

Project Assignment

EE475

Fall 2003

Assigned: Thursday, October 30, 2003

Written proposals are due AT THE START OF CLASS on **Thursday, November 6, 2003**

(Proposals will be approved, modified, or rejected by the next class period)

Completed project reports are due AT THE START OF CLASS on **Thursday, December 4, 2003**

Project and proposal requirements:

- (a) The projects must incorporate real-time operating system features **OR** demonstrate equivalent complexity as arranged with the instructor.
- (b) Examples of suitable topics are given below, and other ideas will be discussed in class.
- (c) Project teams may have one to three people. In any case, each student must solve a unique portion of the overall problem.
- (d) Only one proposal is required per project. The written, two-page-maximum proposal should describe the project in high-level terms with block diagrams and pseudo-code if appropriate. Be sure to indicate team members and resources required to complete the project, and clearly indicate the work that each team member will perform. *You will be held accountable for what you propose to do!!*
- (e) Individual reports are required from each person. Reports may include (or reference) materials that are common to a project. However, each report must demonstrate and document the unique contributions of the individual student in completing the project.
- (f) Each team member must present a 3 to 4 minute summary of the team's final project in class on December 9th or 11th. Presentations will be scheduled so that team members present sequentially.

Projects:

- 1) Learn about the Metrowerks CodeWarrior IDE and figure out how to use it with the Axiom HC12 evaluation boards. Document the procedures and write a short tutorial.
- 2) Port the microC/OS-II code to run with the Cosmic tools. Provide the resulting code and demonstrate the results.
- 3) Make a simple hardware interface to the HC12 I/O board, such as a temperature sensor or optical detector, and write software for control and display functions.
- 4) Determine the procedure for storing a program in FLASH memory on the Axiom boards and make a boot-loaded program.
- 5) Develop an extensive Cosmic CPU12 project with real time A/D and D/A via the I/O board.
- 6) Use the PC-based port of microC/OS-II to demonstrate semaphores and mailbox messaging, as well as using task creation, suspension, and deletion.