EE260 – Lab 4

The objective of this lab is to learn how to read and write the 68HC11 input/output ports using the C programming language.

Pre-Lab:
Find out the addresses of PORTB, PORTC, and the DDRC registers on the 68HC11 Programming Reference Guide.

Lab:
   a. Write a C program that controls the tail lights of a Ford Thunderbird.
   b. Assume the DIP switches are the car signals and the LEDs the lights. Use the DIP switches as follow: pin 8 is the left signal, pin 1 is the right signal, and pin 4 is the hazard signal. Use the LEDs on PB7, PB6, PB5 as left lights, and the LEDs on PB2, PB1, PB0 as right lights.
   c. The C program must implement the behavior described in Fig.3.
   d. Explicitly configure port C as an input port.
   e. Write a report documenting your design. The report should have the following sections:
      • Objectives/Overview
      • Background Information
      • Design Description
      • Testing Strategy
      • Lab. Procedures
      • Conclusions
      • Appendix

Fig.1 T-bird Tail Lights
Fig. 2 Flashing sequence for T-bird tail lights (a) left turn; (b) right turn
Fig. 3 Tail Lights State Machine