ECE 285 ACELP coder Project

The goal of this project is to develop a ACELP Coder with a bit rate of 8 kbps. The main data analysis blocks to be developed are: short term predictor (LPC at frame level), closed loop LTP and ACELP codebook (sub frame level). Use 20 ms segments and 5 ms sub frames

1. For the short term predictor, implement interpolation at the sub frame level using the LSFs. Quantization of the LSF is desirable, but implement only if time permits.

2. For the LTP design, use a closed loop approach. The open loop LTP can be used to determine the initial search values. Quantize the gain

3. Develop a ACELP based excitation codebook. Quantize the gain.

4. Develop a CELP coder using the above blocks. Debug and document the quality of the coder. Please make sure to document how each block was tested and debugged. Please provide a sample of the original and the coder reconstruction for listening. You can email me the speech files

Please prepare a report documenting your work. The project report is due in three weeks on Feb. 23rd. A preliminary report documenting your progress is due on Feb. 16th.