Abstract for the Voice over IP group (Sarfraz Nawaz, Mark Niebur, Scott Schuff, Shiraz Siddiqui)

We were planning on implementing a voice over IP client for our project. The goal is to use SIP and other industry standard protocals for VoIP communications such as TCP, UDP, IP, and other networking protocols. The way that the phone will work, is that the user who wishes to call someone will enter a number or other identifier, and press call. The board will then connect to another device, and play back a ringing tone. Then, when the phones are connected, the user will be able talk and listen from the device like a normal telephone.

For the hardware, we will run all of our code on the NIOS II embedded microprocessor. For the peripherals, we expect to use the audio codec for speaker out and mic in, we expect to make use of the ethernet controller to send voice/data packets, and to have some form of user input like a keyboard or buttons/switches. Also, we might implement something like a timer peripheral to have context switching.

In software we plan to write communications software to using industry protocols that have been abstracted to sockets. This would include the SIP or other telephony application layer protocol, as well as name resolution, UDP, TCP, and potentially DHCP. Also, we plan to write system/driver software to control the hardware peripherals we plan to use (network interface, custom audio hardware, keyboard/keypad, timer, etc).