

E-Learning with Desktop Sharing

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Abstract - Today wide ranges of opportunities are provided by internet, and the blend of internet along with computer has brought some drastic changes in various day to day activities, especially in the field of education. This combination of internet and computer is reshaping the older learning system into new learning system known as "E-learning". This project presents the idea of E-learning that uses the networking technologies that help to provide a new teaching-learning experience. It intends to enhance the teaching experience by enabling sharing of teacher's desktop among students and also transferring voice of teacher over connected student's computer. This will aid the faculty to teach one particular concept to a number of students who are sitting in different labs and in addition to this, attendance of the students can also be maintained automatically. This project also aims at providing facility to all the connected students where they can submit their given programs and practical work done online. The application is going to be developed using Java programming language with the use of Java Swing, thus making our application robust, portable, platform independent and distributed. Thus, it is an inexpensive and efficient way to deliver a quality education that not only helps teachers to teach easily to a class of large number of students at once but also student's in submitting their assignments online. Our application can, not only be used in educational institutes but can also be used in various industries and organization for explaining various topics or demonstrating projects.

Key Words: Authenticate, LAN, VOIP, VNC

1. INTRODUCTION

As we know a teacher has to explain a program or a concept to the entire batch that may consists of large number of students. The problem is that teacher may not be able to explain it to all the students at once and thus the teacher has to teach repeatedly to a group of students.

This becomes a tedious job and it is also very time consuming because it may take a considerable amount of the lecture's time till the teacher explains the whole batch. So in order to save time and reduce teacher's efforts we propose an application to develop called "E-Learning with Desktop Sharing".

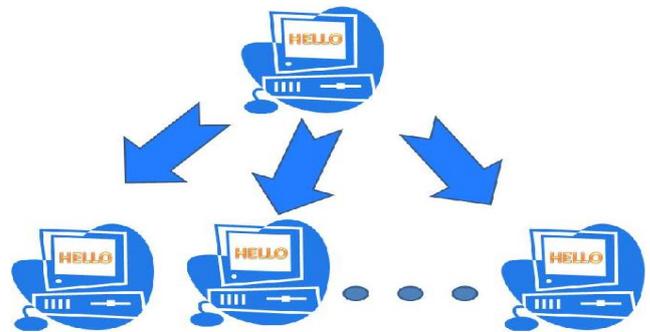


Fig -1: Desktop Sharing

In our application the teacher's desktop will be shared on each student's desktop. In this way teacher can explain the entire program or application in one go to all the students. All the operations that teacher performs on her desktop will be visible to all the students. So this reduces the efforts and time required for teaching. Moreover our application will also provide features like file transfer, remote shut down, feedback after lectures and also attendance management. This paper is sectioned into four chapters. The first chapter being the introduction itself, the second chapter explains the existing system. The third chapter explains the proposed system for e-learning. The fourth chapter being the last chapter of this paper concludes the topic along with the references.

2. EXISTING SYSTEM

2.1 RealVNC

RealVNC is a great application that enables you to remotely access and control your devices wherever you are and whenever you need. [1] In order to control one's desktop screen remotely, the RealVNC software provides a server and client application. RealVNC has a very large user set, from individuals to multi-national companies.

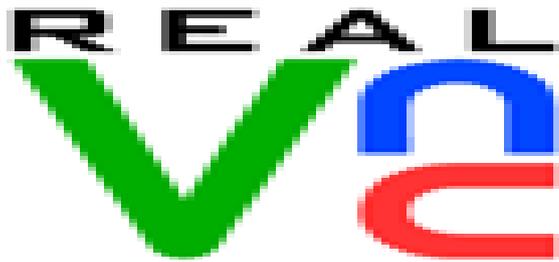


Fig -2: RealVNC Logo [1]

It has following limitations:

1. A major concern with RealVNC is setting up the software. RealVNC has a server and client component. In order to connect to the machine, a user will have to properly configure the server. Thus, RealVNC is not new-user friendly.
2. Features not available with free version:
 - 2.1 Printing: Enable connected users to print files directly to printers connected to their own computers.
 - 2.2 File Transfer: Enable connected users to transfer files in both direction, and also share with other users connected at the same time.
 - 2.3 Chat: Enable connected users to talk to other users connected at the same time.
 - 2.4 System Authentication: Authorize users to connect using the already-familiar credentials of their own user accounts on a computer.
3. Pricing:
 - 3.1 Open Edition: Available for free.
 - 3.2 Personal: \$30 (approximate Rs. 1916) per desktop.
 - 3.3 Enterprise: \$44 (approximate Rs. 2811) per desktop.
4. Voice over Internet Protocol (VOIP): RealVNC does not support VOIP for the computer machines of any platform.
5. Not useful for E-Learning: Lacks features like feedback and attendance management.

2.2 ScreenLeap

There are many applications that allow you to share your desktop with others, but ScreenLeap is a web application that simplifies screen sharing even further. One can use ScreenLeap without downloading and installing anything or even without signing up for an account. A user can

share desktop with as many people the user wants at free of cost.

In order to use ScreenLeap, user has to grant service permission to run ScreenLeap on the browser. The service is completely set-up free and user have to just visit website of ScreenLeap and click "Share your screen", and it is done, the screen can now be shared. This process will generate a link which can be shared to others to whom the user wants to share the desktop screen. This link will be active only till the screen sharing session is active. [2]

screenleap

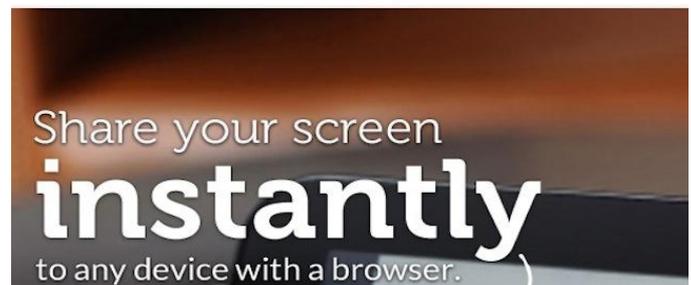


Fig -3: ScreenLeap Logo [2]

It has following limitations:

1. No File Transfer option available.
2. Entirely based on internet, if internet is down or not working then ScreenLeap fails to work. Thus, ScreenLeap does not operate over Local Area Network.
3. Free version does not support VOIP for the computer machines of any platform.
4. Does not support feedback for the lectures.

2.3 TeamViewer

TeamViewer is a software application used essentially for remote control and desktop sharing, online meetings, web conferencing and transfer of files. To start the connection and the routing of traffic between the local client and the remote host machine, TeamViewer uses one of the servers of TeamViewer.com in default configuration. [3]



Fig -4: TeamViewer Logo [4]

The machines should have TeamViewer running in order to connect to another computer. Administrator access is required to install TeamViewer, but once installed it can be run by any user. On running TeamViewer program, it provides an option to enter partner ID and password. Entering ID and password are mandatory to establish a connection between the computers. The user that wants control of another user's machine requires another user's ID and password. The presenter can give the Meeting ID to all the users intended to be the participants for the meeting.

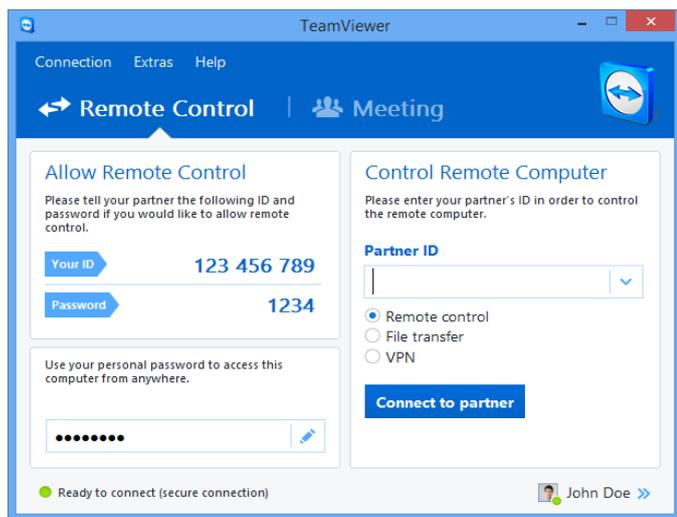


Fig -5: TeamViewer Main Window [4]

It has following limitations:

1. Business packages are quite expensive to buy and Various Features are not available in Free Version of Software.
2. After using the software for around 5 hours, you will get disconnected and not be allowed for some time so it becomes difficult for remote support.
3. The program needs a high speed continuous Internet connection, otherwise it would be troublesome and frustrating to use.
4. Not suitable for Educational purpose, not user friendly.
5. Pricing: Business – Rs.28, 500, Premium – Rs.57, 100 and Corporate – Rs.1, 43,100

The next chapter provides a brief overview of the proposed system for e-learning.

3. PROPOSED SYSTEM

Our project is motivated by the idea to provide a learning environment which utilizes the potentials of the Networking Technologies [5]. It overcomes various limitation of existing system mentioned in above literature review make our system suitable for teaching purposes. Our work proposes a peer-to-peer remote access laboratory architecture where participants are teacher and student. All the system is tied to a local area network

that allows direct access to teachers' terminal from student terminal.

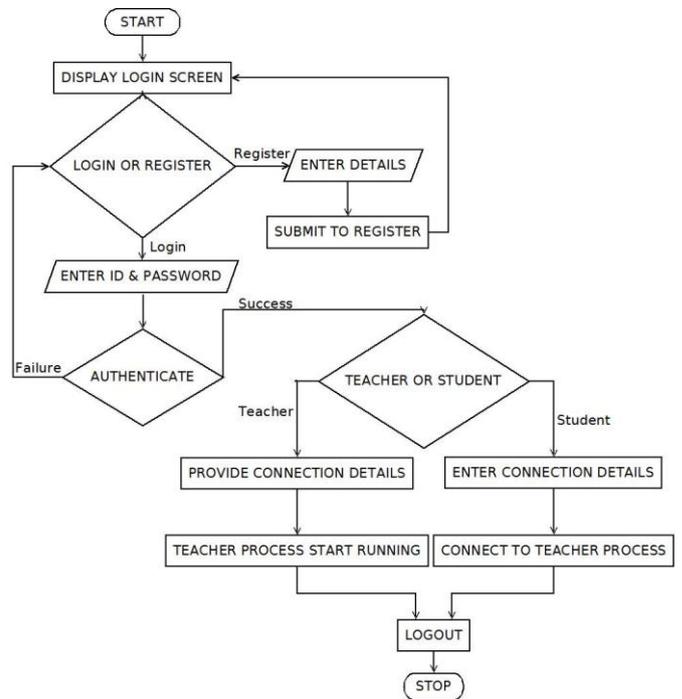


Fig -6: Work flow of proposed system

The proposed features are:

A. Desktop Sharing

Desktop sharing will enable the teachers to explain the concepts and diagrams to the students from teacher's computer itself. All the students would be able to view and learn this right from their own computer.

B. Voice Over Internet Protocol (VOIP)

The VOIP feature will transmit the voice from teacher's computer to each and every student's computer. Thus, a teacher can explain the concepts to students by speaking on his/her computer that would be audible on all the student's computer in the network.

C. Program Submission

Once the students have created the code for the program, they can submit it to the teacher by using this feature. Thus, the teacher can receive the program from all the students in the lecture. The teacher can then evaluate the programs and come to know what mistakes a student has made or how much they have understood the topics that are explained.

D. Remote Shutdown

After the practical lecture, the teacher can remotely shutdown the computers which students many times forget to do and the computers are therefore left turned on. This feature helps to avoid such situation where the teacher can remotely shutdown the computers simply

with a few mouse clicks, thereby preventing the wastage of electricity.

E. Attendance Management

In any lecture, attendance is very much important. This feature will help the teachers to mark attendance of those students who are present and connected to the teacher's computer. The proposed system also aims to provide a monthly report on the student's attendance.

4. CONCLUSIONS

The aim of this project is to develop a peer-to-peer system that can be used by teachers to teach many numbers of students at once. The design philosophy of the system is to develop an easy to use, scalable peer-to peer desktop sharing system. We intend to develop this application using Java, thereby developing a portable and platform independent software. Thus, teaching in practical lectures can be made much easy and time saving with the help of desktop sharing, explaining with voice over IP, determine how much the student has understood by evaluating the programs that they can submit using the program submission feature and also manage the class attendance using this intended software. The proposed application will work for each and every single practical lecture within a Local Area Network with no need of an active internet connection.

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