

**EE 371 LAB 10 - F05**  
**COPs and Kicking the Dog**

Schedule:      Nov 16, 17: Do the lab  
                  Nov 30, Dec 1: Last time to demo

Name_____
Partner _____
MEETING DAY_____HR _____
Demo ( 1 )_____

Your assignment this week is to demonstrate that you can implement a COP (or watchdog) timer to allow your embedded system program to recover in some graceful fashion in the event of a system crash. I have put some COP documentation on the lab website <http://www.coe.montana.edu/ee/courses/ee/ee371/ee371labs.htm> and [www.ganssle.com/watchdogs.htm](http://www.ganssle.com/watchdogs.htm) is a great article on the foibles of watchdog timers in general.

1. Write a program that demonstrates you have correctly implemented a watchdog timer using the COP in the HCS12. You must demonstrate that
  - a. Your program operates correctly without the COP timing out when you are kicking the dog properly.
  - b. Your program is reset by the COP if you do not kick the dog in a timely manner.

Your program must have some visual or audible indication showing the two operational modes. For example, I used my 500 – 2000 Hz tone program to see if the COP was working. I set it up to sweep from 500 – 2000 Hz and then remain at 2000 Hz when the COP was being reset correctly and to be continuously reset to start sweeping from 500 – 2000 when the COP timeout occurred. You may be able to think of some other ways of demonstrating this (for extra credit). (It is not sufficient to merely show the COP timeout happening using a breakpoint, although this would be a good way to do it too.)

Helping Hand: The COP reset vector is at \$FFFA:FFFB.

2. Grading: Program demo 10 points PLUS 5 extra points if you demonstrate it working in some other way than what I have described.