TASK SCHEDULER DOCUMENTATION

The task scheduler is a crucial component of the thermostat firmware, responsible for coordinating various actions such as reading temperature, controlling LED, and processing user inputs. This document provides technical and operational details regarding the task scheduler implementation.

Tasks:
Read_Button - checks for button presses and updates button state
Read_Temp - reads temperature from the sensor and updates the system state
Read_LED - Controls the LED based on the temperature and set point

Task Execution:
Read_Button - executed every 200ms
Read_Temp - executed every 500ms
Read_LED - executed every 500ms

States:
Button_init - initial state where the system waits for a button press
Temp_init - initial state for temperature reading
LED_init - initial state for LED control

Timer Configuration:
Period - 100ms
Mode - Continuous callback mode

Interrupt Handling:
gpioButtonFxn0 - callback function for button 1 (increase temperature)
gpioButtonFxn1 - callback function for button 2 (decrease temperature)

Main Loop:
- update button state
- read temperature
- control LED
- update display
- handle timer events