2: Main/ General Use Part 2 (During a session/ending a session)

Actor(s): User, HeartWave (Device)

Precondition(s): All preconditions from UC1 + Main success scenario of UC1 achieved

Success Guarantee: User can end a session with a detailed summary displaying a variety of HRV and possibly other metrics.

Main success scenario:

1. Breath Pacer lights begin to go back and forth at selected interval
2. Device "records" Heart Frequency and stores it
3. Device appends current frequency to the 64 second graph on screen
4. Device updates length of session on screen
5. Once 5- seconds have passed, device analyzes stored frequency data. Generating a Coherence score.
6. Device calculates an achievement score from total coherence score
7. Device updates achievement variable and score on screen.
8. Device updates "coherence light bar" with respect to challenge level and coherence score
9. Device "beeps" if a new coherence level is reached
10. Repeat steps 5-9 every 5 seconds
11. User presses *Selector* button
12. Device stops displaying new session information
13. Device generates a saved session and stores it (challenge level, percentage of time in different coherence levels (low medium and high), average coherence, length of session, achievement score, Entire HRV graph).
14. Device displays session summary on screen.

Extensions:

10.a User presses *Selector* button(before 5 seconds), no summary is generated (not enough data)

1-14.a Battery runs out, processes end of session and saves.

UC3: Session Settings

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery, Device is turned on, Device is not in an active session

Success Guarantee: User can change session settings. Specifically breath pacer.

Main success scenario:

1. User presses the menu button
2. Device displays menu options on session screen (Start a new session, settings, log/history)
3. User selects *Settings* option
4. Device displays settings sub-menu on session screen(1. Breath Pacer, 2. Wipe all session data)
5. User selects *Breath Pacer* (navigate using up/down arrow)
6. User adjusts breath pace from 1-30 seconds using left/right arrows
7. Device changes the pace variable to match selection

Extensions:

- 2-7.a User presses back button, returning to main menu or closing menu if on main menu

UC4: Reset Data

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery, Device is turned on, Device is not in an active session

Success Guarantee: User can reset the device, wiping all data, and restoring default settings.

Main success scenario:

1. User presses the *Menu* button
2. Device displays menu options on session screen (Start a new session, settings, log/history)
3. User selects *Settings* option
4. Device displays settings sub-menu on session screen(1. Breath Pacer, 2. Wipe all session data)
5. User selects *Wipe all session data* (navigate using up/down arrow)
6. Device displays a confirmation message
7. User confirms reset
8. Device deletes all stored sessions
9. Device restores all settings to default

Extensions:

3-4.a User presses return button, returning main menu

7.a User cancels reset, device returns to 5.

UC5: History/log

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery, Device is turned on, Device is not in an active session

Success Guarantee: User can delete/review a previous session.

Main success scenario:

1. User presses the *Menu* button
2. Device displays menu options on session screen (Start a new session, settings, log/history)
3. User selects *History* option
4. Device displays a menu with a list of all previous sessions sorted by date
5. User selects a specific previous session
6. Device displays summary view
7. User presses the selector, selecting the delete option
8. Device displays confirmation message
9. User confirms delete
10. Device removes and deletes selected session
11. Device returns to previous menu (history menu)

Extensions:

- 4.a User presses return button, returning to main menu
- 5.a No sessions exist, no summary shown
- 5.b User presses back button, returning to history menu
- 9.a User cancels delete, device returns to summary

Variations:

- 7.a User does not select delete option; summary remains displayed

UC6: Battery Outage

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery, Device is turned on

Success Guarantee: Device will safely save and process end session just before the battery runs out.

Main success scenario:

1. User *Starts a session*
2. Device detects critically low battery
3. Device warns user
4. Device ends current session
5. Device saves session summary
6. Device turns off

Extensions:

- 3.a No session active, device warns user and returns to main menu, turning off
- 4.a not enough session info (less than 5-seconds) skip 4, go to 5

UC7: Loss of Connection

Actor(s): User, HeartWave (Device)

Precondition(s): Device has battery, Device is turned on, Device **is** in an active session

Success Guarantee: Device will warn user and end session on loss of contact, pausing the session, preventing null data from being reported. Resuming function on sensor re-connection.

Main success scenario:

1. User presses sensor checkbox
2. Device turns off HR contact light
3. Device warns User
4. Device pauses session
5. User presses checkbox
6. Device un-pauses session and resumes normal function

Extensions:

1-6. battery power outage occurs, emergency shutoff and session save processed (UC6)