3004 Term Project Use Case

Turn Power On Use Case

Primary Actor: User

Scope: DENAS with power off

Level: Successfully turn power on

Precondition: The DENAS is powered off and has battery supply

Success scenario:

1. The user presses the power button located at the bottom panel of the device.
2. As soon as the user press the power button, the power on/off switch send request to the control processor.
3. The control processor checks if there is enough battery supply with the battery connector and power supply circuitry.
4. The power supply circuitry confirms with the control processor that power exists.
5. The control processor invokes all the rest function of the DENAS device (output circuitry, clock etc.)

Postcondition: The DENAS device functioning as normal, and user can access to any of the treatment as wanted.

Extensions:

3a. If the control processor does not hear response from the power supply circuitry, the device will stay as power off.

Turn Power Off Use Case

Primary Actor: User

Scope: DENAS with power on

Level: Successfully turn power off

Precondition: The DENAS is powered on and functioning

Success scenario:

1. The user presses the power button located at the bottom panel of the device.
2. As soon as the power button is pressed, the power on/off switch send request to the control processor.
3. The control processor shutdown all the treatment that is currently running.
4. The control processor shutdown all the parts in the output circuitry.
5. The control processor shutdown display, light sensor, speaker and light emitter.
6. The control processor cuts itself from the battery connector and power supply circuitry.

Postcondition: The DENAS is successfully powered off.

Extensions:

3a. If there is a treatment currently running, the control processor will send signal to the output circuitry to cut all the electric.

Programmed Treatment Use Case

Primary Actor: User

Scope: DENAS with power on

Level: User successfully get the treatment

Precondition: DENAS is powered on and functioning

Success scenario:

1. The user chooses the “Programs” selection in the main menu and press the “OK” button.
2. The control processor reads the request and send signal to the display to update the screen, which takes the user to the programmed treatment menu.
3. The user either clicks up or down to find the treatment he wants.
4. While the user is operating, the control processor reads the user’s input and sends signal to the display module.
5. The display module receives the signal and updates the screen.
6. As the user find the selection needed, the user presses the “OK” button.
7. The control processor reads the request and send signal to the display to update the screen.
8. The display shows the user how to properly use DENAS on specific body locations for the treatment on selection.
9. The user chooses the power level he/she needs and select “OK”.
10. The control processor reads the power level and send signal to the output circuitry.
11. The output invokes the all the module inside it.
12. The pulse generator releases proper frequency corresponds to the power level that user selected.

Postcondition: The user successfully gets the treatment needed.

Extensions:

13a. If the detector does not detect the skin, the pulse generator will not release electricity.

Recording Use Case
Primary Actor: User
Scope: DENAS with power on
Level: User successfully get the treatment
Precondition: DENAS is powered on and functioning
Success scenario:

1. After each treatment, the treatment will be recorded and can be seen at the history page
2. History can be deleted through the clear option
3. History Constitute with the information about Time, Date,Duration and type of treatment.

Adjust Power Use Case
Primary Actor: User
Scope: DENAS with power on
Level: User successfully adjust the power
Precondition: DENAS is powered on and functioning
Success scenario:

1. At any page, whenever the user presses the left or right button, the power adjust page should pop up and show the adjusted power and current power.
2. After one seconds, the page should go back to whatever the page was
3. the adjusted power should increase the battery usage.

Frequency Treatment
Primary Actor: User
Scope: DENAS with power on
Level: User successfully get the treatment
Precondition: DENAS is powered on and functioning
Success scenario:

1. The user chooses the Frequency selection in the main menu and press the “OK” button.
2. The microprocessor reads the request and send signal to the display to update the screen, which takes the user to the programmed treatment menu.
3. The user either clicks up or down to find the frequency he wants.
4. While the user is operating, the microprocessor reads the user’s input and sends signal to the display module.
5. The display module receives the signal and updates the screen which will show the timer.
6. As the user find the desired frequency selection, the user presses the “OK” button.
7. The microprocessor reads the request and send signal to the display to update the screen.
8. The display shows the instruction on how to use the device. the treatment on selection.
9. --------(toggle treatment mode selection switch?)--------
10. The user chooses the power level he/she needs, include Adjust Power Use Case

11. The output invokes the all the module inside it.
12. The pulse generator releases proper frequency corresponds to the power level that user selected.
13. If the detector does not detect the skin, the pulse generator will not release electricity and the timer will be paused. Once the skin is detected again, it will continue. Postcondition: The user successfully gets the treatment needed, and this treatment is recorded, include Recording Use Case.