EELE 465 Final Project Design Proposal

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Erik Andersen

A circuit schematic (attached to the end of this proposal) designed to meet the requirements laid out in the system specifications which are attached to the front of this proposal. Additionally, in the following bulleted list the discussion pertains to a list of the major software/firmware routines that need to be written and a brief description of each routine. Lastly, how the devices used in this design would be physically reset and programed is discussed.

* Subroutine to read from the 5 individual push buttons
* Subroutine to write characters to the LCD display using I2C serial bus communication based on data input from the 5 individual push buttons.
* Subroutine using I2C serial bus communication to read from the real time clock and display the time and date from the real time clock on the LCD display.
* Subroutine to read the internal MC9S08 temperature sensor.
* Subroutine using I2C serial bus communication to write output current of the current Sense Circuit and temperature values of the TE module to the LCD display.
* Subroutine to keep track of the run time of the unit and an alarm for if the high current TE driver has reached over current and again to display this information to the LCD display.
* Subroutine to set the temperature of the TE Module based on what temperature is entered on the 5 individual push buttons.

The devices in this design can be reset by driving a 1 to the RSTPE bit of the SOPT1 register on

PTA5 of a single MC9S08QG4PAE Microcontroller as shown in the schematic of the system and the devices used in this design can be programmed by driving a 1 to the BKGDPE bit of the SBDFR register on PTA4 of a single MC9S08QG4PAE Microcontroller as shown in the schematic of the system.