

Integrating QR Codes and Web 2.0 Technologies to Facilitate the Sharing of Learning Experiences for Field Trips



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An Overview

- Introduction
- Related Works
- Our Proposed System
- Prototype Implementation & Evaluation
- Concluding Remarks

Introduction...

- Each year,
 - (primary/sec.) schools organizes field trips;
 - tertiary institutes arranges site visits.
- Students often have to ‘record down’ what they have seen, and then spend lots of time to write reports *without much chance to exchange with their fellow students about their gained “learning experience”*;
- So, is there a better way where C.I.T. can help ?

When QR codes meet Web 2.0...

- In a discussion with Mr. Michael Lui (EDB) in 2008, we found
 - an interesting pilot project that was initiated and owned by EDB and hosted in the HKEdCity using QR codes tested in the Lions Nature Education Center for primary/sec. students to quickly retrieve exhibits (plants)' info. thru' GPRS or 3G mobile phones;
- In addition, we are well aware of the popular Web 2.0 technologies being continuously evolved and used in different domains to facilitate social networking or exchange of knowledge.

When QR codes meet Web 2.0...

● SO

☞ Is it possible to
integrate QR codes with Web 2.0
to facilitate the exchange of
learning experience gained during
Field Trips / Site Visits ???

Related Works...

- QR (Quick Response) code:
 - created by the Japanese corporation Denso-Wave in 1994;
 - intended to design the code such that its content can be decoded at high speed.
 - Data capacity:
 - Numeric only - Max. 7,089
 - Alphanumeric char. - Max. 4,296
 - Binary (8 bits) char. - Max. 2,953 bytes

An Example of QR Codes..



The University
of Hong Kong

QR Code [On the Title Page]

Web 2.0 for Education..

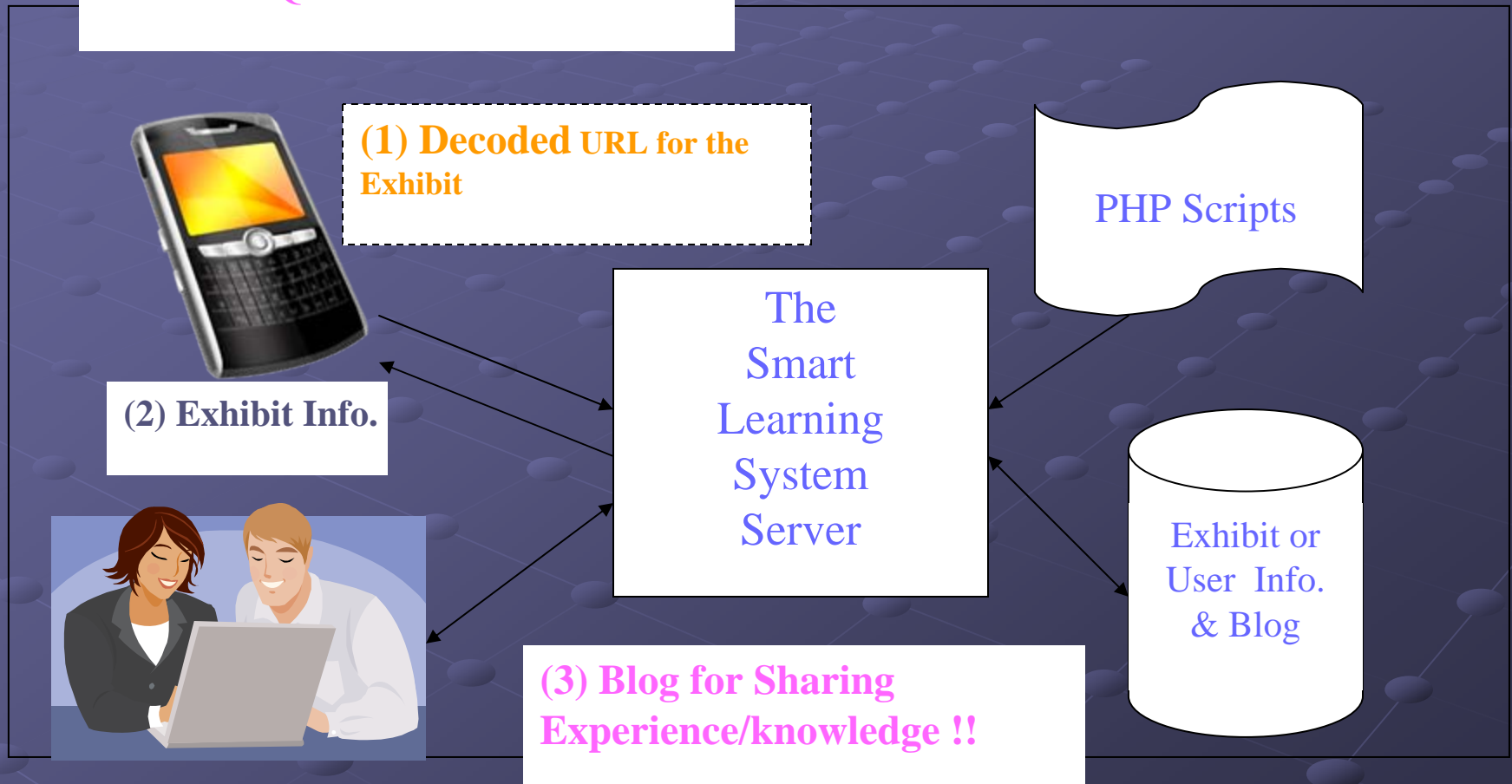
- According to (Wikipedia, 2009), the term 'Web 2.0' describes the changing trends in the use of World Wide Web technology and Web design that aim to enhance creativity, communications, secure information sharing, collaboration and functionality of the Web.
- Web 2.0 concepts have led to the development and evolution of Web culture communities and hosted services, such as *social-networking sites (Facebook, 2009), video sharing sites (YouTube, 2008), wikis (Wikipedia, 2009) and blogs (Blogger, 2009).*

Web 2.0 for Education..(Cont'd)

- Collectively known as Web 2.0 tools, these applications enable interactivity and easily created content by contributors with no knowledge of programming.

System Design of Our Proposal

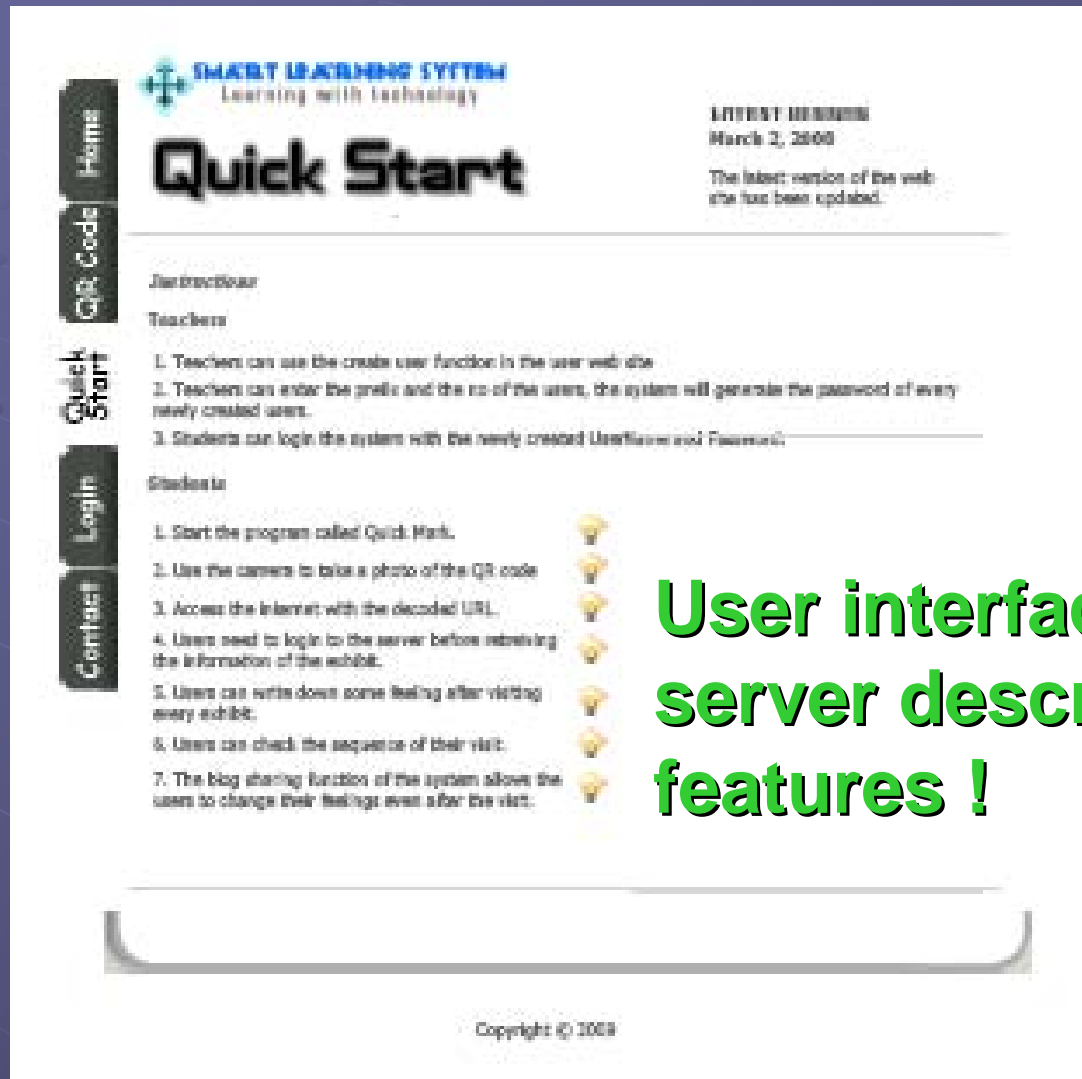
A GPRS or 3G phone installed with camera and QR decoder



Prototype Implementation

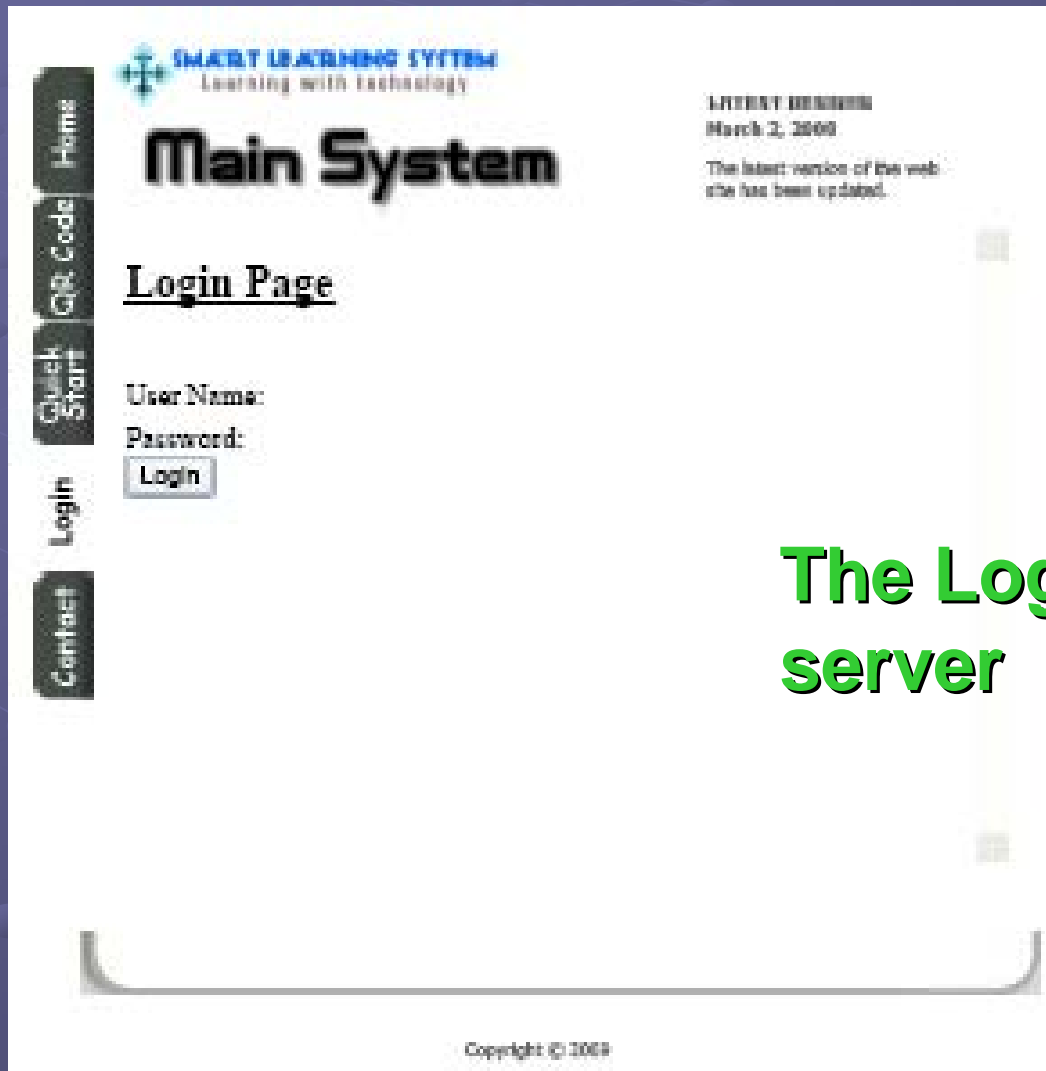
- Using the PHP scripting language, we built our own dynamic server and website for information exchange;
- Spent 5 man-months to design and implement a prototype of our mobile learning system that supports field trips with the use of QR codes, and the sharing of experience thru Web 2.0 !!

User Interface of Our Prototype..



User interface of our SLS server describing the system features !

User Interface of Our Prototype..



The Login page of our SLS server

Empirical Evaluation..

- After a trial period of 1 week, we conduct a preliminary and informal survey mainly to study about whether the system features available in our prototype is effective to *motivate* the learners' interests or not to share knowledge with their peers, and also whether our SLS server is easy-to-use or not.
- Over 80% of the selected students provided positive feedbacks on both questions.
- Around October 2009, we would plan to conduct a more thorough evaluation of our system by the high school students during the open day of our Engineering Faculty.

Concluding Remarks...

- We proposed an innovative Smart Learning System (SLS) integrating the quick response (QR) code and Web 2.0 technologies to facilitate the sharing of valuable experience or knowledge among the same/different groups of students after a field trip or site visit.
- To demonstrate the feasibility of our proposal, we spent 5 man-months to build a prototype of the SLS server that has been tested by some selected students providing some initial and positive feedbacks.

Concluding Remarks...(Cont'd)

- There are many possible directions for future investigations:
 - the integration of relevant materials such as multimedia files or pointers to online databases into our system;
 - more importantly, a thorough study of the pedagogical changes brought by our integrated system for mobile learning is worth studying;
 - Many other..

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