

Alpha-Stim AID USE CASES

POWER UP 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: --

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: --

Device Timing Use Case

Primary Actor: CES Users

Level: User goal

Precondition: The device has been normally turned on and connected to the skin

Success guarantees: The device can count down normally and shut down at the end of the timer.

Main success scenario:

1. The user sets the timing time by pressing the button
2. The user connects the electrodes to the skin
3. The system starts counting down and updates the display
4. When the timer ends, the device shuts down

Postcondition: --

Current Setting 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. Change the output current of the device and update the display

Postcondition: --

Battery undervoltage Use Case

Primary Actor: Control system

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: --

Device Error Use Case

Primary Actor: Control system

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: --

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: --

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: --

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: --

Skin Connect Detect Abstract Use Case

Primary Actor: Control system

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: --