Tablet Pc Based Classroom

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Abstract

Due to its ergonomic design and user-friendliness, tablet PCs have started to be used in education. The Turkish government will provide tablet PCs to all students in primary and secondary educational institutions, under the project called "Fatih Project". In current practices, students have been using tablet PCs to perform tasks such as document reading and note-taking. A more effective use of Tablet PCs in classroom environment will facilitate educational activities. This study presents the methods and scenarios which have been developed for more effective use of Tablet PCs in a classroom environment. The paper also mentions how a teacher can take attendance, administer oral examinations, give quizzes and share the computer screen through the network established by tablet PCs.

1. Introduction

There are many studies on the usage of Tablet PCs in education presented in the literature (Anderson et. al., 2004, Bonastre et. al., 2006, Oh and Gwizdka, 2010, Osman, 2011, Hulls, 2005, Mock, 2004). These studies show that Tablet PCs can be used as a tool for grading, preparing lectures, and delivering classroom presentations. Again, many studies have shown that the usage of Tablet PCs in education has a positive effect on students, teachers and the learning process (Prey, 2006, Aydemir, Küçük and Karaman, 2012). This study presents the methods and scenarios which have been developed for more effective use of Tablet PCs in the classroom environment. The study also mentions how a teacher can take attendance, administer oral examinations, give quizzes and share the computer screen through the network established by tablet PCs.

2. Tablet Pc Usage Scenarios in Classroom

The project which has been developed for more effective use of Tablet PCs in a classroom environment has four different usage scenarios. These scenarios are: taking attendance, administering oral examinations, giving quizzes and sharing the computer screen.
2.1. Taking attendance

Taking attendance is a process done by teachers in order to document student attendance at lectures. Taking attendance of an average of 45 students takes about 5 minutes. This results in hours of wasted time throughout the entire school. Taking attendance can be completed in a few seconds with the Tablet PC project being developed. As shown in Figure 1, the list of students who have joined the network can be seen at the teacher’s computer. When the teacher pushes the “Take Attendance” button, a student list is saved to the database. Thus, taking attendance is quickly completed.

2.2. Administering oral examinations

Oral examinations can be done easily with the project being developed. When the teacher pushes the “Oral Examination” button located next to the student's name, the student’s tablet PC screen will be transferred to the teacher’s computer in real time and will then be reflected on the board by the projector (Fig. 1).

2.3. Giving quizzes

Quizzes are exams that instantaneously measure lesson participation and attention of the students. Quizzes can be done easily with the project being developed. When the teacher pushes the “Give Quiz” button, two text boxes will appear on the screen, which can be used to write the question(s) (Fig. 2). The question(s) will be sent to the students' tablet PCs when the teacher pushes the “Start” button. Finally, when the teacher pushes the “Finish” button, the students' answers will be collected by the teacher’s computer and saved to the database.

2.4. Sharing the computer screen

If a teacher uses slides for the lesson, he or she can share these slides with the students. However, students should take notes on what the teacher has written on the board; however, sometimes it can be a bit difficult to take notes on what the teacher has written, and can cause a waste of time. The teacher’s computer screen can be shared with students easily with the project being developed. So, students will be able to note what the teacher has written on the board perfectly. Additionally, in the absence of a projection device, screen sharing may serve as a substitute. Teachers will only need to push the “Share Screen” button to share the screen (Fig. 1).

3. Technological background

Infrastructure networks are the networks which are established by using a device such as the access point. Ad hoc networks are the networks established between computers without an additional device. Ad hoc network installation is preferred in the project being developed due to its low cost, as well as its ease of use and installation. A new network is established for each lesson and terminated at the end of the lesson.

Samsung Galaxy Tab Tablet PCs are used in the project. Normally, these tablet PCs can connect only to infrastructure networks. The device driver software has been updated to connect to an ad hoc network. Finally, all students’ tablet PCs can connect to the ad hoc network established by the teacher’s computer.

Teacher site software interface and background software that allows data transfer between computers have been recently used. Teacher site software interface is developed with web-based PHP language. MySQL database is used to store attendance records and quiz results. C++ programming language and WinPcap network library is used to develop background software that allows data transfer between computers.
TABLET PC BASED CLASSROOM (V. 1.0)

Figure 1. Teacher site software interface

Figure 2. Teacher site software interface (Quiz)
4. Conclusions

User habits have changed rapidly with developing technology. Mobile technologies have become an important part in our lives as a result of this change. Accordingly, the use of mobile technologies in education will have beneficial outcomes. This study discusses the project being developed for more effective use of Tablet PCs in classroom environment. When the project is finalized, many conventional methods will be automated. This will increase the productivity in education by preventing the unnecessary waste of time.

References


