USE CASES:

UC 1
 Choose Treatment

Actor: Denas user (patient)

Summary: This allows users to navigate to a treatment selection.

Precondition: A working Denas device, a patient who needs a treatment

Description:
1) User navigates to the "programs" menu.
2) presses the "enter/ok" button.
3) A second menu shows up with the following programs: "Allergy", "Pain", "Severe pain", "Bloating", "Neuro-Circulatory Dystonia", "Gynecology", "Hypertension", "Hypotonia", "Head", "Throat", "Diarrhea" etc. Contained in the simulation are: "Allergy", "Throat", "Hypotonia" and "Head".
4) ***Include <Choose Allergy Treatment>, <Choose Head Treatment>, <Choose Hypotonia Treatment>, and <Choose Throat> use cases. Include <Change Power> use case***

Post Condition: the user has chosen a desired treatment.

Extensions:
> 4a) Battery Dies:
>> 4a1): The battery dies as a result of the selected treatment draining the battery of the device.

UC 2
 Use Allergy Treatment

 Actor: Denas user(patient)
 Summary: This allows the user to navigate and start to the Allergy treatment
 Pre-condition: A working Denas medical device, a patient, a need for an Allergy treatment.
 Description:
1) User navigates to the "programs" menu.
2) presses the "enter/ok" button.
3) A second menu shows up with the following programs: "Allergy", "Pain", "Severe pain", "Bloating", "Neuro-Circulatory Dystonia", "Gynecology", "Hypertension", "Hypotonia", "Head", "Throat", "Diarrhea" etc. Contained in the simulation are: "Allergy", "Throat", "Hypotonia" and "Head".
4) User selects "Allergy" and presses the "ok/enter" button.
5) Software will change to "Allergy" mode.
   a. Duration of the session is set to 10 minutes.
   b. Frequency is set to 7710Hz.
6) Unit displays the appropriate page for "Allergies".
   a. User selects power level.
7) User applies the unit (Electrodes) to the skin (presses contact skin button).
8) Contact sound is played to alert the user.

9) Device provides a timer starting at 10m decreasing every seconds.
   a. If the timer decreases to 0, play a sound and show completion on the screen.
   b. If the user removes the device while the session is taking place. Pause the timer.
10) When the session is done play a sound and show completion and a pop-up message will show up.
11) If a user wants to exit treatment. Menu shows up with three options.
   a. User selects "return to treatment".
      i. Device returns to the treatment.
   b. User selects "Save",
      i. Device saves the treatment to the recordings.
   c. User selects "discard",
      i. device returns back to main menu.

UC 3
Use Throat Treatment

Actor: Denas user(patient)
Summary: This allows the user to navigate and start to the throat treatment
Pre-condition: A working Denas medical device, a patient, an throat treatment
Description:
1) User navigates to the "programs" menu
2) presses the "enter/ok" button
3) A second menu shows up with the following programs. User navigates to the "Throat" program.
4) Power level menu shows up.
   a) User chooses power level.
5) Throat page automatically shows up.
6) Frequency will automatically be set to 60Hz
7) User presses the "contact skin" button.
8) Timer will start from 10 ending to 00:00
   a) If the user presses the "remove skin contact" button then the timer will pause.
   b) If the user presses the "back" button, then the unit will return to the menu.
9) When the timer ends the unit will show completion and a pop-up message will show up.
10) If a user wants to exit treatment. Menu shows up with three options
   a) User selects "return to treatment"
      i) Device returns back to the treatment.
   b) User selects "Save",
      i) Device saves the treatment to the recordings.
   c) User selects "discard",
      i) device returns back to the main menu.

UC 4
Use Head Treatment

Actor: Denas user(patient)
Summary: This allows the user to navigate and start to the head treatment
Pre-condition: A working Denas medical device, a patient, an head treatment
Description:

1) User navigates to the "programs" menu
2) presses the "enter/ok" button
3) A second menu shows up with the following programs. User navigates to the "Head" program.
4) Power level menu shows up.
    a) User chooses power level.
5) Throat page automatically shows up.
6) Frequency will automatically be set to 60Hz
7) User presses the "contact skin" button.
8) Timer will start from 05:00 ending to 00:00
    a) If the user presses the "remove skin contact" button then the timer will pause.
    b) If the user presses the "back" button, then the unit will return to the menu.
9) When the timer ends the unit will show completion and a pop-up message will show up.
10) If a user wants to exit treatment. Menu shows up with three options
    a) User selects "return to treatment"
        i) Device returns back to the treatment.
    b) User selects "Save",
        i) Device saves the treatment to the recordings.
    c) User selects "discard",
        i) device returns back to the main menu.

UC 5
Use Hypotonia Treatment

Actor: Denas user(patient)
Summary: This allows the user to navigate and start to the hypotonia treatment
Pre-condition: A working Denas medical device, a patient, an hypotonia treatment
Description:

1)User navigates to the "programs" menu
2)presses the "enter/ok" button
3)A second menu shows up with the following programs. User navigates to the "Throat" program.
4)Power level menu shows up.
        a) User chooses power level.
5)Throat page automatically shows up.
6Frequency will automatically be set to 77AMHz
7User presses the "contact skin" button.
8Timer will start from 5 ending to 00:00
        a) If the user presses the "remove skin contact" button then the timer will pause.
        b) If the user presses the "back" button, then the unit will return to the menu.
9When the timer ends the unit will show completion and a pop-up message will show up.
10If a user wants to exit treatment. Menu shows up with three options
        c)User selects "return to treatment"

i) Device returns back to the treatment.
   d) User selects "Save",
      i) Device saves the treatment to the recordings.
   e) User selects "discard",
      i) device returns back to the main menu

UC 6
Frequency Selection

Actor: Denas user(patient)
Summary: This allows the user to select a specific frequency for a treatment.
Pre-condition: A working Denas medical device, a patient, device needs to be able to handle the
a specific amount of frequency
Description:
1) User navigates to the "Frequency" Menu
2) Unit displays list of available frequencies for delivery
   a) List contains: "1.0 - 9. 9Hz", "10Hz", "20 Hz", "60 Hz", "77 Hz", "140Hz". "200Hz",
      and two special modes "77 10" and "77AM". Shown in the implementation is 10Hz, 20 Hz,
      60Hz and 77Hz.
3) User selects desired frequency. ***Include <Frequency 10Hz Use Case>, <Frequency 20 Hz>, <Frequency 60Hz> and <Frequency 77 Hz> Use Cases***.
4) Unit prepares electrode to deliver selected charge
5) User selects power level from 1 to 100 using the "up" and "down" arrows. ***Include <Change Power> use case.***
6) User applies Unit to affected area
7) Unit displays a timer of how long frequency has been delivered.
8) Unit delivers the frequency continuously until treatment is over or user discards treatment
Extensions:
   8a) Battery Dies:
      8a1): The battery dies as a result of the selected treatment draining the battery of the device.
Post Condition: the user has finished a frequency treatment and has either saved or discarded the treatment record

UC 7
 Start Device

Actor: Denas user(patient)
Summary: This allows the turn on the device
Pre-condition: A working Denas medical device, a patient, a button to turn it on
Description:
1. Press and hold ON/OFF button.
2. The user is presented with a menu list of items and is ready to begin using the device.
3. If user presses ON/OFF while device is already ON the device will close and reset everything except for the recordings.
Post Condition: the user has turned on the device.

UC 8
Turn Off Device

Actor: Denas user(patient)
Summary: This allows the user to turn off the device
Pre-condition: A working Denas medical device, a patient, a button
Description:

_____

1. Press and hold OFF/ON button
2. Device turns off display, and menu options disappear

Post Condition: the user has turned off the device

UC 9
Change Power

Actor: Denas user(patient)
Summary: This allows the user to select a specific power level for a treatment.
Pre-condition: A working Denas medical device, a patient, a up and down button, the hardware ability to change power level
Description:
1. A display of the current power level is shown.
2. User presses Up and down to change power level whenever a user selection a treatment or a frequency.
3. The current power level is then either increased or decreased, depending on the users choice, up until the user is satisfied with current power level.

Post Condition: the user has selected a desired power level.

UC 10
Frequency 10Hz Use Case

Actor: Denas user(patient)
Summary: This allows the user to select a specific frequency.
Pre-condition: A working Denas medical device, a patient, the hardware device needs to be able to handle the a specific amount of frequency selected
Description:
1) User navigates to the "Frequency" menu
2) presses the "enter/ok" button
3) A second menu shows up with the four choices of frequencies.
4) User navigates to the "10Hz" program.
5) A third menu shows up for the power selection. User selects any power.
6) A timer starting from 05:00 will show up
6) Frequency will automatically be set to 10Hz
7) User presses the "contact skin" button.
7) Timer will start from 05:00 ending at 00:00
        f) If the user presses the "remove skin contact" button then the timer will pause.
        g) If the user presses the "back" button, then the unit will return to the menu.
8) When the timer ends the device will show as DONE on the screen and a pop-up message

will show up.

9) All settings and therapy will be added to the history of treatments if the user presses the "Save recording" button

UC 11
Frequency 20Hz Use Case

Actor: Denas user(patient)
Summary: This allows the user to select a specific frequency.
Pre-condition: A working Denas medical device, a patient, the hardware device needs to be able to handle the a specific amount of frequency selected
Description:

1) User navigates to the "Frequency" menu
2) presses the "enter/ok" button
3) A second menu shows up with the four choices of frequencies.
4) User navigates to the "20Hz" program.
5) A third menu shows up for the power selection. User selects any power.
6) A timer starting from 05:00 will show up
6) Frequency will automatically be set to 10Hz
7) User presses the "contact skin" button.
7) Timer will start from 05:00 ending at 00:00
   h) If the user presses the "remove skin contact" button then the timer will pause.
   i) If the user presses the "back" button, then the unit will return to the menu.
8) When the timer ends the device will show as DONE on the screen and a pop-up message will show up.
9) All settings and therapy will be added to the history of treatments if the user presses the "Save recording" button

UC 12
Frequency 60Hz Use Case

Actor: Denas user(patient)
Summary: This allows the user to select a specific frequency.
Pre-condition: A working Denas medical device, a patient, the hardware device needs to be able to handle the a specific amount of frequency selected
Description:

1) User navigates to the "Frequency" menu
2) presses the "enter/ok" button
3) A second menu shows up with the four choices of frequencies.
4) User navigates to the "10Hz" program.
5) A third menu shows up for the power selection. User selects any power.
6) A timer starting from 01:00 will show up
6) Frequency will automatically be set to 10Hz
7) User presses the "contact skin" button.
8) Timer will start from 01:00 ending at 00:00
   a) If the user presses the "remove skin contact" button then the timer will pause.
   b) If the user presses the "back" button, then the unit will return to the menu.

9) When the timer ends the device will show as DONE on the screen and a pop-up message will show up.

10)All settings and therapy will be added to the history of treatments if the user presses the "Save recording" button.

UC 13
Frequency 77Hz Use Case

Actor: Denas user(patient)
Summary: This allows the user to select a specific frequency.
Pre-condition: A working Denas medical device, a patient, the hardware device needs to be able to handle the a specific amount of frequency selected
Description:

1) User navigates to the "Frequency" menu
2) presses the "enter/ok" button
3) A second menu shows up with the four choices of frequencies.
4) User navigates to the "77Hz" program.
5) A third menu shows up for the power selection. User selects any power.
6) A timer starting from 05:00 will show up
6) Frequency will automatically be set to 10Hz
7) User presses the "contact skin" button.
8) Timer will start from 05:00 ending at 00:00
   a. If the user presses the "remove skin contact" button then the timer will pause.
   b. If the user presses the "back" button, then the unit will return to the menu.
9) When the timer ends the device will show as DONE on the screen and a pop-up message will show up.
10)All settings and therapy will be added to the history of treatments if the user presses the "Save recording" button

UC 14
Record Session

Actor: Denas user(patient)
Summary: Ability to save a treatment information.
Pre-condition: A working Denas medical device, a patient, memory to store a treatment information.
Description:

1. If user presses the "back" button or "Menu" button three options will be shown.
2. User presses on "Save recording"
3. The device stores a record of the session with data including: time and date, power level, program/therapy, and frequency, and duration(how long the treatment lasted)

Post Condition: the user has saved a recorded treatment session to the device.

UC 15
Touch Skin

Actor: Denas user(patient)
Summary: Simulate contact skin for the treatments.
Pre-condition: A working Denas medical device, a patient, Some sort of sensor to detect the skin.
Description:

      1) During any treatment, if the user presses the "skin" button, the timer for the treatment will automatically start.

          a) If the user "presses the off skin" button during a treatment, the treatment will automatically pause until the device has been reapplied to the skin.

Post Condition: the user has touched the device's electrodes to being a treatment session. The batter has begun depleting.

UC 16
View Recorded Session

Actor: Denas user(patient)
Summary: Ability to view the recordings saved.
Pre-condition: A working Denas medical device, a patient, a saved treatment or frequency
Description:

      1) In the main menu, user presses on the "History" menu option using the unit buttons

      2) User presses on "View"

      3) A table will show up with a list of the most recent added treatments from up to down.

Post Condition: the user has viewed a saved treatment record.

UC 17
Clear recording

Actor: Denas user(patient)
Summary: Ability to clear the recordings saved.
Pre-condition: A working Denas medical device, a patient
Descriptions:

      1) In the main menu, user presses on the "History" menu option using the unit buttons

      2) User presses on "Clear"

      3) Pop-up message will show up stating that all recording histories have been cleared

Post Condition: the user has cleared the treatment history from the device.

UC 18
Battery Dies

Actor: Denas user(patient)
Summary: Device needs to turn off when there is no more battery.
Pre-condition: A working Denas medical device, a patient, battery that is not drained.
Description:
1) User presses the contact skin button during a treatment.
2) If the battery reaches 0 during skin contact, the battery dies and the device turns off. Pop-up message will show up stating that the device is out of battery
3) The user should then charge the device to use again.

Post Condition: the device has turned off a result of battery drainage.

USE CASE DIAGRAM:

DENAS USE CASE DIAGRAM