FreeRTOS Assignment

As the number of tasks to be performed increases in a project it can no longer be handled using a simple setup and loop function. In this project you will utilize FreeRTOS to create a controlling system for an industrial motor. The controlling system should perform the following tasks:

- Set the motor speed using a potentiometer
- Read the motor temperature using a sensor (Like LM35)
- Log speed change, over temperature and shutdown events on EEPROM using error codes
- Display the current motor speed, temperature, and error codes in real-time to user using LCD

The controller should warn the user if the temperature rose above a preset value and shutdown the motor immediately if the temperature passed a critical value and keep the motor off until the next system reboot.

Note that all the mentioned tasks should be implemented using FreeRTOS and no bare-metal programming is accepted. All the necessary prioritizations, synchronizations and task communications such as using mutexs, queues and… should be considered.

Good Luck

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Fall 2021