University of North Texas, College of Engineering
Department of Electrical Engineering

EENG 3910: Project V - Digital Signal Processing System Design

Assignment 2 Part 2

Lab Session: Monday, 02/08/2016
Due: Monday, 02/15/2016

Student Name: _____

Important:

- Please create a new assignment folder in your working directory for each assignment, and a new problem folder in the assignment folder for each problem.
- Please backup your files in your own USB drive or your own network drive at the end of each class because the workbench computers may be reimaged without prior notice.

Problem 5. Programming onboard pushbuttons.

- Follow the Getting Started document "Getting_Started_CCS6.pdf" to create a new CCS project for Tiva C Series LaunchPad. You may name the new CCS project as Lab2_5.
- Delete the "main.c" file if you have generated that file automatically when you were creating your new CCS project.
- Copy the source code file "Lab2_5_main.c" into your project folder.
- Build, load, and run your project on Tiva LaunchPad.
- Lauch the software PuTTY and connect to LaunchPad through UART. Type the letters "R", "G", and "B" on your computer keyboard to change the LED color on your LaunchPad to confirm that PuTTY terminal is properly connect to LaunchPad through UART.
- Push the pushbutton SW1 and SW2 on your LaunchPad. First push the pushbuttons one by one, then two together, and observe the PuTTY terminal window for the displayed messages corresponding to the pushbutton actions.
- Explain the code line-by-line. The references that you will need to read are listed on the page titled Programming Resources in the lecture note. You will need to develop a habit of keeping those references handy and look up information frequently from those files. What you need to explain in your report include what the code in that line does, where the function is defined, what is the definition of the function, what are the input parameters, why the parameters are given the values as in the source code.
- Study the document "debouncing.pdf". Explain the software debouncing mechanism and the algorithm implemented in the source code "Lab2_5_main.c".

Problem 6. Change LED color using onboard pushbuttons.

- Modify the source code of Problem 5 to implement the following:
  Change LED color to Red when pushing left button
  Change LED color to Green when pushing right button
  Change LED color to Blue when pushing both buttons together.
- Explain your source code in detail.

Assignment Deliverables:

- Compile your report with pictures, plots, and the codes that you have written or modified.
- Explain in detail what you have done, why you have done in that way, and what you have learnt. Follow the report format outlined in the Introduction lecture notes.
- Email your report and source codes for grading. For source code submission, you will need to zip your working directory and send the zipped file to your TA at VeenaChidurala@my.unt.edu.
- Printout of your source code should be attached to your lab report as appendix. If your source code goes beyond two pages, please only print the part of the source code where you have newly written or modified.