

KAKSHA - THE WIRELESS E-CLASS ROOM

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Introduction

In this ever changing world, technology has influenced our lives in a big way. It has crept into every aspect of our lives right from the way we cook food to the way we communicate with each other. But somehow, it has failed to revolutionize our class rooms / teaching system.

Virtual Classroom is an attempt to change our conventional classroom / teaching system and try to break free from the restrictions put forth by the conventional classroom.

Kaksha – The Virtual Classroom has a central system to which users (teachers and students) login. Each of the users and their respective location addresses in the network (IP address) will be recorded in the central application, “*Kaksha-Mandala*”. Here, an administrator can login and create or remove users. The Teacher uses his application, “*Kaksha-Adhyapak*” to log into the central server. The class then starts and “*Kaksha- Mandala*” will update its list of online classes. Each of the students will use “*Kaksha-Vidyarthi*” to log into the central server and access any of the available online classes. Then based on his choice, a direct link is established with that teacher and the student begins to receive the lecture.

Objective

To transform conventional classrooms to virtual classrooms using the power of wireless networks.

Problem Statement

The lucrative IT sector has led to the shortage of academic professionals in educational institutions. To make teaching an opportunity to explore advancements in information fields the system needs to incorporate IT like standards in education.

Proposed Solution

Create a completely wireless network across various colleges, which serve as a medium to broadcast lectures taking place at one point and unify all classrooms. The *Virtual Classroom* allows subscribers to access a wide range of classrooms

through an online system. Being a completely wireless system, it provides the functionality of enabling any terminal within the range of transmission of the router to access the broadcasted content.

Methodology

The complete package of Kaksha- The Virtual Classroom has been developed keeping in mind the tradeoffs involved in using Wireless networks. This application has been designed to use TCP for transmission of messages, video, files and PowerPoint presentations, and UDP for transmitting audio and whiteboard data.

The control flow in Kaksha – Adhyapak is as shown below:

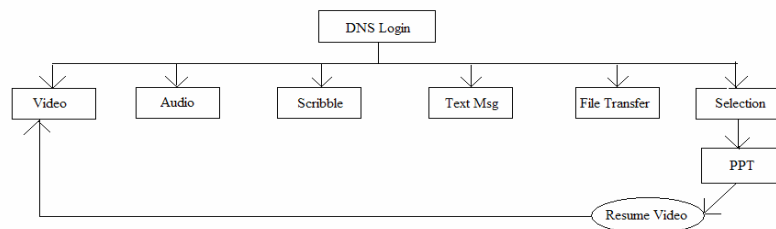


Figure 1: Control Flow in Adhyapak

The control flow in Kaksha – Vidyarthi is as shown:

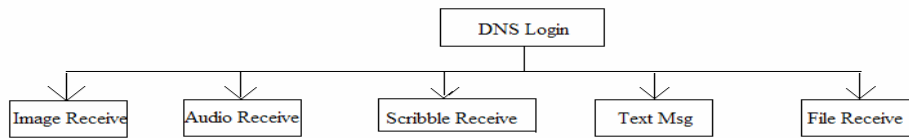


Figure 2: Control Flow in Vidyarthi

Various building blocks of the application, were analysed. The following block diagram shows how these components can be used to setup a virtual classroom.

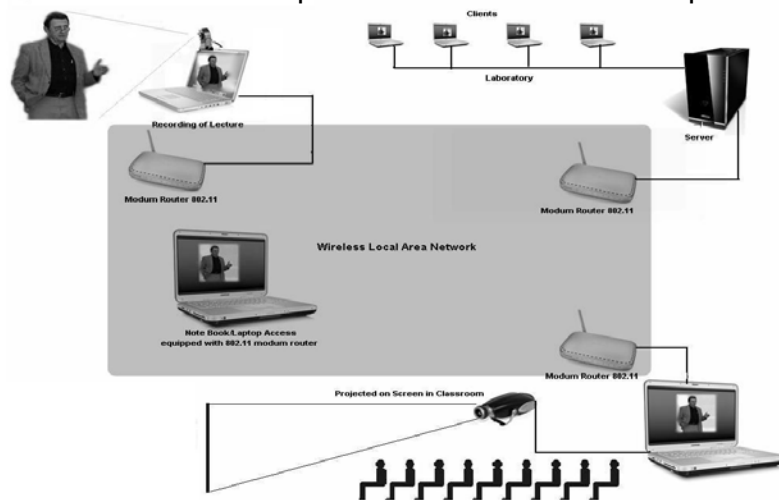


Figure 3: Basic block diagram of a Virtual Classroom

Conclusion

When used as a teaching tool to supplement the traditional classroom, elements of the virtual classroom can indeed be beneficial to both students and teachers.

There are benefits to teaching and learning via a wireless communication technology as well as the traditional method. So, rather than choose one over the other, it is recommend to combine the best aspects of each in order to create a setting which is most conducive for students learning how to think and write.

Future Enhancements

This application can further be programmed to use UDP for transmitting video, messages and powerpoint presentations. As we have developed this application to work in wireless networks, it can be further upgraded to work when WiMax is introduced.