

UC-00	Main Use Case
Description	This scenario is focused towards general use of the device by a user.
Primary Actor	Device user
Pre-condition	CES device is approved for public use and can run sessions thoroughly.
Post-condition	User completing a session and powering down the device.
Main Success Scenario	<ol style="list-style-type: none"> 1. Turn on device 2. Select a session 3. Adjust intensity
Related information	<ol style="list-style-type: none"> 1. While the device is on, the display battery use case is executed every couple of seconds 2. While the device is on, if the battery ever gets critically low, it runs the handle critically low battery use case 3. While the device is on, if the user holds the power button, the turn off device use case is executed
Variation	2'. A user can choose to run loading a session use case instead of manually selecting session length / type

UC-01	Turn On Device
Description	To turn on the device, the user must simply press and hold the power icon. This should illuminate the respective icons and battery/intensity graph. The device should be in the state to select a session length afterwards.
Primary Actor(s)	User, CES device
Pre-condition	Battery is installed
Post-condition	All appropriate lights should be lit and the device should be ready to select a session length as long as connection is made and battery isn't dead.
Minimal guarantee	CES device still functions for future use with button lights working by charging
Success guarantee	All lights corresponding to each button should be dimly lit while giving access to selecting the length of a session (Select Session Length)
Main Success Scenario	<ol style="list-style-type: none"> 1. Firstly, press and hold the power button until the LED lights turn on. 2. Display battery 3. After a few seconds, the graph dims.

	4. The user should now select session length
Extension	1a. The LED lights don't turn on 1a1. Charge the battery 2a. The graph displays a blinking 1 bar 2a1. The battery is too low to run a session. Charge the battery.

UC-11 Select Session	
Description	This allows the user to configure the session to be executed.
Primary Actor	Device User
Pre-condition	Device is on, is not already running a session, and battery is sufficiently charged
Main Success Scenario	1. Select session length 2. Select session type 3. Once the desired session length and type are highlighted, start a session
Variation	2': The user can select session type before session length

UC-02 Select Session Length	
Description	In order to select a session length, the power icon must be hit and released to select the next session length. The current session length would be dimmed and the next should be lit. Those steps are repeated until a desired session length is reached.
Primary Actor	Device User
Pre-condition	Device is on, is not already running a session, and battery is full enough to be used
Post-condition	Correct session length should be illuminated after the user selects it.
Main Success Scenario	1. Tap power button to select next session length 2. Current session length icon is dimmed 3. Next session length icon is lit 4. Repeat steps 1-3 until the desired session length is lit
Extension	2a. If current session length icon isn't dimmed

	2a1. Retry step 1 3a. If next session length icon isn't lit 3a1. Repeat steps 1 and 2
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UC-03 Select Session Type	
Description	When the user wants to select a session type they must ensure a connection is established, then they must hit the power icon and release. To choose between sessions the user can use the arrow buttons and once the session is ready to be chosen, the user can hit the check icon.
Primary Actor(s)	user, CES Device
Pre-condition	Device must be on, not running a session, and the battery must be sufficiently charged
Post-condition	The user's preferred session type is chosen.
Main Success Scenario	1. Move the up or down arrows to cycle through the desired session type 2. The current session type is updated and highlighted based on the inputs

UC-09 Start a session	
Description	We run the session by finalizing the selection of type, length and intensity. After that the user can enjoy the session and wait until the device will automatically shut off when the session completes or stop early if the user prefers.
Primary Actor(s)	Device
Pre-condition	The user has selected session length and selected session type
Post-condition	The session is completed by completing the duration, or ending early by ending the session or saving to the history manager for later use.
Main Success Scenario	1. User presses the checkmark button 2. Connection test 3. The session length icon flashes for 5 seconds 4. Session timer starts
Related information	1. While a session is running, if the user clicks on the power button, this use case ends and the turn off device use case is executed. 2. While a session is running, if the ear clips are disconnected, inadequate connection use case is executed and this use case is paused 3. While a session is running, the user can use the up/down arrows to run the

	adjusting intensity use case 4. This session ends when the session timer ends. In that case, ending a session use case is executed 5. While a session is running, if the user clicks on the save button, the recording a session use case is executed
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UC-04 Connection Test	
Description	In order for connection to be established, test mode is entered and a connection is searched for. CES lights as well as graph lights will react to the status of the connection.
Primary Actor	Device
Pre-condition	A session is about to start, device is on, and battery is sufficiently charged
Post-condition	Display clears or soft on animation occurs and indicates status connection, then connection is established.
Success guarantee	Connection is established
Main Success Scenario	<ol style="list-style-type: none"> 1. Enters test mode 2. Checks for a connection 3. While connection is being checked, CES mode light blink 4. Graph displays status connection for a few seconds 5. The graph is cleared
Variation	3': If the connection is excellent, icons 1,2, and 3 are lit in green 3'': If the connection is okay, icons 4,5,6 are lit in yellow 3''': If the connection is poor, icons 7 and 8 blink in red
Extension	2a. A connection isn't established 2a1. The graph blinks the 7 and 8 icons 2a2. Connect the ear clips properly and run the main use case

UC-05 Adjust Intensity	
Description	When the user wants to adjust the intensity level, it will start at 0 and the user can use the up and down arrow icons to choose their preferred intensity from 1-8.
Primary Actor	Device
Pre-condition	A session is currently running

Post-condition	If the intensity is at the users preferred intensity, then the scenario has worked
Success guarantee	intensity is adjusted to user's preference
Main Success Scenario	<ol style="list-style-type: none"> 1. Intensity level begins at 1 2. User presses the up/down arrows on the display to raise or lower the intensity level 3. The graph updates its LED lights with its intensity level
Extension	2a. Skin irritation occurs 2a1. The intensity is set too high and must be lowered

UC-06 Ending a Session	
Description	If the user is unsatisfied with the session or wants to end the session or the session ends on its own, they must press the power button icon and wait for the device to power down. The graph will dim the lights respectively while the device enters soft off state.
Primary Actor	Device
Pre-condition	Unsatisfied with current session or session ends by the timer
Post-condition	Device should be powered down after entering soft off state.
Minimal guarantee	Device continues to function while finishing the session
Success guarantee	Soft Off state will activate to reduce CES stimulation, and the device will power down.
Main Success Scenario	<ol style="list-style-type: none"> 1. The graph will enter a soft off state: that is, the graph will gradually scroll from 8 down to 1

UC-07 Recording a Session	
Description	A current session must be running and the user clicks the save icon. The data of the session including the sessiontype, session length and intensity should be added to the history manager and saved to a text file for later use.
Primary Actor	Device
Pre-condition	A session is currently running
Post-condition	Session information should be visible from history manager and userData.txt

Main Success Scenario	<ol style="list-style-type: none"> 1. User clicks on 'save' icon 2. Current session type, length, and intensity is saved and added to history of treatment 3. The history interface displays the new data. 4. Session continues to run normally.
Extension	<ol style="list-style-type: none"> 3a. If session data doesn't appear in the history manager <ol style="list-style-type: none"> 3a1. Try pressing the save icon again. 4a. If session doesn't continue to run afterwards <ol style="list-style-type: none"> 4a1. Ensure battery is sufficient and if it is, restart the device interface

UC-08 Loading a Session	
Description	When a session isn't set by the user and the save icon is pressed, the history manager will show a list of sessions that can be loaded by the user by navigating using the arrow icons.
Primary Actor	Device
Pre-condition	No session is currently running (and device should be on)
Post-condition	Current session should be set to the user's selected session.
Main Success Scenario	<ol style="list-style-type: none"> 1. User clicks on save icon 2. The first row of the history interface is highlighted 3. User clicks down to select the next session or up to select the previous session 4. Repeat step 4 until the desired session is highlighted 5. Click on the checkmark icon to confirm the session 6. The history interface clears the highlighting 7. The use case run session is executed on the selected session, running the same session length, type, and intensity
Extension	<ol style="list-style-type: none"> 2a. The history interface is empty <ol style="list-style-type: none"> 2a1. Click on save button again to exit this use case and execute the select session length use case.
Related information	This use case ends at any time the user clicks on the 'save' icon. In that case, exit this use case and execute select session length

UC-10 Display Battery	
Description	Every few seconds, the graph should display the current battery level
Primary Actor	Device
Pre-condition	Device is on
Post-condition	The graph displays the battery level
Main Success Scenario	<ol style="list-style-type: none"> 1. If there is anything on the graph, it is cleared 2. The graph lights up for a few seconds to display the battery level 3. The graph returns to how it was prior to this use case
Extension	<ol style="list-style-type: none"> 1a. The graph is empty <ol style="list-style-type: none"> 1a1. Step 1 is skipped 3a. There was nothing on the graph before this use case <ol style="list-style-type: none"> 3a1. The graph is cleared

UC-11 Power Off Device	
Description	Safely powers off the device
Primary Actor	Device
Pre-condition	Device is on
Post-condition	The device is safely powered off
Main Success Scenario	<ol style="list-style-type: none"> 1. Ending a session use case is executed 2. The graph is cleared 3. History interface is cleared 4. All icons that can be lit are dimmed
Extension	<ol style="list-style-type: none"> 1a. No session is currently running <ol style="list-style-type: none"> 1a1. Skip step 1

UC-EXT-00 Handle Critically Low Battery	
Description	When the battery is critically low, the user will be notified to replace the battery and if a session is running it will be forced to stop. If the user doesn't hit the icon to restore the battery, we handle battery death.
Primary Actor	Device

Stakeholders and interests	Device - Must inform users to replace battery Persons using device - Want to be informed when battery is critically low so they can replace battery
Pre-condition	Device must be on and level must be critically low
Post-condition	Device will be either back to full power if user chooses to recharge, but the battery can also be completely depleted.
Main Success Scenario	<ol style="list-style-type: none"> 1. Graph displays a single blinking bar 2. If this warning is displayed during a session, ending a session use case is executed 3. The device now does not react to any button inputs 4. If the user doesn't charge battery in time, handle battery death
Related information	This use case ends at any time the battery dies. In that case, handle battery death use case is executed
Extension	<ol style="list-style-type: none"> 3. a) If user replaces the battery <ol style="list-style-type: none"> 3. a1) the device should continue to work as normal 4. a) If user decides to click other buttons or do any other actions <ol style="list-style-type: none"> 4. a1) None of the icons should work or show any result of working

UC-EXT-01 Handle Battery Death	
Description	Handles when the battery reaches the lowest level and doesn't have the power to continue any sessions or maintain the devices power, which forces the device to power down.
Primary Actor	Device
Pre-condition	Handling critically low battery must've been running for a while without the user charging the battery.
Post-condition	Device should be powered down.
Main Success Scenario	<ol style="list-style-type: none"> 1. The battery of the device dies, which is displayed by the user interface 2. Session ends and device powers down
Extension	<ol style="list-style-type: none"> 2. a) If session doesn't end or device doesn't power down <ol style="list-style-type: none"> 2. a1) Manually power down the device by hitting the power down button

UC-EXT-02 Inadequate Connection	
Description	When an inadequate connection or no connection is detected, the device

	pauses the session until connection is re-established
Primary Actor	Device
Pre-condition	Earclips are not properly connected
Post-condition	
Main Success Scenario	<ol style="list-style-type: none"> 1. Session pauses 2. Device graph blinks bars 7 & 8 in red to indicate a poor connection
Related Information	This use case ends whenever the user reconnects earclips. In that case, the session is unpaused and continues normally.