

Embedded Controller Programming II

CLASS PROJECT

Project Description :

In ECP II we will be doing a class project which will comprise half of the course grade (the final exam will be the other half). The class project is designed to give students the opportunity to develop an 8051 application that demonstrates some of the concepts introduced in class.

Project Requirements:

The project will be evaluated based on how it implements the following requirements;

- 1) The project should be 8051 based (This goes without saying)
- 2) The project should be developed using C. The Keil development tools support this requirement nicely. You can use assembly for time specific functions, etc., but the main program should be in C.
- 3) The project should demonstrate good modular programming techniques. Related functions/definitions should be modularized and stored in separate files. The Keil project management tools support this requirement.
- 4) The project should include the following elements as a minimum;
 - a. It should use at least one Timer/Counter
 - b. There should be some kind of external input via the serial port, switches, keypad, etc.
 - c. There should be some kind of output: serial port, LEDs, LCD, etc.
 - d. Use of an interrupt is optional
- 5) Everything should be well documented. You should submit all code Files (.c, .h, .asm, etc.) as well as a report describing what the project does and how it works. Document any hardware interfaces you provide to external devices with a sketch, schematic, etc.
- 6) It is highly recommended that you use the SDK for developing your project. The SDK provides the features discussed in class and allows you to use Port 1 and part of Port 3 for your I/O. You don't have to build any external hardware but by doing so you can see that your design does actually work. You can easily access the I/O pins either through the SDK's onboard header connectors or with the in circuit emulator cable.
- 7) Presentation to the class: You can make an optional ~10 minute presentation to the class for 5-10 extra credit points on your project grade.

Grading:

The project will be graded based on the requirements above. You should write a project report that describes what it does, how it operates (i.e. what modules/functions make up the project and how they are used), and a copy of all code files used in the project.

Project 100 points

Final Exam 100 Points

Homework 50 points