
Project Request for Proposal

Due Monday April 2, 2018 (or sooner)

Introduction

The course final project is to be a real-time DSP project using a Cortex-M4 development board with analog I/O capabilities. The final project is worth 20% of the course grade. You will give a short oral overview of your project and a demo of your project to the rest of the class. This will take place starting during final exam time slot. The due date for this proposal is no later than Monday April 2, 2018. Run ideas past ASAP.

The project proposal serves to let me know that you have chosen something that is reasonable, that is, neither too complex nor too simple. The project should result in a fully functioning DSP application, chosen from say,

- Audio signal processing, e.g., digital waveform generation, digital audio effects, noise reduction, or signal enhancement
- Sensor signal processing
- Communication systems signal processing, e.g., use two dev kits to implement a simple modem, say PSK or FSK. We have a vector signal generator and a vector signal analyzer, both of which can work with baseband I/Q signals (generate/receive)
- Control systems with alternate analog I/O (the FM4 can host the Digilent Analog Shield for Arduino)
- Virtual instrument, e.g., a scope or spectrum analyzer with GUI interface
- A performance study of core DSP algorithms
- Talk to me about specific projects I have interest in
- Others

In all of the above it is expected that the project will result in one or more C and/or assembly programs for performing the desired real-time DSP tasks. The development target is not limited to the Cypress FM4. Depending on the project, a host program, with possibly a Windows based GUI, may be implemented.

Contents of Project Proposal

The project proposal will be assigned a grade worth 50 points taken from the homework portion of the grade. The project proposal shall be typed and contain at minimum the following:

1. Project title, including team members (two at most)
2. Project description, including block diagrams, waveforms, signaling schemes, etc.
3. What the finished project/product will consist of
4. A prioritized list of tasks to be completed on the project
5. Distribution of tasks across team members