Elevator Control System Project

Project Description:

The goal of this project is to design an elevator control system using the STM32 Cortex-M3 board with FreeRTOS and hardware interrupts. The system includes a CLI for user interaction to control elevator operations such as floor selection, door opening, door closing, and maintenance mode activation.

Milestone Completion:

- Successfully initialized hardware peripherals: GPIO, USART2, and Timer2.
- Implemented three tasks: StatusWindowTask, ProcessUserInputTask, and StartDefaultTask to handle status updates, CLI commands, and emergency mode management.
- CLI implemented using USART2 accepts commands (1, 2, 3, 4, o, c, M) for elevator control, door operations, and maintenance mode.
- Implemented two external interrupts: EXTI0_IRQHandler for the emergency button and another for UART communication.

Future Work:

- Replace global variables for inter-task and ISR-task communication with FreeRTOS queues.
- Fix the timer in the status window, which currently stops incrementing after the first input.
- Update emergency button functionality to stop all tasks when emergency mode is triggered.
- Refactor the code to include reusable functions instead of repeated code, and organize it into separate files.