Chapter IV

Ubiquitous Computing Applications in Education

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Abstract

With the development of technology, new roads have been opened in education. An interesting idea is to use computers in teaching and learning procedure. Students will have the opportunity to gain access to information resources in a timeless and limitless way. Teachers will be able to transform their classes in a student-centered environment, avoiding the drawbacks of the traditional teacher-centered model. In this direction, ubiquitous computing has significant advantages. Ubiquitous means that computational devices are distributed into the physical world, giving us boundless access to communication and information channels. Now, knowledge can be built based on collaboration, communication, experimentation, and on students’ experiences. Research has shown positive impacts on learning. This chapter deals with issues directly connected to ubiquitous computing, such as its features, types of devices used, and pedagogical goals. The advantages and disadvantages of ubiquitous environments are fully examined and some initiatives are referred.
Introduction

New technologies have brought many changes in teaching, and of course in learning. Traditional classrooms are being transformed in order to utilize the advantages of the technology.

Ubiquitous computing (also known as “Pervasive,” “Ambient,” “1 to 1,” or “one to one”) is about distributed computing devices in the environment, with which users are able to gain access to information resources. These devices can be wearable computers, or sensors and computers embedded in everyday objects. On the other hand, ubiquitous computing involves the necessary infrastructures needed to support pervasive computing applications.

Ubiquitous computing integrates technology into the environment, giving the opportunity to users to utilize it anytime and anywhere. It differs from traditional systems where the user is bonded to a computer in a specific place. Now it is possible for a user to utilize the technology without the restriction of place or time.

Ubiquitous computing may provide significant advantages in the application domain of education. It can offer continuous access to a wide range of software, or the Internet, to all students, as well as teachers. As we will see below, the main targets
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