The project will focus on testing and simulating signals for a spacecraft using the **STM32 NUCLEO-F103RB** microcontroller and **Qiskit Metal** for quantum-level design and optimization. The goal is to adapt systems for extreme cryogenic conditions, such as -250°C in space, while integrating **Artix-7 FPGAs** for advanced signal processing and control. The STM32 NUCLEO board, equipped with an ST-LINK debugger, will serve as the primary microcontroller for testing, with its robust features and compatibility with external modules making it ideal for prototyping and evaluating functionality in such extreme environments.

Qiskit Metal will be used to simulate and design components with quantum properties, ensuring precise signal generation and detection for applications in deep-space missions. The Artix-7 FPGA will provide high-speed data handling and processing, complementing the STM32's capabilities and ensuring seamless operation under cryogenic conditions.