APPLICATION SOFTWARE DEVELOPMENT
ON VOICE OVER IP SYSTEM

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Voice over Internet Protocol (VoIP) is taking the telecommunications industry by storm. It transfers the telecommunication from the circuit-switched networks to the packet switched networks. It allows usage of a network that not only converges voice, data and video, but also facilitates the introduction of new applications. Opening a telephony network to Internet Protocol (IP) service affords the opportunity for many additional, new, and network-based products and services. Voice over IP system can reduce communications costs and increase organizational productivity. Various applications are developing and under research in the industry.

This project developed software applications for the system called Unified Message System (UMS) which is based on Voice over IP technology. The system consists of a web server, database server, and gateways and serve clients to use the functions in the application.

Four applications have been developed and embedded into the UMS, which included Mail to Phone List, Message Waiting Notification, Listen Voice Mail and Audio Email. Mail to Phone List can broadcast a text message to multiple receivers who can listen to the text message. Message Waiting Notification can notify users of unread messages, thus users can be reminded to listen back to left messages. Listen Voice Mail which provides a channel for user to call back and listen to the left message. Users can decide to listen to a message at anytime. Audio Email is a useful function for users to check emails through a telephone. Besides checking emails, users can also perform normal functions such as sending email and email deletion.
UMS Web Server is connected to the database and the Internet. The transmission of the data is via the Internet to the email server, gateway and users. Users’ information is stored in the database. Web Server connects to the email server in order to provide service. Phone users can access the system through the PBX to the gateway and then the Internet. PC users can direct access to the system by Internet.

Mail to Phone List (Mail2PhoneList) is a function to distribute the mail message to different telephone call receivers. It allows users to broadcast the message through the web interface to the preset call numbers. The gateways will delivery the converted voice message to the phone destinations.

Audio Email is a function for users to check emails through telephone. The system can access the email server and check the email.
Message Waiting Notification (MWN) is a function to remind users frequently the number of unread messages.

Listen Voice Mail (LVM) is a function for users to call a phone number to listen the voice messages which have been recorded. The UMS server connects the database to retrieve the voice message and allow users to listen to it.

**Result & Conclusion**

Four applications were achieved successfully in the system. Users can use the functions by accessing the web user interface or gateway user interface. This project provides a practical approach of application development in VoIP system.

**Further Development**

There are many further works for the project in order to accomplish perfect system. One suggestion is those applications developed in the system are under H.323. To facilitate the compatibility of the gateway, applications can be researched for SIP.