General Use Cases:

Use Case 1 - Turn the CES device on:
Primary Actor: The CES device User
Level: User
Precondition:
- Battery level is greater than 2%, CES device has no faults.

Main Success Scenario:
1. Device clicks on the power button.
2. Device's battery starts to drain.
3. Device turns on and is ready to use.

Post Condition:
- Device is on the main page and awaiting input actions from the user.
- Timer starts for auto shut-off. (See Use case 10).

Extensions:
3a. CES device does not have enough power to turn on.
      3a1. Click the charge button to charge the device.
3b. Device disabled due to power surge.
      3b1. Close and rebuild the device.

Use Case 2 - Turn CES device off:
Primary Actor: CES device User
Level:User
Precondition:
- Device is turned on.
- Timed cycle is not active.

Main Success Scenario:
1. Device clicks on the power button.
2. Device and all related systems powered off.

Post Condition:
- Device is turned off and is no longer using the battery.

Extensions:
1a. Device does not turn off
      1a1. Power button is pressed again.

Use Case 3 - Set new Current:
Primary Actor: CES device User
Level:User
Precondition:
- CES device is turned on

Main Success Scenario:
1. Current is set to 100 μA on start
2. Device user can increase the current to their desired current by clicking the up current button. Current will increase by 50μA per button press.
3. Device user can decrease the current to their desired current by clicking the down current button. Current will decrease by 100μA per button press.

Post Condition:
- The user's desired current has now been set.

Extensions:
2a. User cannot increase current
      2a1. Current is set to the max current of 500 μA, decrease amperage first to use the
          increase current function.
3a. User cannot decrease current
      3a1. Current is already at 0.

Use Case 4 - Select time frame:
Primary Actor: CES device User
Level:User
Precondition: Device has been turned on

Main Success Scenario:
1. User presses the "Timer" button on the device.
2. Device cycles through 20, 40, and 60 minute options on a loop.
3. Click contact to simulate contact and the countdown starts.
4. Timer reaches zero and the device records the session.

Post Condition:
- Therapy begins.

Extensions:
1a. User attempts to change the timer after locking it.
      1a1. The timer does not change as it is locked.
      1a2. Press the lock button again to unlock the device.

Use Case 5 - Select Waveform:
Primary Actor: CES device User
Level: User
Precondition:
- CES device has been turned on.
- Session is not active.

Main Success Scenario:
1. Default WaveForm is Alpha.
2. User presses the ChangeWaveform button.
3. Waveform is changed to other next value

Post Condition: Timer reaches zero

Extensions:
1a. Change WaveForm button disabled.
      1a1. Pause session to Change Waveform.

Use Case 6 - Record a therapy:
Primary Actor: CES device User
Level:User
Precondition:
- Device is turned on.
- Therapy has occurred.

Main Success Scenario:
1. Click Finish Session to emulate a full session being completed, at the end of which the therapy is automatically recorded.
2a. Session is paused due to non contact for more than 5 seconds.
      a. The device asks if you wish to record the session.
            i. Select Yes.

Post Condition:
- Therapy added to stored therapy history

Extensions:
1a. Power level changes during frequency
      1a1. System records the last power level during the session.

Use Case 7 - Battery Warning and ShutOff:
Primary Actor: CES device
Level:User
Precondition: The device has power and is turned on

Main Success Scenario:
1. The battery remaining reaches 5%.
2. Device issues a warning to the user that the battery is low.
3. Battery falls to 2%, device issues another warning to the user that the battery is low and the device will shut off soon.
4. The device shuts off.

Post Condition:
- CES device is turned off and there is nothing displayed

Extensions:
4a. User attempts to turn on the device after it powers off.
      4a1. Device doesn't turn on. Charge device.
4b. Device fails to display warning
      4b1. 3% warning activates the alert
            4b1a.If the warning does not activate, then device turns off at 2%
            4b1b. If none of the warnings activate and the device does not shut off. Then battery life is lost until all power has been spent. This may cause the device not to function as intended.

Use Case 8 - Set frequency:
Primary Actor: CES device
Level:User
Precondition: CES device is turned on and currently set to change current.

Main Success Scenario:
1. User wants to change frequency, the user then presses the frequency button.
2. Frequency now changes/cycles between 0.5hz and 100hz.
3. Display is updated to show this change.

Post Condition:
- The User's desired frequency has been set.

Extensions:
1a. The ChangeFrequency button is disabled during an active session.
      1a1. Remove contact (pause session) to change the frequency
      1a2. Finish session and start a new one, change frequency before starting

Implementation update: click the frequency button and have it cycle through the options, it will display the current one on a tab at the top of the screen. When the button is clicked the value is checked, and then you have to decide if you can increase or start at the default value. Then a signal is sent with the new value and it swaps out the current value displayed on the tab.

Additional Use Cases:
Use Case 9 - Lock Settings:
Primary Actor: CES device
Level: User

Precondition: CES device turned on.

Main Success Scenario:
1.Press lock button seconds to lock or unlock settings
during treatment as desired.

Post Condition:
- The treatment has either been locked or unlocked as desired.

Use Case 10 - Auto Off
Primary Actor: CES device
Precondition: CES device turned on.

Main success Scenario:
1. Device turns off in 30 mins if not in use.
Post Condition:
- The CES device has been turned off.

Safety Feature Use Case:
Use Case 11 - Current Overload Shut Off.
Primary Actor: CES device
Level: User

Precondition: CES device has been turned on

Main Success Scenario:
1. Current has exceeded $700\mu A$.
2. Device renders itself permanently inoperable and shuts down.
Post Condition:
-The CES device has rendered itself inoperable for the user's safety.
Extensions:
3a. User attempts to power the CES device on.
       3a1. The CES device does not turn on.