POWER ON Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device is turned off
Success guarantees: The device starts and initializes normally
Main success scenario:
1. User turns on the device power switch
2. The screen lights up and the device starts normally
3. Include *Current Control* Abstract Use Case
4. Include *Display Control* Abstract Use Case
5. Include *Skin Connect Detect* Abstract Use

Postcondition: Waiting for user action

POWER OFF Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device is turned on
Success guarantees: The device power down
Main success scenario:
1. User turns off the device power switch
2. Device shutdown and stop all services and output

Postcondition: --

Set Timer Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device has been normally turned on
Success guarantees: The device outputs current according to the set time
Main success scenario:
1. The user sets the timing time by pressing the button
2. Include *Timer Control* Abstract Use Case

Postcondition: The device displays the time set by the user

Set Current Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device has started to output current
Success guarantees: The device can normally output the current set by the user
Main success scenario:
1. The user adjusts the output current through the button (100uA-500uA)
2. Include *Current Control* Abstract Use Case

Postcondition: The device displays the current set by the user

Battery undervoltage Use Case

Primary Actor: Battery sensor
Level: Subfunction
Precondition: Low battery
Success guarantees: Low battery is replaced by user
Main success scenario:
1. The system received a low battery warning
2. The device warns when charging 5%, and shuts down at 2% after warning again

Postcondition: The device can be used normally again

Device Error Use Case

Primary Actor: Current sensor
Level: Subfunction
Precondition: Failure inside the device
Success guarantees: Prohibit users from using this device
Main success scenario:
1. Permanently shut down the device when it detects that the device current exceeds 700 μA

Postcondition: User no longer uses this device

Timer Control Abstract Use Case

Primary Actor: Control system
Level: Subfunction
Precondition: The device has been normally turned on
Success guarantees: The device can count down normally and shut down at the end of the timer.
Main success scenario:

1. The system starts counting down and updates the display after user connects the electrodes to the skin
2. When the timer ends, the device shuts down
3. Turn off the device when there is no operation for 30 minutes

Postcondition: --

Current Control Abstract Use Case

Primary Actor: Control system
Level: Subfunction
Precondition: The device is turned on and in good condition
Success guarantees: Device current can be detected and output normally
Main success scenario:

1. Detect output current
2. Control hardware output specified current according to user set value

Postcondition: --

Display Control Abstract Use Case

Primary Actor: Control system
Level: Subfunction
Precondition: The device is turned on and in good condition
Success guarantees: Device current can display system status and data
Main success scenario:

1. Display status icons according to the current status of the device
2. Display timing time based on timer data

Postcondition: Users can correctly obtain system information

Skin Connect Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device is turned on normally and the time has been set
Success guarantees: The device can detect the electrode connection normally
Main success scenario:

1. The user connects the electrode to the specified location on the skin
2. The system reads that the connection is successful and reports it
3. Include *Skin Connect Detect* Abstract Use Case

Postcondition: The device outputs the set current and the timer starts timing

Skin Disconnect Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The device has started timing and output
Success guarantees: The device can turn off the output in time and pause the timer
Main success scenario:

1. The user disconnects the electrode to the specified location on the skin
2. The system reads that the connection is down and reports it
3. Include *Skin Connect Detect* Abstract Use Case

Postcondition: The device can turn off the output in time and pause the timer

Skin Connect Detect Abstract Use Case

Primary Actor: Skin Interface circuit
Level: Subfunction
Precondition: System connection information change
Success guarantees: Correctly handle connection events
Main success scenario:

1. If the connection is successful and the user setting is complete, turn on the output and time
2. If the connection is disconnected and the output has started, turn off the output and pause the timing

Postcondition: --

Select Therapy Use Case

Primary Actor: CES Users
Level: User goal
Precondition: The user turned on the device
Success guarantees: Output the waveform and frequency specified in the treatment plan selected by the user
Main success scenario:

1. The user presses the TherapySelect Button to select the desired treatment plan
2. The device updates the display interface and switches the output waveform and frequency

Postcondition: Connect the electrodes to the skin

Data Record Use Case

Primary Actor: CES Users
Level: User goal
Precondition: System incoming save record instruction
Success guarantees: Correctly handle recorded events
Main success scenario:

1. The user selects the current treatment record
2. This record will be saved in the treatment history

Postcondition: --