Title	A mobile quiz platform to challenge players' knowledge on mobile devices
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A Mobile Quiz Platform to Challenge Players' Knowledge on Mobile Devices

Abstract: Many new mobile technologies including the 3G, WiFi or mobile TV have opened up unprecedented learning opportunities on mobile devices. In addition, such technologies empower the rapid growth of new fields of research like the edutainment for educational entertainment. In a project awarded by the Hong Kong Wireless Development Center, we developed a mobile quiz game system on 3G mobile phone networks in China, Hong Kong or other countries to facilitate learning anytime and anywhere. Our developed mobile quiz system is so generic that it can be readily extended to any wireless network. In this paper, we discuss about the design and possible uses of our quiz system in mobile learning, and also share the relevant experience in system development with the evaluation strategies carefully examined. In 2008, our project also received the Bronze Award of the Hong Kong ICT Awards – Best Lifestyle. After all, our work shed light on many interesting directions for future exploration.

Introduction

New telecommunication technologies or services, such as the High-Speed Downlink Packet Access (HSDPA), IEEE 802.11 based products or mobile TV, are reshaping our living. With the availability of powerful mobile devices connected to a high-speed wireless network, many attractive mobile learning applications [3] realizing the concept of learning anytime and anywhere that can be particularly useful for students to continue learning at home during the outbreaks of new pandemic such as the SARS or lately swine flu in recent years, and actively sought the world-wide attention of educators, students, lifelong learners or professionals in various disciplines. Among many successful applications, the Cellphedia [1] is a Mobile Social Software (MoSoSo) developed in the United States to promote the sharing of knowledge.

In response to a call for applications on the China's 3G network by the Hong Kong Wireless Development Center in 2007, we developed a mobile quiz game platform based on the concept of game rooms with real-time synchronization and the client-server model targeted for a mass of thousands of players participating in any specific event of the Beijing Olympic Games 2008. In addition, our project also received the Bronze Award of the Hong Kong ICT Awards – Best Lifestyle in 2008. Our mobile quiz system is so generic that it is transparent to the underlying network architecture, and can be easily extended to the WiFi or other wireless network. We discuss in detail about the design and possible uses of our quiz system in mobile learning, and also share the relevant experience in system development with the evaluation strategies carefully examined. After all, our project shed light on many interesting directions for future exploration.

This paper is organized as follows. Section 2 details the system architecture design of our mobile quiz system on 3G mobile phones or other mobile devices. Section 3 considers various evaluation strategies on our developed quiz system based on different criteria. Lastly, Section 4 summarizes our work and sheds lights on future directions.

System Architecture and Services

The system architecture of our revised mobile quiz system is shown in Figure 1. Basically, our mobile quiz system includes the following components:

1. Mobile Learning Platform Server;

2. Administration Console Portal;
3. Result Display Unit.

Figure 1: The System Architecture of Our Mobile Quiz Platform

After registration and successful login, the Mobile Learning Platform Server will push some relevant questions, possibly embedded with some video clips, for the user to answer on any mobile devices including the Sony PSP gaming device. The server will only display the correct answer for each round only when all the answers are received from the registered mobile phone or timeout occurred. The Administration Console is to monitor the activities of individuals or groups of players, and the network traffic. Besides, it provides an interface for the administrator to dynamically enter new question sets into the question bank online. The Result Display Unit is mainly to display the latest results/scores attained by the players, and more importantly the statistics of choices such as correct versus wrong answers selected by the players that should be useful for an instant analysis on the spot.

Prototype Implementation & Evaluation

To demonstrate the feasibility of our proposal on different platforms, we used the Java 2 Micro Edition (J2ME) technology to build our mobile quiz system containing various game rooms running on a Mac server that can be accessed through any J2ME-enabled 3G mobile phones. We spent around 4 man-months to complete the implementation and testing of our mobile quiz system. A project website [2] was set up to allow the downloading of a client program (.jar) for installation on any mobile devices to access our mobile quiz system as shown in the picture below.

Figure 2: Students from 18 schools are using our mobile quiz platform in a local school contest

As our mobile quiz system is generally applicable to any selected event or course, a detailed evaluation will be conducted in the late 2009 to analyze the effectiveness of the mobile quiz system on motivating and/or enhancing our students' experience in relevant Engineering courses including the Human-Computer Interaction or Distributed Computing Systems.

Conclusion

In this paper, we reported a completed project in which we have successfully developed a 3G or WiFi based mobile quiz system to facilitate learning/revision anytime and anywhere. Our developed mobile quiz system is so generic that it can be readily extended to any wireless network. The design and possible uses of our quiz system in mobile learning, and also sharing the relevant experience in system development have been considered. After all, our work shed light on many interesting directions such as the integration of our mobile quiz platform with existing e-learning systems or powerful search engines for further exploration.

References

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