Experiment #4

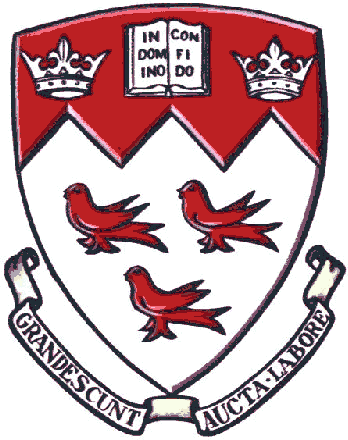
Multithreaded, interrupt-driven sensor reading and peripheral control

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# Abstract

The goal of the experiment presented in this report was to design and implement a multithreaded system using the real time operating system (RTOS) CMSIS-RTOS, capable of sensing the STM32F407 Discovery board's processor temperature and pitch angle and provide a visual display of those readings to the user. The report will show how a 4x4 alphanumeric keypad was use to provide the user a mean to select the desired mode of operation and how a 4 digits 7-segments display in combination with the on-board LEDs of the board allowed a way to provide a visual feedback to the user. To that end, the work of experiment 2 and 3 were slightly modified and successfully combined using threads in an RTOS environment on the discovery board. This report will show how the thread implementation was done such that the concurrent multithread computation operates safely.

# Problem Statement

# Theory and Hypothesis

# Implementation

# Testing and Observations

# Conclusion

# References

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# Appendix