Use Cases:

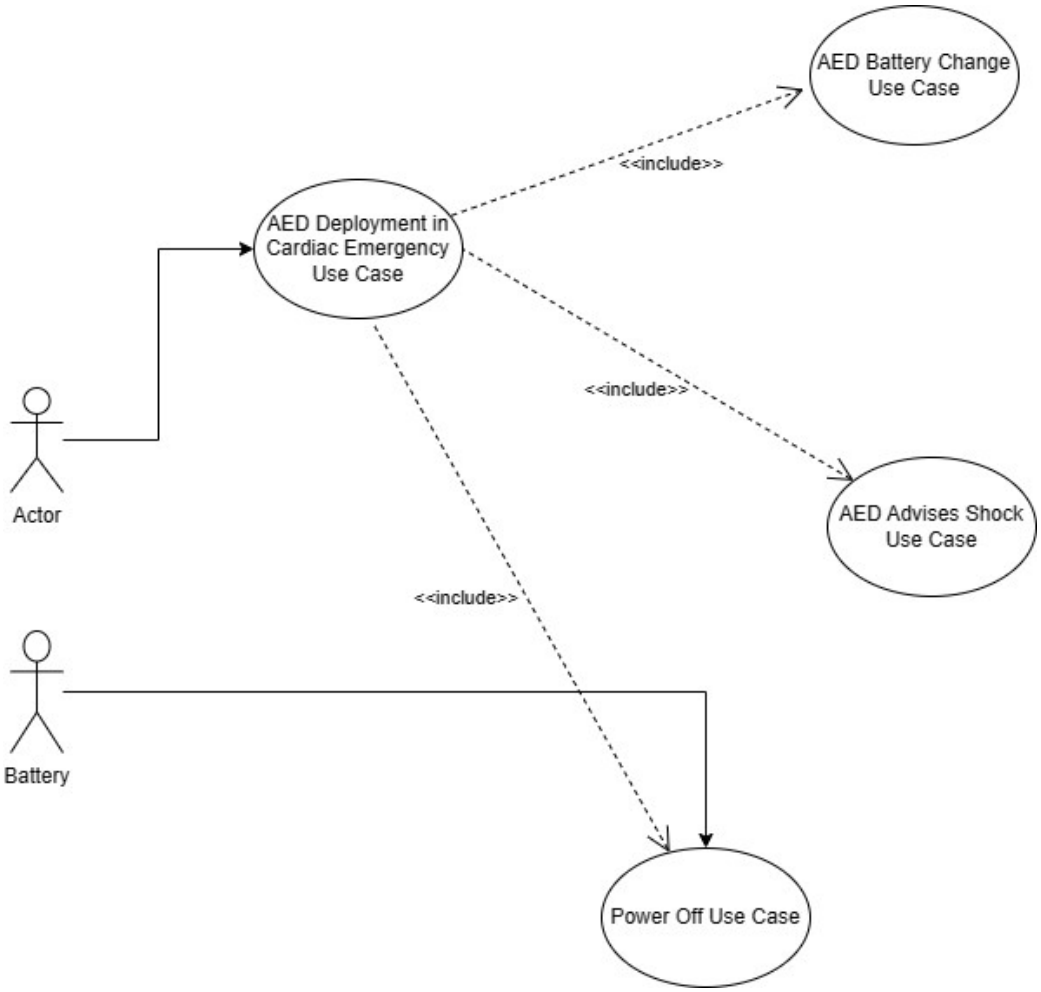
| UC-01 | AED Deployment in Cardiac Emergency Use Case |
|---|---|
| Description | The base use case for administering an AED. |
| Primary Actor | AED Operator |
| Pre-condition | 1. An AED should only be utilized under the condition that the patient exhibits signs of a suspected cardiac arrest, which include unconsciousness, absence of normal breathing, and lack of a pulse or other signs of circulation. Furthermore, the device must be operated by individuals who have received training in basic life support/AED, advanced life support, or a similar physician-authorized emergency medical response program. |
| Post-condition | The AED performs all intended actions properly. |
| Main Sequence | 1. Turn the AED unit on by pressing the power button. The AED unit performs an automatic self test to ensure that the battery usage indicator shows adequate battery capacity for usage, and that the defibrillation electrodes are properly connected.<br>2. Check to see if the self-test unit goes from an “X” to a check mark and the AED will say “Automatic Defibrillator Unit OK”.<br>3. AED will output a message saying, “Stay calm”.<br>4. The indicator light on the “check responsiveness” picture flashes.<br>5. AED outputs a message saying, “Check responsiveness”.<br>6. AED operator Shouts, “Are you OK”. They should be shaking the person while doing this.<br>7. The indicator light on the “call for emergency” starts flashing.<br>8. AED outputs a message saying, “Call for help”.<br>9. AED operator calls or sends someone else to call for help.<br>10. The indicator light on the “attach electrode pads” picture starts flashing.<br>11. AED outputs a message saying, “Attach defib pads to patient’s bare chest”.<br>12. AED operator attaches adult or infant/child electrode pads to the patient's bare chest. Follow electrode pads package instructions. |

| | |
|---|---|
| | 13. The indicator light on the “analyzing patient” picture starts flashing.<br>14. AED outputs a message saying, “Don’t touch patient. Analyzing”.<br>15. The indicator light on the “perform CPR” picture starts flashing.<br>16. AED Administrator administers CPR. Give two breaths for every thirty compressions.<br>17. The AED will output feedback messages<br>a) 18. Keep repeating steps 15-16 until emergency services arrive.[3] |
| Extensions | 2a. The AED self test unit stays as an “X” because there is not enough battery life, go to UC-02.<br>2b. When the victim is less than 8 years of age or weighs less than 55 lbs (25 kg), the Fully Automatic AED Plus should be used with ZOLL AED Plus Pediatric Electrodes.<br>2c. The AED self test unit stays as an “X” because the defibrillation electrodes are not properly attached. The AED will output a message saying “Fully Attach Defibrillation electrodes to the device”.<br>2d. At any step if the user presses the power off button go to UC-04.<br>14a. AED detects a shockable rhythm. Go to UC-03. This shockable rhythm could either be the patient has ventricular fibrillation or has a pulseless ventricular tachycardia.<br>14b. AED outputs a message saying, “No shock advised.”. |
| Variation | 16. When giving compressions the AED will output either one of these 3 messages:<br>a) Compression too deep. Reduce force."<br>b) Compression too shallow. Press harder.<br>c) Good compression depth. Keep going. |

| UC-02 | AED Battery Change Use Case |
|---|---|
| Description | This use case describes the situation where the AED does not have enough battery power to turn on, so a battery change is performed. |
| Primary Actor | AED operator, Battery |
| Pre-condition | AED does not have enough battery power to turn on. |
| Post-condition | AED has a full battery. |
| Main Sequence | 1. Ensure that the Fully Automatic AED Plus is turned off. Open the battery compartment by removing the battery cover from the back of the unit.<br>2. Insert 10 new batteries into the Fully Automatic AED Plus unit.<br>3. Connect electrode cable to Fully Automatic AED Plus unit and pack sealed<br>a) electrodes inside unit cover. Close cover.<br>4. Turn the unit on and wait for the “Unit OK” audio message. Verify that the unit issues appropriate “Adult Pads” or “Pediatric Pads” audio messages.<br>5. Turn the unit off.<br>6. Wait 2 minutes. Verify that the green check symbol appears in the status indicator window (located on the left side of the handle) and that unit does not emit a beeping tone.<br>7. Place a Fully Automatic AED Plus unit in service.<br>8. Check Fully Automatic AED Plus unit periodically to ensure that green check symbol appears in status indicator window |

| UC-03 | AED Advises Shock Use Case |
|---|---|
| Description | This use case describes the situation where the AED determines that a shock is advisable. |
| Primary Actor | AED Operator |
| Pre-condition | AED operator has completed use case 1 steps 1-11 properly. |
| Post-condition | |
| Main Sequence | 1. The button in the middle starts flashing.<br>2. The AED operator presses the button in the middle which contains a heart.<br>3. AED outputs a message saying, “Don’t touch patient. Analyzing”.<br>4. AED Operator gives a warning to other bystanders “Stand clear”.<br>5. AED outputs a message saying, “Shock will be delivered”.<br>6. AED shock tone beeps and a shock to the patient is delivered. |
| Extensions | 1a. The AED does not have enough power to administer a shock. Go to UC-02 |

| UC-04 | Power Off Use Case |
|---|---|
| Description | Concrete use case for power off of device. |
| Primary Actor | AED Operator, Battery |
| Pre-condition | AED has been powered on. |
| Post-condition | AED has been powered off. |
| Main Sequence | 1. User presses the power button.<br>2. AED timer resets and the machine powers off. |


AED Battery Change Use Case
<<include>>
AED Deployment in Cardiac Emergency Use Case
<<include>>
AED Advises Shock Use Case
Actor
<<include>>
Battery
Power Off Use Case