Project 5

In this project you use RTX operating system to facilitate multi-tasking and task communication and synchronization. Overall, this project reads temperature values and displays temperature, average temperature, and time on your PC. (Use a file to provide the input temperature data.)

There are 5 tasks in this project:

Task 1: Update the time value every 0.1 of a second. Set an event for task 4 every 1 second, and set an event for task2 every 5 seconds. Use the "Timer" module to wake-up this task every 0.1 of a second.

Task 2: Read Temperature sensor and Time every 5 seconds and keep the record until the next reading. Set an event for task 3. Use task 1 event to wake-up task2.

Task 3: In a buffer keep the last 32 readings of temperature. Also receive the current time. Compute the average of the last 32 temperature readings.

Task 4: Update and display "time" every second. If push-button SW1 is pushed display current temperature and its associated time as long as the push-button is pushed. If push-button SW2 is pushed display average temperature value and its associated time as long as the push-button is pushed.

Task 5: Idle task. (Lowest priority task.)

Extra Credit:

Diplay on an LCD display instead of PC.

Use a temperature sensor instead of a file to provide input data.