

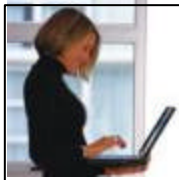
SIP Speech Phone for Hearing Impaired

VoIP: A Step Forward for the Deaf

“Because it is critical that each person need to have an equal opportunity to access telecommunications, new VOIP technologies have to provide this for the hearing impaired while using IP phones”. Earlier, relay services were required nationally for the deaf, thus making a simple telephone call a challenge. If you were lucky, you lived in an area where they had voluntary relay services. But it could take hours to make a single phone call. Now to help the hearing impaired, Lucent Technologies suggested and supports, with the Illinois Institute of Technology (IIT) Center for Professional Development (Chicago), a revolutionary project to enable hearing and speech impaired person to make telephone calls using SIP Technologies.



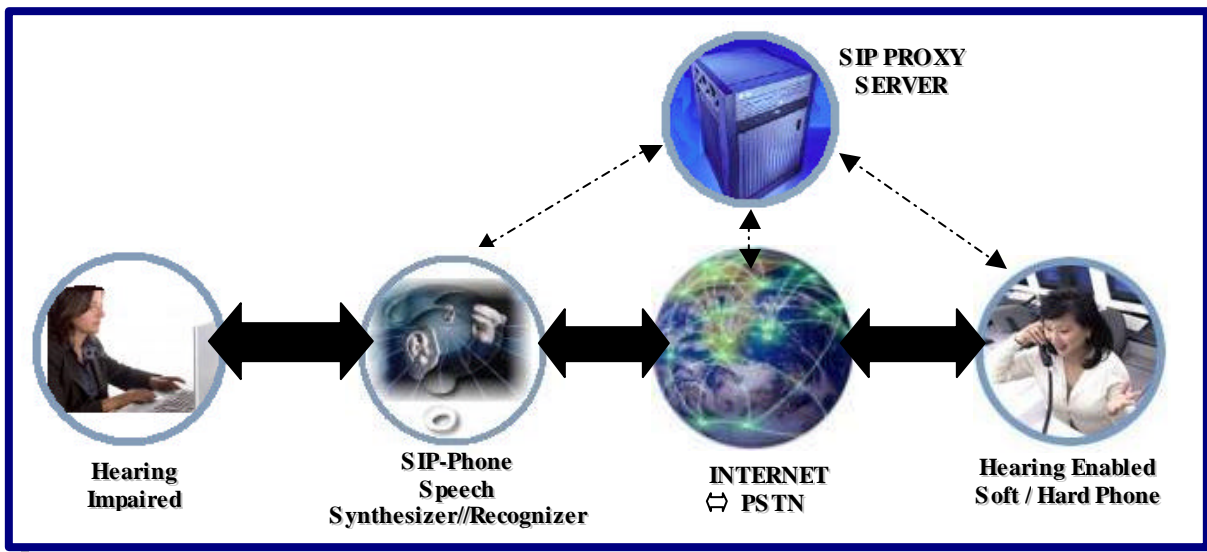
SIP Phone with Speech Recognition and Speech Synthesis



The current research has lead to a prototype software using SIP that allows people with varying levels of hearing loss the opportunity to communicate using SIP soft phone technology. They communicate using a text interface and make phone calls using this special soft phone. The typed messages are translated into speech at the receiving side if the person receiving the message is a hearing-enabled individual. To communicate back to the hearing-impaired individual, the hearing-enabled participant speaks and their speech is in turn translated into text at the hearing-impaired participant’s end of the conversation.

Phone Technology

The SIP Speech Application supporting Hearing Impaired use a SIP proxy with presence to manage the signaling information and media transport. The ultimate goal of the project is to connect this Speech Enabled Phone to the Public Switched Telephone Network.



Benefits

This **SIP SPEECH PHONE** with *presence*, *instant messaging* and *audio support* will allow the hearing impaired to communicate without limits. If your firewall will let you do it, you can also use UDP and do real-time voice (either real time with RTP or voice messaging using TCP). Else, you can tunnel voice, IM and signaling through TCP. This application can be launched as stand alone user agent or embedded in an applet. The voice synthesizer contains 3 different configurable voices and more voices can be added. The speech recognition is based on java speech recognition APIs and offer different level of dictionaries.

Telephone Features

- Intuitive & familiar interface
- Good voice quality
- TCP Voice Messaging
- Multiplatform (written in java)
- Web-enabled (Java Applet)

Speech Synthesizer & Recognizer

- Java Speech API standard
- Java Media Framework
- Speech synthesis using FreeTTS (JSAPI)
- 3 different voices (Kevin, Alice, K16)
- Speech recognition using Sphinx (JSAPI)
- Independent/Continuous speech
- Dictionary configuration

Presence & Instant Messenger

- Instant Messenger with Presence Support
- Local and remote contact List Management.
- Online/Offline/Do Not Disturb Mode

Network Features

- IM Support/ Proxy Authentication
- RTP audio streaming
- URI/Port Configuration

Intuitive User Interface

Chat box with IM messenger and Speech synthesizer/recognizer configuration.



Contact List Management

- Add & remove contact
- Configuration panel
- Registration Function
- Online/Offline Status Mode

Development Team

Project Manager:

- Prof. Carol Davids,
- IIT-CPD (Chicago)

SW Development:

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