Lab 7 Report
Topics and Questions

ECE341, University of Idaho

Demonstration

In addition to the specifications in the lab handout:

- Your design must be modular. This means that you must have a source file and header for each subsystem. The four primary subsystems are listed below:
  - LCD
    - Copy `LCDLib.c` and `LCDLib.h`
  - UART
    - Copy the supplied code from `comm.c` and `comm.h`
  - Buttons:
    - Change Notice ISR
    - Decode buttons
  - Stepper Motor:
    - Timer1 ISR
    - Stepper state machine
    - Stepper code output
- Each subsystem must have its own initialization function, and a header that prototypes the functions in its respective source file. Note: you can use `extern` to access global variables that are declared in a different C file.
- The source file that contains `main` should include the header files for each peripheral, call the subsystem initialization functions, and facilitate the data transfer between subsystems.
- Each subsystem must be individually testable, meaning that each subsystem could be instantiated into a new project and tested without the other subsystems.

Report

- In the implementation section:
  - Why are the UART receive functions (`getstrU1`, `getcU1`) in the background? What would happen if they were in the foreground?
  - What is the purpose of the `_mon_putc` function?
  - The CFD for the project must include the CFD sub-diagram for the function `getstrU1`. Essentially, read and understand the code that was supplied to you and use it to derive a CFD.
- In the testing and verification section:
  - Describe how each subsystem was incorporated into the project.
  - When a subsystem was added, how did you test it? Describe the testing process for each subsystem.
- In the conclusion:
  - Address the advantages and disadvantages of serial and parallel communications. When might it be better to use one over the other? Support your answer with examples.
  - Why is it important for a design to be modular?