The methodology for the project titled 'Multi-static Sonar Archetype' involves several sequential steps to achieve the desired functionality. Firstly, the hardware components, including three ultrasonic sensors, an Arduino Uno, a buzzer, and a LCD, are assembled according to the circuit diagram. Once the hardware setup is complete, the software implementation begins. The Arduino Uno is programmed to initialize the ultrasonic sensors for both transmission and reception of ultrasonic waves. When an obstacle is detected within the detection range of the sensors, the Arduino calculates the distance based on the time taken for the ultrasonic waves to bounce back. This distance data is then transmitted to a Bluetooth terminal app for visualization.

Simultaneously, the Arduino continuously monitors the distance data. If the detected distance falls below the threshold of 10cm, indicating the presence of a nearby obstacle, the Arduino triggers the buzzer to emit an audible warning signal. Additionally, it displays the alert message "Threat Alert" on the connected LCD screen for visual feedback. Throughout the implementation process, thorough testing and debugging are conducted to ensure the reliability and accuracy of the system. Any encountered issues are addressed iteratively, refining both the hardware setup and the software code as necessary. The methodology emphasizes a systematic approach to integrating hardware and software components to achieve the desired functionality of obstacle detection and warning in real-time.