

## 2. Sequence Diagram

### 2.1. Success Sequence Diagram 1

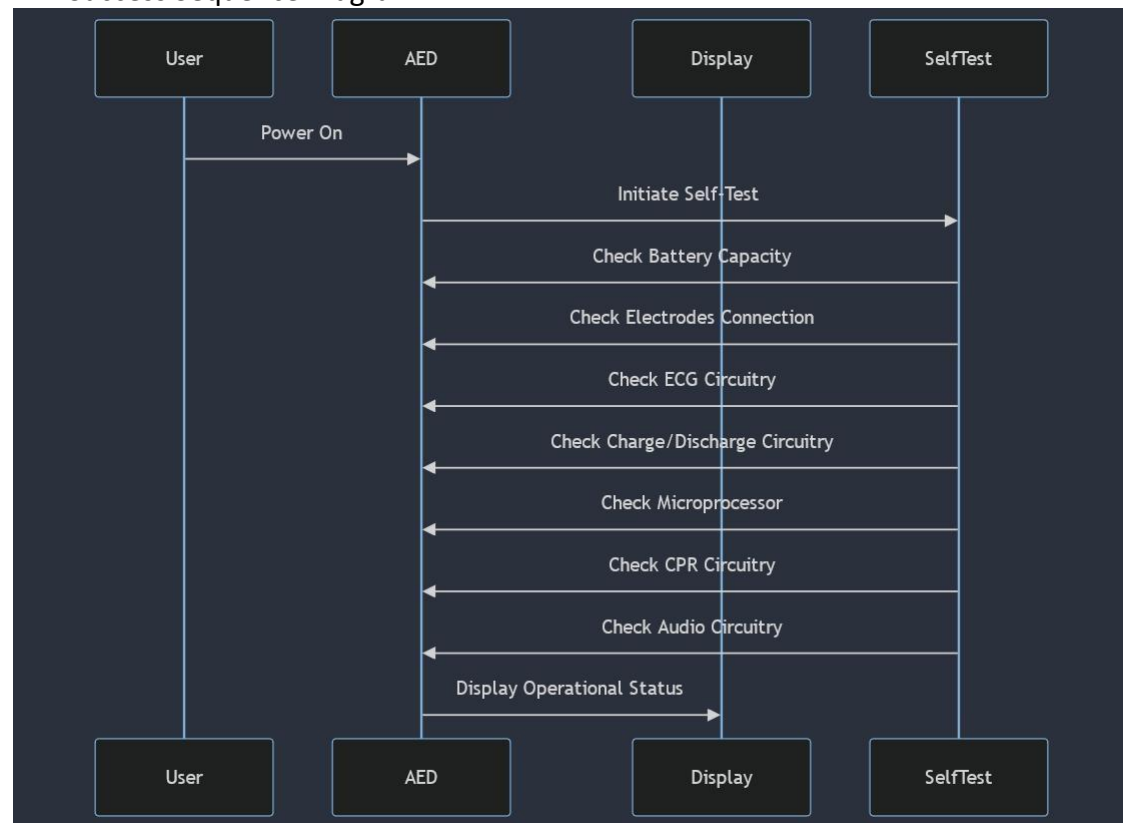


Figure 2: Success Sequence Diagram

The sequence diagram in Figure 2 depicts the interaction between a user, an Automated External Defibrillator (AED), a display, and the self-test module. Initiated by the user's action to power on the AED, the system proceeds to initiate a self-test. The SelfTest participant then communicates with the AED to perform various checks, including assessing battery capacity, verifying electrode connection, checking ECG circuitry, inspecting charge/discharge circuitry, evaluating the microprocessor, examining CPR circuitry, and validating audio circuitry. Upon completion of the self-test, the AED communicates with the display to present the operational status. This sequence illustrates the systematic process of ensuring the AED's components are functional before displaying the operational readiness status to the user.

## 2.2. Success Sequence Diagram 2

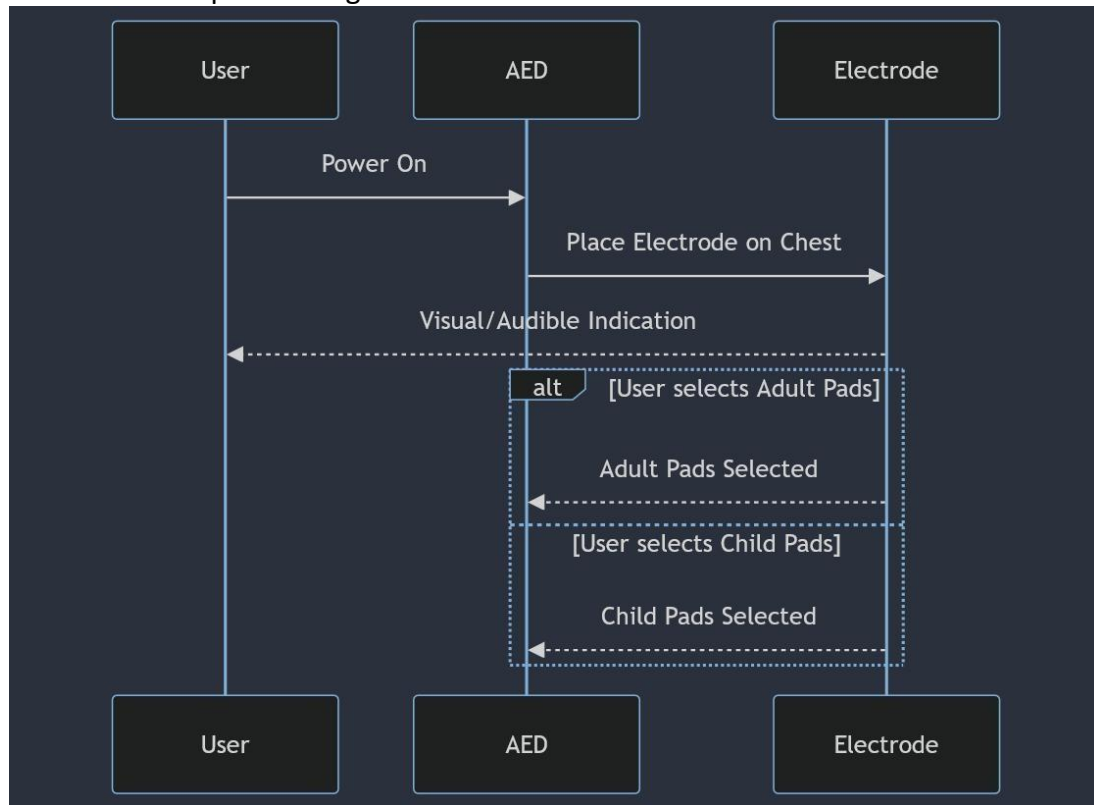


Figure 3: Success Sequence Diagram

The sequence diagram in Figure 3 illustrates the interaction between a user, an Automated External Defibrillator (AED), and an electrode during the power-on process. Initiated by the user powering on the AED, the AED then communicates with the electrode to prompt the user to place the electrode on the chest. The electrode responds to the user with visual and audible indications. The diagram includes an alternative flow based on the user's selection between Adult Pads and Child Pads. If the user chooses Adult Pads, the electrode communicates to the AED that Adult Pads are selected. Conversely, if the user selects Child Pads, the electrode informs the AED that Child Pads are chosen. This sequence captures the user's interaction with the AED and electrode during the power-on process, accommodating the selection of different electrode types based on the user's choice.

### 2.3. Exceptional Sequence Diagram 1

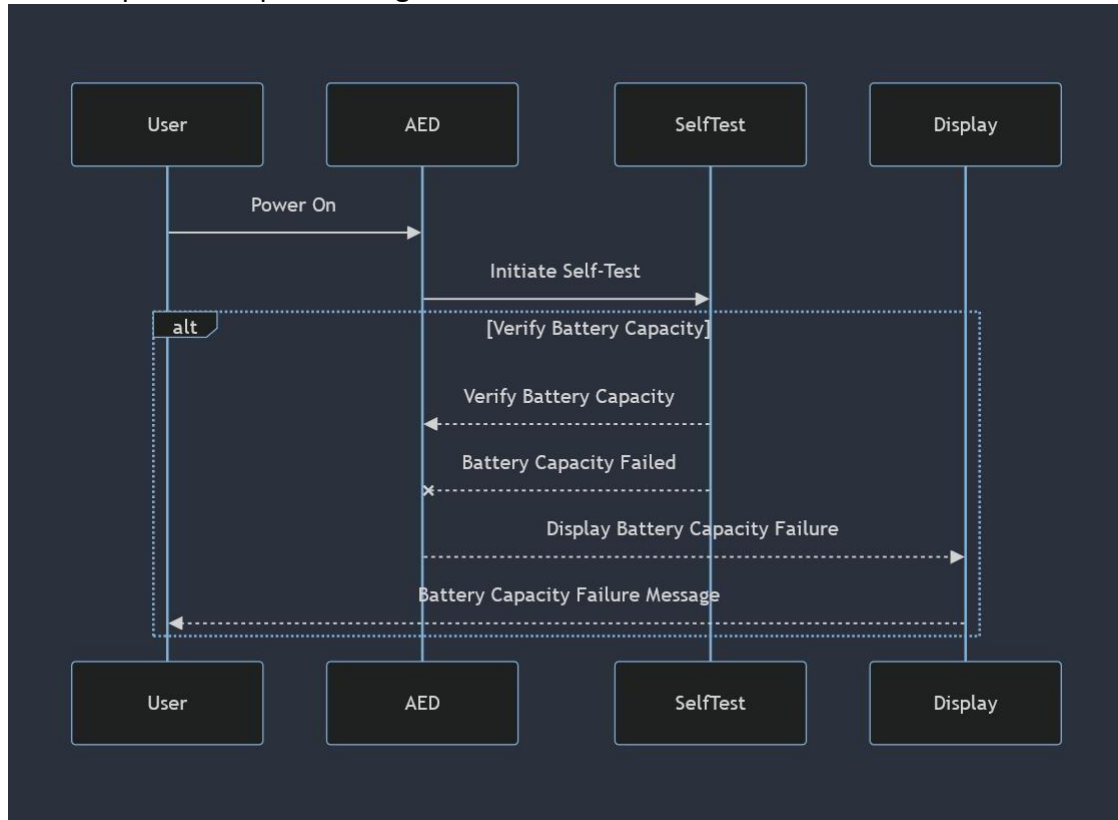


Figure 4: Exceptional Sequence Diagram

The sequence diagram in Figure 4 depicts the interaction during the power-on process of an Automated External Defibrillator (AED). The user initiates the AED, which then triggers a self-test. In a specific case, the self-test checks the battery capacity. If the battery capacity verification fails, the AED communicates with the display to convey a failure message, subsequently shown to the user. This sequence succinctly illustrates the scenario where the self-test identifies and communicates a failure in battery capacity during the AED's power-on process.

## 2.4. Exceptional Sequence Diagram 2

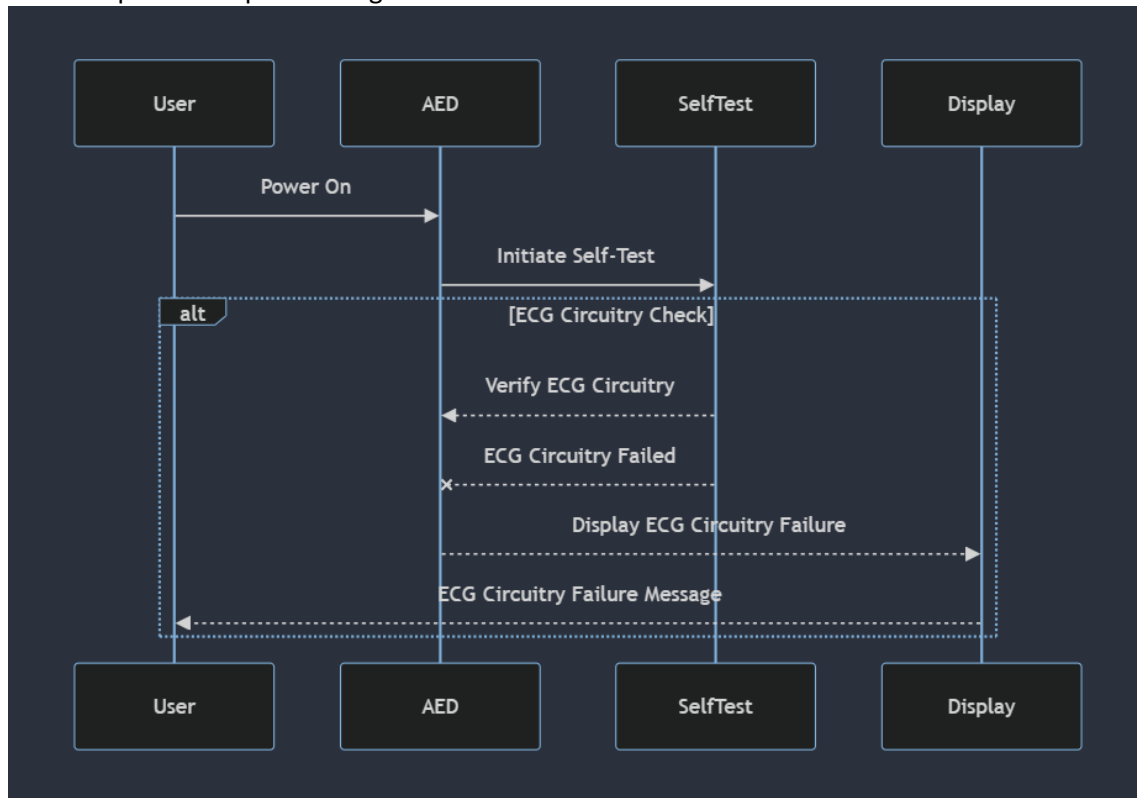


Figure 5: Exceptional Sequence Diagram

The sequence diagram in Figure 5 illustrates the interaction during the power-on process of an Automated External Defibrillator (AED). Initiated by the user, the AED triggers a self-test. The alternative flow specifically focuses on verifying the ECG circuitry. The SelfTest participant communicates with the AED to verify ECG circuitry. In case of failure, denoted by "x," the AED conveys the ECG circuitry failure to the display, which, in turn, shows the failure message to the user. This sequence succinctly captures the scenario where the self-test identifies and The sequence diagram illustrates the interaction during the power-on process of an Automated External Defibrillator (AED). Initiated by the user, the AED triggers a self-test. The alternative flow specifically focuses on verifying the ECG circuitry.

## 2.5. Exceptional Sequence Diagram 3

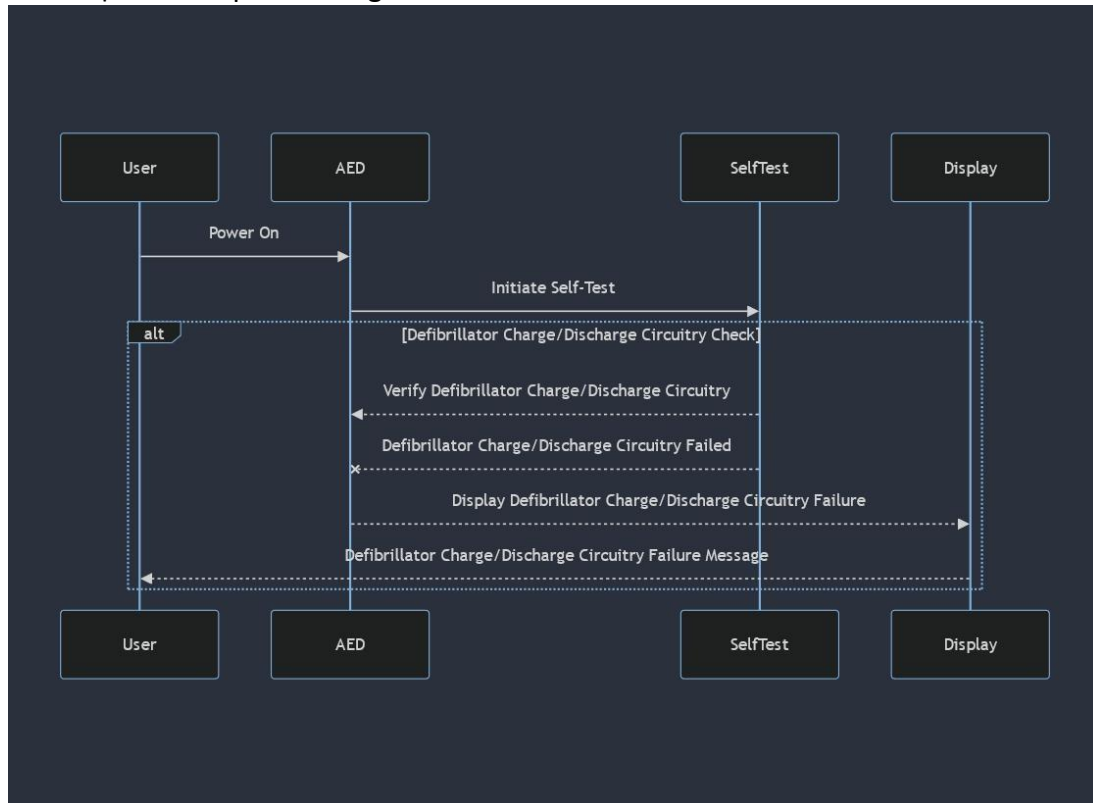


Figure 6: Exceptional Sequence Diagram 3

The sequence diagram in Figure 6 outlines the interaction during the power-on process of an Automated External Defibrillator (AED). Triggered by the user, the AED initiates a self-test. In this specific scenario, the self-test focuses on verifying the defibrillator charge/discharge circuitry. The SelfTest participant communicates with the AED to check this circuitry. If the verification fails, indicated by "x," the AED notifies the display to show a defibrillator charge/discharge circuitry failure message, which is then conveyed to the user. This sequence succinctly illustrates the scenario where the self-test identifies and communicates a failure in the defibrillator charge/discharge circuitry during the AED's power-on process.

## 2.6. Exceptional Sequence Diagram 4

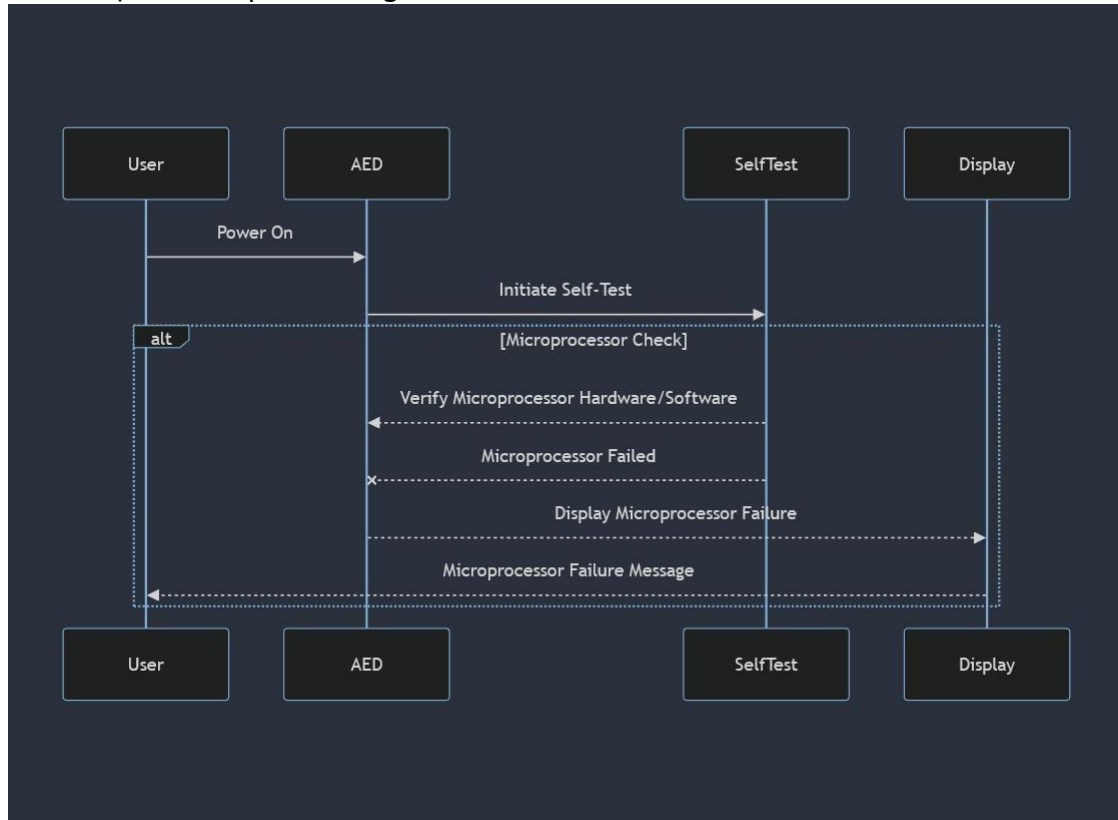


Figure 7: Exceptional Sequence Diagram

The sequence diagram in Figure 7 portrays the interaction during the power-on process of an Automated External Defibrillator (AED). Initiated by the user, the AED triggers a self-test. This specific alternative flow focuses on verifying the microprocessor hardware/software. The SelfTest participant communicates with the AED to assess the microprocessor. In the event of a failure, denoted by "x," the AED instructs the display to present a microprocessor failure message, which is then communicated to the user. This sequence succinctly represents the scenario where the self-test identifies and communicates a failure in the microprocessor during the AED's power-on process.

## 2.7. Exceptional Sequence Diagram 5

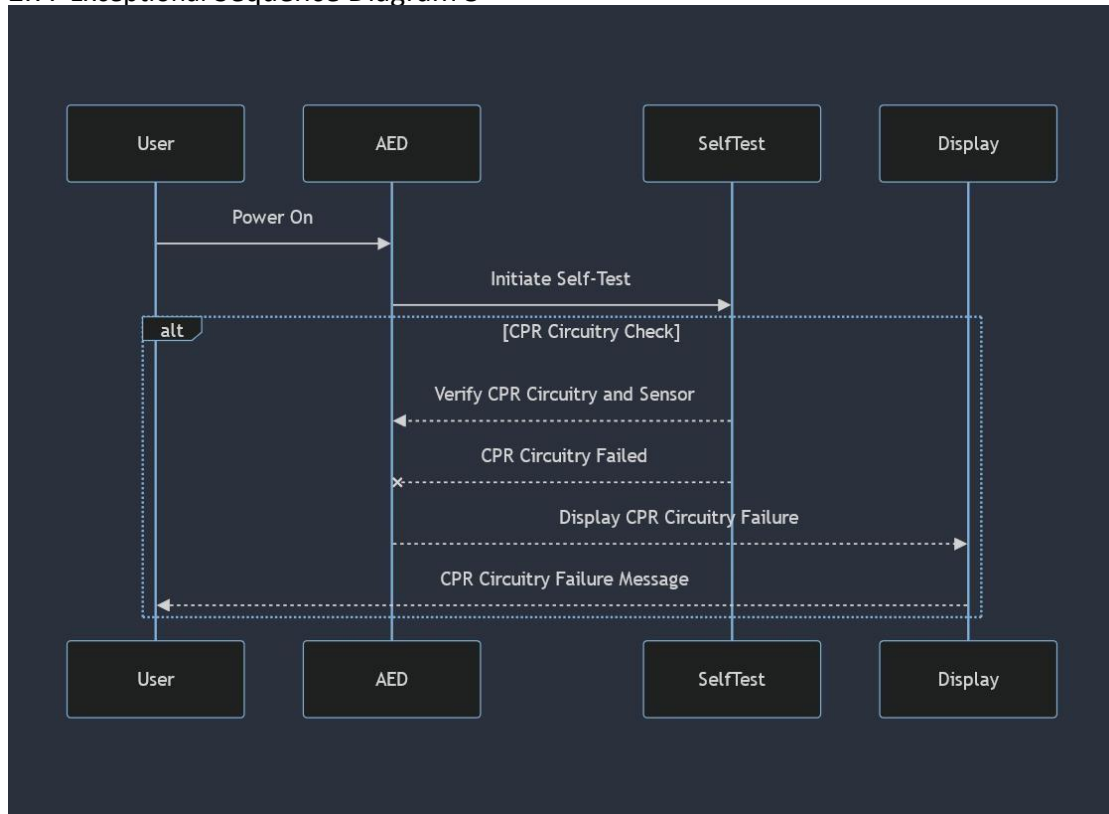


Figure 8: Exceptional Sequence Diagram

The sequence diagram in Figure 8 illustrates the interaction during the power-on process of an Automated External Defibrillator (AED). Initiated by the user, the AED initiates a self-test. In this specific case, the self-test focuses on verifying CPR circuitry and sensor functionality. The SelfTest participant communicates with the AED to assess CPR circuitry. If the verification fails, indicated by "x," the AED signals the display to showcase a CPR circuitry failure message, which is then conveyed to the user. This sequence succinctly represents the scenario where the self-test identifies and communicates a failure in CPR circuitry during the AED's power-on process.

## 2.8. Exceptional Sequence Diagram 6

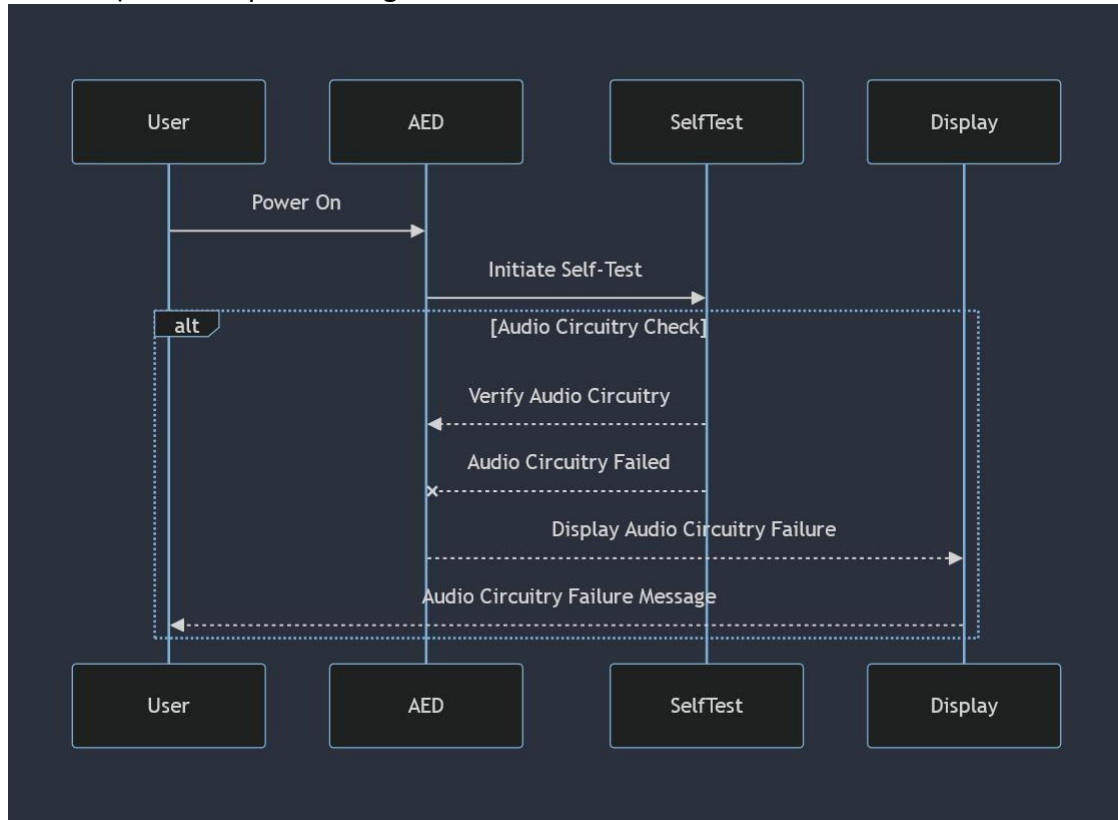


Figure 9: Exceptional Sequence Diagram

The sequence diagram in Figure 9 captures the interaction during the power-on process of an Automated External Defibrillator (AED). Triggered by the user, the AED initiates a self-test. This particular alternative flow centers on verifying audio circuitry. The SelfTest participant communicates with the AED to check audio circuitry. In the case of a failure, denoted by "x," the AED prompts the display to exhibit an audio circuitry failure message, subsequently conveyed to the user. This sequence concisely outlines the scenario where the self-test identifies and communicates a failure in audio circuitry during the AED's power-on process.