Chapter XXIII

Instructor Mobile Audience Response System

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Abstract

This chapter describes a new class of audience response systems: an instructor mobile audience response system, or IMARS. While the typical ARS features mobile data entry devices in the hands of students and a desktop console for the instructor, the IMARS features a mobile device for the instructor and almost any device with a browser for students. The ClassInHand™ software, developed at Wake Forest University, is an example of a prototype IMARS system. It has the principal benefit that the system frees the instructor from being tethered to a desk during class, by turning a wirelessly connected PocketPC into a mobile teacher console. This chapter describes the basic components of an IMARS system, and discusses how it has been used in an educational setting.
Introduction

The instructor mobile audience response system is a new concept that is based upon the standard features of an automated response system. Existing literature deals with either the ARS aspect or the mobility aspect, but not both. Our adoption of the ARS model is based on the teaching methods of Dr. Eric Mazur at Harvard, in which he describes the “ConcepTest” (Mazur, 1997), a multiple-choice question designed to uncover misunderstandings of a particular concept. As stated in the newsletter of the Vanderbilt University Center for Teaching (Fall, 2002): “One reason Professor Mazur’s teaching model receives so much attention is that he focuses not on ‘coverage,’ but on ‘uncoverage.’ The term ‘coverage’ refers to the familiar process of covering the contents of a course. ‘Uncoverage,’ by contrast, refers to the process of surfacing common misconceptions, and enabling students to see how complex ideas in a discipline or course fit together.” Audience response systems facilitate the concept test, and this teaching methodology.

What’s new about IMARS and ClassInHand™ is the focus on mobility for the instructor, a factor that is important to many faculty members who use the classroom as a theatre for student engagement. Most response systems require the instructor to be anchored to a console or display station in order to execute and analyze the response activity. Simply using a “mobile” laptop computer, rather than a desktop computer, does not free the instructor from the necessity to return, at regular intervals, to the teacher station to manage the system. While the laptop promised mobility for instructors and students, in the context of the classroom, it resembles a fixed computing solution. Others (Cain, 2003) have described the laptop as “luggable” rather than portable, and it certainly is not portable when acting as a response system that requires connectivity to a projector, network, or to special-purpose response systems. The IMARS moves the instructor interaction and control to a wireless PocketPC, a truly mobile device.

McLaughlin (2001), at West Virginia University, predicted: “Over the next couple of years, we should see a convergence of the PDA, wireless networking, and a broad array of useful PDA software. With this convergence the PDA will likely become a general-purpose information appliance, smaller and more portable but otherwise filling the same function as the PC. It will probably become an indispensable tool for students, faculty, and administrators in higher education.” This convergence began on the Wake Forest University campus in 2001, and accelerated with major improvements to the campus wireless infrastructure in 2004 (Dominick, & Bishop, 2003; Fulp, & Fulp, 2003). In addition, improvements in the PDAs themselves, particularly with the inclusion of embedded Wi-Fi and improved battery life, opened new possibilities to instructors for in-class experiments. With the increased acceptance of laptop computers as a standard student technology asset, general-purpose response systems that are Web-enabled become more important. In a ubiquitous computing environment, such as was available for the researchers at Wake Forest University, any classroom becomes an IMARS classroom instantly, with the simple addition of wireless networking and a PocketPC for the instructor.
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