

CES-520 Embedded Systems
Fall 2006 – Lab #4

Assigned: September 26, 2006
Due: October 10, 2006

Lab: Relays, LEDs, switches

1. You will be using the ULN2003 Darlington Transistor Array to drive the Reed Relays and LEDs. Determine the best port pins to which to connect the transistor array.
2. Add the four relays to the transistor array.
3. Write test software that exercises the relays.
4. Create a Dynamic C library for the relays that you can use with the Rabbit 3000.
5. Add the three LEDs to the transistor array. Determine the appropriate current-limiting resistor to use.
6. Add the 8-position DIP switch. Determine the best port pins to which to connect the switch. Don't forget the pull-up (or pull-down) resistors.
7. Write test software that lights each LED when a corresponding switch is enabled.
8. Create Dynamic C libraries for the LEDs and switches that you can use with the Rabbit 3000.

Turn in electronic or paper copies of your final program(s) and any program output. Also, turn in a schematic drawing that shows the connections for each device, including power and ground connections. Use ExpressPCB software, or any other schematic capture software of your choice. Hand-drawn schematics will also be accepted.