# Use Cases

| UC-01 | *AED Deployment in Cardiac Emergency Use Case* |
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| 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.<br>2. The device is off |
| 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 checkmark 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 pad package instructions.<br>13. The indicator light on the “analyzing patient” picture starts flashing.<br>14. AED outputs a message saying, “Don’t touch the 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 based off your compressions.<br>18. Keep repeating steps 14-16. |

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| Extensions | 1a. If at any point emergency services arrive, the use case ends.<br>1b. If at any point the electrodes are not attached the AED will stop where its at and output a message saying, “Attach electrode pads”.<br>1c. if at any point the user presses the power off button go to UC-04.<br>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>14a. AED detects a shockable rhythm. Go to UC-03. This shockable rhythm could either be the patient has ventricular fibrillation or pulseless ventricular tachycardia.<br>14b. AED outputs a message saying, “No shock advised.”.<br>14c. If the shock revives the patient and the patient has a normal heartbeat the use case ends.<br>16a. If the shock revives the patient and the patient has a normal heartbeat use case ends. |
| Variation | 16. When giving compressions the AED will output either one of these 3 messages:<br>a) The compression is too deep. Reduce force.<br>b) Compression is too shallow. Press harder.<br>c) Good compression depth. Keep going. |

| UC-02 | *AED Battery Change Use Case* |
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| Description | This use case describes a 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. |

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| | 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 the unit does not emit a beeping tone.<br>7. Place a Fully Automatic AED Plus unit in service.<br>8. Check the Fully Automatic AED Plus unit periodically to ensure that the green check symbol appears in the status indicator window |

| UC-03 | *AED Advises Shock Use Case* |
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| 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 | AED administrates a shock to the patient. |
| 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 the 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* |
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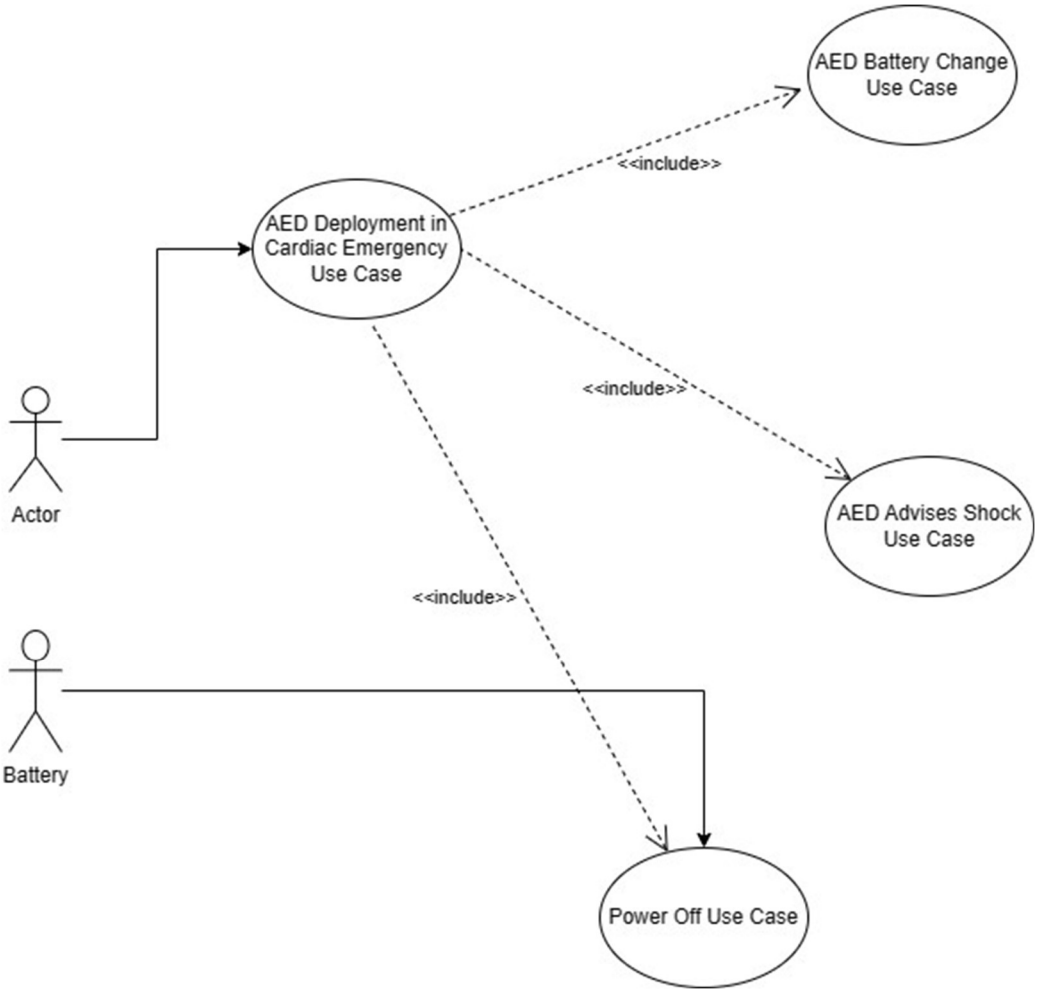
| Description | The concrete use case for power off of the device. |
| Primary Actor | AED Operator, Battery |
| Pre-condition | AED has been powered on. |
| Post-condition | AED has been powered off. |
| Main Sequence | 1. The user presses the power button.<br>2. The AED machine powers off. |


AED Battery Change Use Case
<<include>>
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Actor
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Battery
Power Off Use Case