



Speak

A Simple VoIP Application

Project 2



CS529 Multimedia Networking

Due date: October 21st by 11:59pm



Overview

- VoIP
 - Been able to do this (well) for at least 10 years
 - Web and Internet made Internet telephony possible, cheaper → increasingly popular
- Basic
 - Two-person
 - System parameters to evaluate quality
 - Speech detection
 - + Simpler version than Project 1
 - Minimal interface
 - + Load time options for connection, parameters ...



Details

- Windows or Linux (or Mac)
 - Two boxes, actually
- Internet sockets
 - Specify host (and port)
 - TCP and UDP
- Variable chunk sizes (emulate latency)
 - 20, 40, 60ms are typical
 - Also support values up to 1000ms



More Details

- Basic speech detection
 - Modified from project 1
 - 250ms search for zero crossing too big!
 - Detect based on energy level only
 - + Sample only “chunk” from audio device
 - Can have on or off
- Packet “Loss”
 - Drop before sending, or after receiving (your choice)
 - Percent, uniform randomly distributed


Hints

- Many different architectural possibilities
 - Can design how you want
- Provide some sample code (“tools”)
 - Refer to other samples, but write your own code (and reference any others)
- Consider remote development (not at console)
 - “Pre-Record” some conversation
 - Read from file or device
 - Write to file or device
 - Allow development of system code
 - Also good for one person testing

Sample Code

- Basic TCP sockets: [talk-tcp.c](#) and [listen-tcp.c](#)
- Basic UDP sockets: [talk-udp.c](#) and [listen-udp.c](#)
- Setting a timer: [setitimer.c](#)
- POSIX threads: [add2.c](#)
- Multiple interrupts: [select.c](#)
- Parsing command line parameters: [get-opt.c](#)





Hand-In

- Email a tar/zip file
 - Use your name as the directory
- Include
 - All source code and Makefile
 - README file with instructions on running
- Due end of day when due

