Classroom teaching using tablet PCs

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Abstract

Considering the increasing class sizes and rapidly improving technology, the use of handheld devices, e.g. tablets can add great value to classroom teaching. This project aims at introducing the use of tablet PCs in the classroom for the purpose of teaching and learning and to replace the traditional whiteboard based teaching system with this new system. This document describes the architecture and database of the proposed system.

Architecture of the system

The proposed system will work on the classical client server architecture. There will be a central server and different clients for teachers and students. During any lecture, the server will maintain the session information of the teacher and all the students. Initially, each client will exchange login request and response message with the server. After establishing the session, there will be different sets of messages exchanged between the server and different clients. The teacher will send the teaching data continuously to the server and the server will forward this data to all the students present in the class. When the teacher activates the monitor mode, thumbnail view the screen of each student will be sent to the teacher via the server. When the teacher activates the sharing mode, the teaching data will be transferred from the specified student to all the remaining students and the teacher. Whenever a student asks a question, this data will be transferred to the teacher via the server. The architecture is shown in fig. 1

Database design

The system will have all the basic features of classroom management including managing students, teachers and courses. There will be an Admin account which will create accounts for all the students and teachers. The admin will also create different courses. Based on this, different tables will be created in the database. There will be a student table which will contain the name, username and password for each student. For security, the passwords will be stored in md5 hash format. Similarly, a teacher table will contain the information of all
the teachers. There will be a course table which will contain the details of all the
courses offered. Upon addition of any course, a separate table will be created
for that course, which will store the details of all the students who chose that
course. There will be separate tables for all the students and teachers storing
the details of their courses. The database design is shown in fig. 2

Figure 2: Database design