

Requirements Specification for EE465 Lab Project 5:

Real-Time Clock with I2C Serial Two-Wire Interface

Lab project goal: Read the time/date from a DS1337 real-time clock. Display the latest values of time/date on the LCD display.

Display the 1 second on/ 1 second off heartbeat on the d7 bit of the 8 LED string.

Keypads must be debounced. One push of a button yields one digit on the LCD.

Requirements for lab project completion:

1. Modify your SLK breadboard to match the schematic titled “EE465 Project 5”. This version adds a DS1337 real-time clock, a crystal, and three resistors. Each lab team member must build a hardware circuit and receive a sign off for his or her own circuit

2. After setting the current time/date on the DS1337, get the current value of time/date from the real time clock and display it. The current time/date should be entered via the keypad. Add a start up menu of your choice.

The top line of the LCD display should read:

“Date is MM/DD/YY” where MM is month, DD is day, YY is year.

The bottom line of the LCD should read:

“Time is hh:mm:ss” where hh is hours, mm is minutes, ss is seconds.
within the last 2 seconds.

3 . Your project grade will be based on the report that you hand in during this or subsequent lab sessions. Your report must include:

a. A cover memo summarizing the methods you used to solve the problem. Follow the informative memo guidelines on the ECE web site. Your memo should include a summary that states:

1. amount of memory, RAM and FLASH, used by your program;
2. Interrupts used and interrupt vector assignments.

b. A listing of your file containing a header section with a clear description of the program purpose, key variables, and other information that would be useful to another programmer reading your listing at a later date. Your header should also include your name and your partners name, the date, and your EE465 lab session.

c. A flow chart for this program.

d. A sign-off from the instructor or a TA indicating that your program performed as required and the required circuit modifications were completed. **Each lab team member must build a hardware circuit and receive a sign off for their own circuit.** Please attach this requirements specification with signoff and partner names together with your listing and flowchart.

Lab Demo Due Thursday April 1, 2014; Memo Report Due Thursday April 3, 2014

Name(s)

Instructor/TA

Date

March 18, 2014