CES Device Use Cases

Team 23:

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UC 1: Turn Device On

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The Device is Off

Success Guarantee:

- The Device turns On

Main Success Scenario:

1) The Patient presses the Power Button
2) The Device Turns On

Extensions:

2a. Battery runs out: The Device Does Not Turn On
2b. The device disabled itself permanently due to exceeding 700 amperes: The Device Does Not Turn On

UC 2: Turn Device Off

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The Device is already on

Success Guarantee:

- The Device turns off

Main Success Scenario:

1) User Presses the power Button
2) The Device Turns off

UC 3: Administer Treatment

Primary actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- User already attached the earclips on their earlobes and chose the frequency based on medical needs

Success Guarantee:

- The treatment is completed

Main Success Scenario:

1) User turns on the device (include UC 1)
2) The Device's Battery begins to drain (include UC 7)
3) User sets the Timer (20, 40, 60 minutes) (include UC 5)
4) User sets the Treatment Frequency (include UC 4)
5) User sets the Treatment Waveform (include UC 10)
6) The User presses the Start Button to start the treatment
7) The Device circulates the treatment current through the user's head
8) User changes the treatment current multiple time based on how they feel during the process (include UC 6)
9) The Device turns off automatically at the end of timed cycle

Extensions:

1a) The device is out of power and does not turn on

1b) When the device is on, the device loses power and turns off before the treatment is complete

3a) User doesn't have earclips on (electrodes are not in contact with skin): Device pauses the process until the electrodes are in contact with the skin

3b) Instead of choosing the treatment time, the User decides to play a recorded treatment (refer to UC 8)

4a) The treatment exceeds 700 millimeters and automatically disables itself for the users' safety

5a) The User does not press the start button for 30 minutes and the device shuts off.

6a) The User clicks a Timer option, resetting the Timer of the device to the selected option

6b) The earclips fall off the user. If skin contact is lost during treatment for less than 5 seconds treatment resumes, otherwise, treatment stops.

9a) Before the device turns off, the user decides to record the treatment (refer to UC 9)

UC 4: Change Frequency

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The device is on

Success Guarantee:

- Frequency is changed for the current treatment

Main Success Scenario

1) Patient can choose between 0.5 Hz, 77Hz and 100 Hz by clicking frequency button
2) Frequency of the current treatment is changed to the selected value

Extensions:

1a) User choose the selected frequency: nothing will be changed

UC 5: Choose Countdown Time

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The treatment has not started yet

Success Guarantee:

- Countdown timer is set for the current treatment

Main Success Scenario:

1) Patient can choose between 20 minute, 40 minute, and 60 minute treatment times
2) Patient confirms by pressing the Start Button
3) The Device's treatment will last for the specified time

UC 6: Change Treatment Current

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The treatment has started

Success Guarantee:

- Treatment electrode current is changed successfully as input

Main Success Scenario:

1) If a patient wants to increase treatment level, the patient presses the up button. If the patient wants to decrease treatment current, the patient presses the down button.
2) The device current either increases by 50 amperes or decreases by 100 amperes
3) Patient can continue increasing or decreasing until the current is at 500 or 0 amperes.

Extensions:

3a. The treatment exceeds 700 millimeters and automatically disables itself for the users' safety

UC 7: Change Battery Level

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The device is on

Success Guarantee:

- Treatment electrode current is changed successfully as input

Main Success Scenario:

1) The device is turned on
2) The device drains battery based on the time used

Extension:

2a. User increase treatment current: the device drains battery faster based on the treatment current set
2b. If the device reaches battery level 5% the device will issue a warning to the user
2c. If the device reaches battery level 2% the device will automatically shut off

UC 8: Record a Therapy

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- User is just about to start a treatment

Success Guarantee:

- The treatment is recorded

Main Success Scenario

1) User check the Record check box
2) The user then administers a treatment
3) The Treatment is then recorded in the device

UC 9: Replay a Recorded Therapy

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- User has recorded at least one therapy
- User has earclips on

Success Guarantee:

- The therapy process is done exactly the same as recorded

Main Success Scenario:

1) User chooses one of the treatment in the history list
2) Device execute a treatment with the same settings

UC 10: Change Waveform

Primary Actor: The Patient

Level: User Goal

Scope: The Device

Precondition:

- The device is on

Success Guarantee:

- Waveform is changed for the current treatment

Main Success Scenario:

1) Patient can choose between Alpha, Beta or Gamma by choose one of the radio buttons
2) The current treatment's waveform is changed to to selected one

Extensions:

1a) User choose the selected waveform: nothing will be changed