Virtual Classroom

Vicky Bandal[1], Sunil Bharti[2], Rahul Jaiswal[3], Abhishek Mishra[4], Prof. K.Jayamalini[5]

[1,2,3,4,5]*Dept. of Computer Engineering, Shree L.R.Tiwari College of Engineering, Mumbai, India*

Abstract— India is one of the developing countries which consist of lot of Human Resources and it is a Second highest country in terms of best Human Resources which are available to all parts of the world. India is competing in terms of Science and Technology and trying to produce the best Human Resources to country in all fields of Arts, Science, Management, Technology etc. Even though it stand's second largest country in population, still it is very behind in terms of Economics and Finance. India Government has the aim and a proposal to give "Education for all" as a spirit of India constitution aim to educate all . So the next alternative is e-Learning and Distance Education Systems. So we proposed virtual classroom system that focuses on collective learning between students and tutors at different locations. The various components of the system allows students to involve in group activities and collaborate with instructors in a commonly shared windows on which text, audio or video objects are added and distributed online

Keywords—Virtual classroom, Online Lectures, Whiteboard, Desktop sharing, Live Chatting, Live Video Conferencing.

I. Introduction

Virtual Classroom represents an innovative shift in the field of learning, providing rapid access to specific knowledge and information. It represents an interface between the students and a professor and provides personalized learning materials to the users. It offers a possibility to the attendees to share different resources at once and work with them as if they were at the same place where resources are actually present.

In the system design, agents are used as entities that work on different tasks in the system. A set of agents of the same type is incharge for handling different users and their requests. The cooperation among agents is established through the act of exchanging messages. A wide variety of classroom techniques are being advocated to increase learning: active learning, association, integration of assessment and feedback.

Education will change tremendously within the next few years. The significance of life-long learning and life accompanying education raises the need for new ideas and learn technologies.

Developing a virtual learning environment to encourage a greater count of students to excel into the field of education. It accommodates the benefits of a physical classroom with the ease of a 'no-physical-bar' virtual learning environment, not as much as the commuting hazards and expenses. It will user in the huge flexibility and complexity in the existing learning platform structures, with the perfect arrangement of synchronous and asynchronous interaction. It provides a means of two-way learning for the students

A. Virtual Classroom System

The main objective of the project 'Virtual Classroom System' is to provide online lectures, examination, study material, etc. This system provides various scopes to its users as listed below:
1. Students can choose courses, attend lectures, take exams, etc as per their convenience.
2. Registration for multiple courses.
3. Attend lectures either at the scheduled time or on demand to view lecture at a later time.
4. Faculties can take lectures and also can upload lectures and other discussions in various formats as in videos, shared and interactive whiteboards etc.

5. Asynchronous communication in the form of Emails, chat boards that allow communication to occur at "convenient times" that suit student schedules and are not accessed at real time or before arranged time.
6. Users must have valid User ID and password to login thus creating their individual profiles.
7. Discussion between students and professor through video conferencing and chat room.

II. Existing system

Education has been accomplished across the world in idea buildings by carefully disciplined and standardized classes of students and teachers. This has a substantial effect on both the teacher and the learner. For example, education is implicitly limited only to those who could be in the classroom and follow the teacher strictly with the pace by which he presents his class without fail. inhabitants outburst and mass educational system in every region of the world brought big challenges to this method of education. For time being, there is problem of inadequate number of human and material resources to provide for the education of the large population. The population of school age citizen in most places has grown enormously to the extent that only a small percentage can be offered admission. The student – Professors and student classroom ratios have raise to the point that teaching and learning in the classroom have been less efficient . The field of education therefore provides the most interesting application of computer system, which has consequently attracted considerable concentration from educationists and policy makers since the late 1960s when computers were introduced.

A. Drawback

➢ It is necessary to have an instructor to have effective writing and speaking skills.
➢ Students lack Focused Learning.
➢ Students lack Emphasis on Critical Thinking.
➢ Students lack Process Oriented Learning.
➢ Students lack Interactivity.
➢ Scheduling Conflicts. Space complexity, etc.

III. PROPOSED METHODOLOGY

The proposed system prescribed in this project is to create a virtual environment for the classroom. So that various problems belonging to traditional methods overcomes.

A. Virtual classroom

Here students and professors can register himself and given a unique id and password. Students can choose any courses, attend lectures, take exams, etc as per their convenience. Attend lectures either at the scheduled time or on demand to view lecture at a later time .Faculties can take lectures and also can upload lectures and other discussions in various formats as in videos, shared and interactive whiteboards etc .students can give their exam and results will be provided to them. Asynchronous communication in the form of Emails, chat boards that allow communication to occur at "convenient-times" that suit student schedules and are not accessed at real-time or before arranged time.

B. Online lectures

Professors and students both can participate in the lecture in the remote areas .Professors can upload their lectures from any corner of the earth. Student can access these video supplement using their id and password.

C. Whiteboard

The Virtual Whiteboard for incorporated online learning. The Whiteboard is a shared drawing space. Anything drawn here will show up concurrently in the Whiteboard area is where everyone can log into the Virtual Classroom. For example, an electrical engineering mentor and his students might collective work on circuit diagrams in the Whiteboard

D. Live chatting

Here professor starts his/her application. Students connect to professor through server. Professor and student starts capturing video then both starts sending data. This data first appear at server side and from server it will be send to both professor and students connected to server. Now both professors and student's video will appear on each other's screen and audio can be listen simultaneously. Multithreaded Socket Programming is the basic idea behind a TCP Chat Server communication. In the earlier section Multithreaded Socket Programming we can see a Multithreaded Server Socket Program communicate with more than one Client at the same time through the various ports.
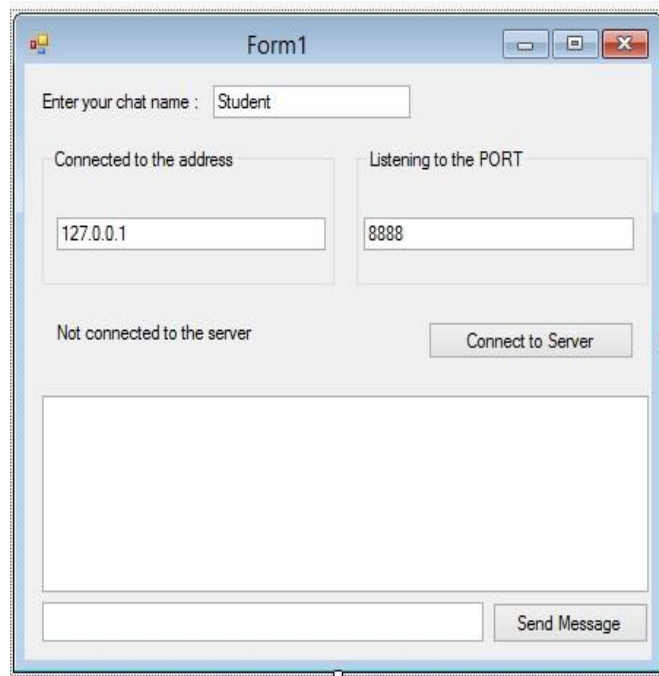
E. Desktop sharing

Here professor can get the screen shot of the students desktop He can notice students activity in the practicals.
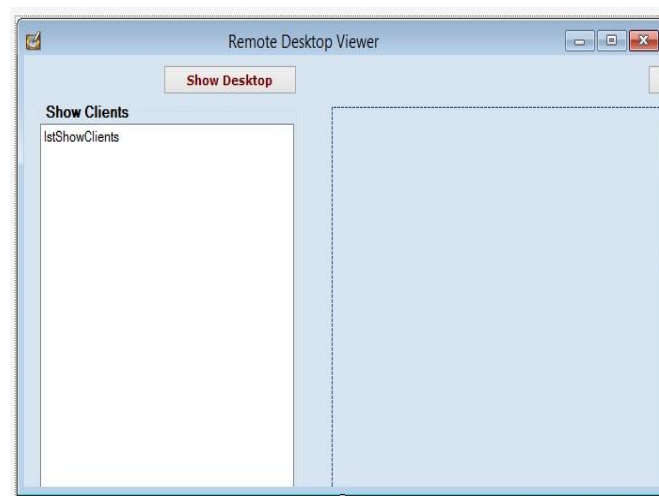
Live Video Conferencing Here professor starts his/her application. Professor start capturing video then it sends data to server and server will send data to all students who are currently connected to server. Professor video will appear on students screen and audio can be listened simultaneously.

IV. Advantages

A. Global Reach

More organizations can use virtual learning to bring individuals and teams together for learning events in an increasingly global business environment. The ability to easily connect people and trained them in the similar virtual classroom is one of the main benefits of the increased use of virtual learning. Even user benefits from the technology's reach. Learning sessions may be conducted just as easily whether the student working from home, office, or any other appropriately equipped location.

1. Time and Travel Savings Clearly, virtual learning kill the costs related with traditional classroom learning events, such as travel operating cost (airline flights, car rentals, hotel rooms, and meal expenses). For example, if 20 employees need to fly locally to attend a three-day learning event at a cost of $1,000 each for travel, hotel, and meals, an organization would save $20,000 by deliver the training virtually as a series of short sessions. Costs associated with workflow interruption and lost productivity are also kill, since participants join virtual classroom training from their workplaces or home offices. At the same time, virtual training is an efficiency "force multiplier" for facilitators, since they spend more time leading training and less time traveling.

2. Environmentally Friendly Since virtual classroom training kills the need for air and automobile travel, it's an environmentally friendly alternative to traditional classroom training in which participants and facilitators are geographically dispersed and must travel to the same location. Airplane and automobile emissions are the biggest polluters related to workplace learning. In addition, because training materials may be distributed electronically, virtual training saves paper and, by extension, trees that would be lost by printing materials. For organizations looking to demonstrate their commitment to "green" alternatives and their focus on reducing their carbon footprint, the virtual classroom is an efficiency and public relations win-win.

B. Chunked Content

According to a research a distributed approach to learning when apply to learning then training is delivered as a series of shorter events with time in between, increases learning transfer by 17 percent over a one event. Setting up a chain of in-person events for such chunked delivery is often an unrealistic design option, especially if participants are physically isolated However, virtual classroom learning is perfectly suited for delivering a specialized learning environment.

V. Conclusion

This web application will make education system much more convenient and simpler.

In this website administrator registers students and professors. Student pays fees for a registered course. Student can attend live lecture on a scheduled time or later on can view lecture video as per his/her convenience. Live lecture can be in form of shared whiteboard. Student can give examination and at end of examination scores will be displayed. Professor and students of a course can discuss various queries through video conferencing and chat rooms.

Project has been developed using ASP.NET, C# and MSSQL SERVER 2005. .NET is most efficient technology to build Website. Microsoft Visual Studio has good compatibility with the Microsoft SQL SERVER.

References

[1] "Virtual Classes". CaesarJ Programming Guide. Technische Universität Darmstadt. 200602-10. Retrieved 2007-07-30

[2] Zhang, Z., He, A., Wei, D. (2005) "A Mobile Teleconference System for Homecare Services·,2005. IEEE-EMBS 27th Annual International Conference of the Engineering in Medicine and Biology Society, 01-04 Sept. 2005, Pp:3935- 3938.

[3] Alexander, W., Higgison, C., & Mogey, N. (Eds.). (1999). Videoconferencing for teaching and learning: Case studies. Edinburgh, UK: Heriot-Watt University. Retrieved from http://www.icbl.hw.ac.uk/ltdi/ vcstudies/vcstudies-all.pdf K. Elissa, "Title of paper if known," unpublished.

[4] Quillen, I. (2010, April 28). E-learning delivery debated. Education Week, 29(30), p.   S5.   Retrieved   from http://www.edweek.org/ew/articles/2010/04/28/30edtech_daily.h29.html.

[5] http://www.authorstream.com/Presentation/tonyjha161-1933574advantages-disadvantages-virtual-learning-eenvironment/.

[6] https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cdractive_whiteboard&usg=AFQjCNGIggjpZ Fd2b6OlhMjuqmDzLULHV g&sig2=FxQy7yhVwQQV5bBYjtgTiA&bvm=bv.115339255,d.c2E