

A VXML based IMAP/POP client using java

Chivese L and Thinyane M

Telkom Centre of Excellence, Computer Science Department,
University of Fort Hare P/Bag X1314, Alice 5700, South Africa

Cell: 0846679605, Tel: 0406022464, Fax: 0406022464

Email: 200604721@ufh.ac.za, mthinyane@ufh.ac.za

Abstract — In a world of technological advancement people rely mostly on phones as the medium of choice for communication and also for any services of interest for example banking services. This provided reliable services because you are not limited by time or position, you can access these services any time of the day and anywhere at any particular day. A rural remote area Dwesa in the Transkei region Eastern Cape Province in South Africa does have the blind and the illiterate who cannot read. In order to provide essential and continuous support to such environments we want to design a system that will update them of any new mails received in audio form. The system will utilize the Internet protocol phones available to achieve the desired goal.

Index Terms—VXML, IMAP, Asterisk, JavaMail

I. INTRODUCTION

Meeting the challenges facing the world today requires communication. In rural areas of today we have people who are blind and the illiterate that cannot read. These disabilities tend to impact on them because you cannot write to them an e-mail because of their condition. The question is, do we ignore these people in such a world of technological advancement? Can we find a way to assist such people to keep them informed about issues of life?

In view of the above problem we want to design a system to be used by the illiterate and the blind people in Dwesa area. The system will take advantage of the Internet Protocol phones that are available in that area. Since using a phone is not that expensive most people will prefer the system since it eliminate the problems of having people who read the information and mislead them. The major concern is about having a local system that will read their e-mails as audio to them. The person who wants to communicate can just send an e-mail and making sure he/she has registered for the people concerned and their duty will be to take up a few cents and ask anyone to dial for them and their can have the correct information from the e-mail as audio.

Communication can be used to increase participation and provide information that will change the individual.

II. RELATED WORK

The capabilities to access mail from a phone have been implemented by few service providers and since a phone is becoming a means of communication for all the services, it will grow and end up all services are accessed by the phone. Some of the technologies to the ones that help a disabled are explained in [1].

Service providers such as email2phone.net offer services for people who need to receive messages anywhere provided the phone service is available [2]. Vmail is another service provider who provides emails through a phone and gives an option of even replying to the email using a phone [3]. These are not the only providers at present but we have just mentioned a few.

The power of JavaMail has made it possible to have all this technology available to us. Internet message Access protocol or post office protocols are the other technologies being used to achieve the goal of having e-mails read to the people.

III. BENEFITS OF THE SERVICE

The system has a lot of benefits, it is easy to use. It is meant for the blind and the illiterate and no educational limit. Retrieving Emails as Voice mails using an IP Phone anytime and it works like phone voice mail.

The internet is the cheapest mode of communication for those who will be sending the e-mails. The people who will be sending these messages wont have problems of internet in terms of accessibility and the other advantage is that their do not wait for those that there are sending information to be online. They can send as many e-mails as possible and the other side will also read all those mails in just one call.

The system will be deployed as a local system and can be easily managed. Even if the system is local it can access any mail server located in the world provided the mail server is connected to the internet and is enabled to use Internet Message Access protocol (IMAP).

IV. SYSTEM ARCHITECTURE

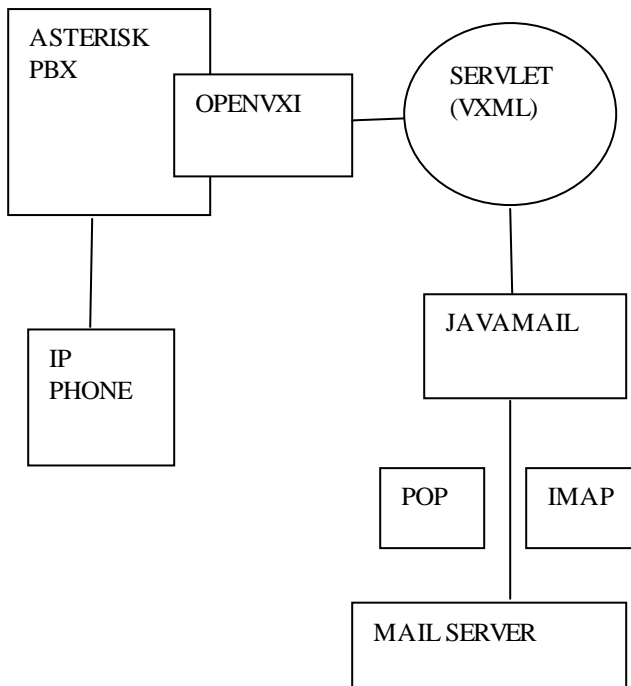


Fig1: Structure of the System

The Internet Protocol phone connects to the Private Branch exchange (PBX) which is capable of managing calls and receives information from the phone and send it to a servlet. The servlet authenticates the user by comparing the credentials provided with the credentials stored in a database. If the credentials are validated the servlet uses JavaMail to retrieve the e-mail of the user. The e-mail is written to the PBX in the form of voice extensible markup language (VXML) using hyper text transfer protocol (HTTP). VXML interpreter converts text to voice and the user get his mail in audio form [4]. In the case the credentials are not correct the user is requested to enter again otherwise he is requested to hang-up.

VXML has also become usefully to people without hands who can listen and respond [5]. The protocol makes it possible for them to communicate.

IMAP is used to retrieve the emails. It is an application layer that allows clients to access their email from remote servers. In other words it is an internet protocol that allows uses to access their email from remote servers [6].

Asterisk is an open source Private branch exchange (PBX) and since it is an open source you can modify to suite you own needs or desires. This is a telephone engine and telephony applications toolkit. With this you can take control of your communication you are able to stop incoming call and giving them feedback if the phone is busy.

OpenVXI is a portable open source and is one component of

a complete Voice extensible markup language platform. It has the capabilities of text –to-speech and also speech recognition above all telephony functions is available which a concern to us is [7]. OpenVXI is a portable open source Voice extensible markup language interpreter toolkit.

V. WORK TO BE DONE IN THE FUTURE

At present ,knowledge has to be gathered and issues to be addressed in the future is the issue of passwords .Security is of concern and passwords needs to be encrypted to prevent unauthorized access.

The prototype has to be implemented and to be tested at Fort Hare University and also looking forward to deploy it in the community for testing purposes and give feedback so that the system becomes helpful to the society. More information is still to be gathered to produce a system that is user friendly and useful to the society.

VI. CONCLUSION

We intend that the system will benefit both the unskilled and skilled rural users by offering essential and reliable assistance.

VII. REFERENCES

- [1] Chieko A., What's the web like if you can't see it?, *Proceedings of the 2005 International Cross-Disciplinary Workshop on Web Accessibility (W4A), May 10-10, 2005*, Chiba, Japan
- [2] Email2Phone[online]. Available: <http://www.email2phone.net/> Accessed 27/05/2009.
- [3] Vomail1.02[online]. Available: <http://www.softpedia.com/get/Internet/E-mail/Mail-Utilities/VoMail.shtml>. Accessed 27/05/2009.
- [4] Hamerich, S. W., Y.F.H. Wang, V. Schubert, V. Schless, S. Igel. 2003. "XML-Based Dialogue Descriptions in the GEMINI Project". *Proceedings of the "Berliner XMLTage 2003"*, Berlin, Germany, pp. 404-412.
- [5] Weinschenk, S. & Barker, D.T., "Designing Effective Speech Interfaces", 2000.
- [6] Crispin, M. "Internet Message Access Protocol – Version 4rev1, RFC 3501". March 2003.
- [7] Ainsworth W. "Speech Recognition by Machine Peter Peregrinus / IEE, London", 1988.

Chivese Langton received his Bsc degree from FortHare University, Alice. He is currently reading towards his Bsc (Hons) degree in Computer Science at FortHare University.