

Project Assignment

EE475

Fall 2005

Assigned: Thursday, October 27, 2005

Completed project reports are due **AT THE START OF CLASS on Thursday, December 1, 2005**

Project requirements:

- (a) The projects must incorporate real-time operating system features implemented on the HC12 or HC08 processor.
- (b) The project must use the A/D or PWM features of the I/O board, **OR** involve an attached peripheral such as a keypad or LCD display, **OR** involve a task that is pre-approved by the instructor.
- (c) Examples of suitable topics are given below, and other ideas will be discussed in class.
- (d) Project teams may have one to three people. In any case, each student must solve a unique portion of the overall problem.
- (e) One written project report is required for each team. Each report must demonstrate and document the unique contributions of the individual students in completing the project.
- (f) Each team will give a brief (3-4 minute) demonstration during the regularly scheduled lab on Tuesday, December 6.

Project ideas:

- 1) 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.
- 2) Use the hardware timer features of the HC12 to estimate the speed of a moving object.
- 3) Use the serial port on the CSM module to communicate with a PC or test instrument.
- 4) Develop an extensive Code Warrior project with real time A/D and D/A via the I/O board.
- 5) Use the HC12-based port of microC/OS-II to demonstrate semaphores and mailbox messaging, as well as using task creation, suspension, and deletion.