

Giving Voice to Discussion Boards

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ABSTRACT

Web based courses use a variety of communication media to make an on-line course more friendly, interactive and interesting. In this paper the authors explored the feasibility of adding audio and still images to the of Black Board Course Info Server (BB) Discussion Board, used at UNITEC for on-line and other courses. The standard text based communication primarily available is a dull learning process. However, augmenting text with limited video brings to life the on line learning process. The authors have studied existing voice and video conferencing tools. The implementation of audio and image capability into the BB is discussed here. PalTalk software was found suitable for the purpose of integrating the audio component. A software interface was developed to incorporate audio and images into BB. Students of Data Communication and Networks 2 course, who were undertaking Voice over IP (VOIP) assignment, used the new features for their group discussions on regular basis. A questionnaire was given to them to obtain the feed back on the usage of the added communication features. The outcome of the feedback is described in the paper.

KEYWORDS

Black Board Course Info Server (BB), Data Communication and Network -2 (DCN2), Voice over IP (VOIP).

1. INTRODUCTION

Web based courses use a variety of communication media to make an on-line course more friendly, interactive and interesting. In this paper the authors explored the feasibility of adding audio and still images to the of Black Board Course Info Server (BB) Discussion Board, used at UNITEC for on-line courses. The standard text based communication is very often a dull learning process. However, augmenting text with limited video would bring to life the on line learning process. Minoli in his book, "Distance Learning and Application" expressing his views about VOIP writes "it can be good for distance learning application"(1996). The authors have carried out studies of existing voice and video conferencing tools. The implementation of limited video capability into the BB is discussed here.

2. APPROACH

This paper is based on DCN-2 students that use BB for their VOIP group assignment. For the study, students were divided into groups of four to five students each. During the on line discussion photographic image of every student in the group was up on every ones screen. The image of the group leader was highlighted. The group made use of audio conferencing feature for their VOIP group assignment.

3. BACKGROUND STUDY

As part of this paper authors researched for currently available software packages in the area of VOIP. Some of these were MSN Messenger¹, DialPad², MediaRing³, and Microsoft's NetMeeting⁴, PalTalk⁵, VocalTec Inc. Internet Phone etc.

3.1 On-line Audio and Video Tools

Most of the software packages are quite general in nature and are aiming at broader audience. Some of them have instant messaging scheme and there are others that provide free or nearly free net telephone facilities basically between two parties. Better ones now come with video capability too. Video is an extremely powerful feature from the human angle. Several software empower the user with multipoint 'chat' option, file transfer, file share and whiteboard capabilities.

The telephone conversation over the net is not of a very good quality but since it is free or nearly free it is used by large number of Internet users. As per VocalTec press release (November 12, 1996) its Internet Phone allows up to 100 people to participate in an audio conference when used in conjunction with the VocalTec Conference Server. As a result of the market survey authors have narrowed down to two products that had similar features to what the project team were looking for, a live class room (one to many dialogue capability, besides other available functions). The software was NetMeeting and PalTalk. These are described here.

3.2 NetMeeting

Microsoft developed NetMeeting has very good conferencing features. One can download NetMeeting

developer's kit, which is a collection of sample code modules. A developer can modify and integrate the appropriate modules in his/her own software product.

3.2.1 NetMeeting has Following Features

- Placing calls: place call on multiple users. One can organise their own user groups and put them in customised directories.
- Receiving a call: if one is running a net meeting and is contacted, one can join the NetMeeting session.
- Sharing program: a person can share program with all other members of the group. If program control is given to other members of the group, other members of the group as well can see and modify the program.
- Whiteboard: everyone participating in the group can simultaneously draw and see on the whiteboard what others have drawn.
- Chat: chat is multipoint. One can type and all members of the chat group can see.
- Audio: for using audio, the individual should have a sound card, microphone and speakers. Sound quality will vary depending upon the sound card quality, CPU speed and other factors. Facility exists to Chat, whiteboard with many but one can make a voice call to only one person at a time. However, the voice chat here in is full duplex (like ordinary phone conversation)
- Video: with this option one can see the person with whom one is talking. This feature, like audio is applicable between any two users at a time.

3.3 PalTalk

PalTalk software can be downloaded from PalTalk.com site for free. It has some features, which are similar to NetMeeting. But there are some very interesting features too. It is quite easy to install and use. Some major features are described below:

3.3.1 Instant Messaging

It allows both one to one and groups to text chat as in NetMeeting. Besides sending text email, one can send voice mail too.

3.3.2 Audio and Video Conferencing

One can join an existing group or one can create a private group. Other members can join the group by invitation from the group administrator/leader if stipulated while creating the group or at their own behest. The need for a facilitator to moderate the audio or video conferencing session is considered important. This is in view of the hands free full duplex option proving difficult, as the configuration of TCP and UDP ports at the ISPs is largely out side the scope of the users.

4. INTERFACE DEVELOPMENT

To maintain consistency in the environment for study and the observation thereof the authors developed an interface to BB for audio and text conferencing with images. Use of an existing software package “PalTalk” with audio and chat conferencing features was made. Main features of the interface are discussed below.

4.1 Help

This feature basically describes how students can use the audio, text conferencing with imaging feature from the Blackboard course info server efficiently. The help is organized in three parts. First part covers configuration of PalTalk while the second and the third parts cover guidelines for conferencing and some suggestions for efficient use.

4.2 Loading and Installing PalTalk

The uniform loading and a common source of instructions for installing and configuring are with a view to maintain a consistent environment for the study across the student groups. This enables the authors to effectively analyse the observations of VOIP made by the student groups. The software packages used by the students were set up appropriately to enable the study of voice conferencing over IP by utilising all features given by PalTalk. After installation, registration of the software is essential for proper operation of software as this provides the authorization to use the software package and access of suport and updates.

4.3 Group Authentication

This covers the classification of students from the DCN-2 class undertaking the Voice over IP assignment project. Each group consists of 4 to 5 students. Authentication is incorporated to ensure the privacy of the audio and text chat conferencing for each group. The students using audio conferencing are given group password to enable this.

4.4 Database

A database was created to maintain student information details. It has group number, student name, and group passwords, group leader and student’s image fields. This database helps in easy accessing and updating of student data.

4.5 Images

The interface program also brings up images of all students in a specific group on to the desktops of individual students. The study could have included video conferencing but to keep the costs under control this was not attempted, as the students would need to purchase a video camera, and video-processing card for video conferencing. In addition to the above lack of a high-speed access at the students end would be a constraint for video conferencing.

4.6 Highlighting Group Leader’s Image

Group leader’s image is highlighted to give other group member the idea as to who is facilitating the session. The group leaders have a major responsibility since they have to ensure that meeting is conducted in a disciplined manner and every one gets a fair chance for putting across his/her views.

4.7 Starting PalTalk

Before starting of audio conferencing session all the students undertaking VOIP assignment are expected to have installed PalTalk on their computers under “C:/PalTalk” folder. The Interface program starts the PalTalk in individual member’s computer. Once every member has *signed in* the group leader invites the group members for the audio and text chat conference.

5. TESTING AND RESULTS

Authors tested the interface software before it was given to the students to ensure that it worked as expected and was easy to use. The software developed was uploaded on one of the UNITEC web server located in the DMZ (out side the firewall) so that students could remotely access the interface software over the Internet. The access to the Interface was enabled through an external link in DCN2 course on BB. Groups were expected to hold their audio and chat conferencing sessions regularly, for about an hour at mutually agreed time.

As a follow up on student's usage of the software, to obtain student feed back a questionnaire was given to the VOIP students. This helped the authors to consolidate the positive features and where required incorporate modifications. The results indicated the following outcomes:

- Students appreciated the audio feature
- It enhanced their learning
- They liked the image feature. It helped in association of a face to a voice
- Some of the students suggested that it would be nice if the person speaking is high lighted. (This feature was planned earlier by the authors and would be implemented in the next version.)
- Preference for simultaneous, both way voice (full duplex), instead of one way voice (half duplex).

6. CONCLUSION

This research was conducted to quantify the student's response to audio conferencing. Some of the questions were;

- Does audio improve communication?
- Does it enhance student's learning compared to text chat?
- Is adding image of the group member motivating?

The results of the research were quite encouraging. Majority of the students participated in audio conferencing frequently and enjoyed their discussion

very much. Their responses were very positive and indicated that it gave them better interaction and enhanced their learning. Group member's images was really a good idea, it is a shift towards human angle and not passive learning. Encouraging results of this research have motivated the authors to further their research in this area.

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