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Collaborative Mobile Knowledge Sharing for Language Learners

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Abstract

The CloudBank project aims to build a mobile- and web-based crowd-sourced information system to help international students further their knowledge and understanding of local UK language and culture. The system enables students to collect, annotate, and tag interesting or puzzling language- and culture-related content found in everyday life, including text, images, and other media, and to upload these content items to a repository. From the repository, the information can be syndicated, e.g. via RSS feeds/widgets integrated into websites, blogs and profile pages, and alerts to subscribing mobile phones.

Keywords

Community; Mobile Language Learning; Social Networking

Introduction

The last ten years have seen a steady growth in research and development aimed at realising the potential of mobile devices for language learning. In their review of these developments, Kukulska-Hulme and Shields (2007) report on a variety of initiatives to deliver web materials via mobile devices, podcasting of language learning materials, and vocabulary teaching to mobile phone subscribers (Andrews, 2003; Collins, 2005; Levy & Kennedy, 2005; McCarty, 2005; Morita, 2003; Pincas, 2004; Thornton & Houser, 2005; Trifanova, Knapp, Ronchetti, & Gamper, 2004). However, the domain still has much potential to be explored. This short paper describes the current early stage of a mobile learning project designed to take advantage of the potential of mobile phones for developing informal peer information exchange among language learners.

Background

Mobile phones have a number of characteristics that can be exploited to design the most appropriate learning services for language learners. They are personal in the sense that they are carried by an individual wherever s/he goes and contain information - profiles, contact lists, preferences, and so on - specific to the individual. For language learners, this offers the potential for a personalized approach. Mobiles are also used in a broad range of indoor and outdoor contexts and are constant companions, even when users are consuming other media via digital technologies such as PC and TV (Fallahkhair, Pemberton, & Griffiths, 2007). Thus, mobile learning services have the potential to tap into a very wide range of contexts. Mobiles are also part of everyday life, rather than classroom settings, suggesting that they should lend themselves well to use in informal learning as well as more formal educational settings. The communication aspects of mobile phones point to two additional powerful trends that can also be exploited by language learners. The first of these is social networking, e.g. communicating via online

media such as FaceBook or Twitter. These sites are often the channel for the second trend, user created content, which has already had an important impact on fields such as journalism and consumer behavior, but which has yet to be widely exploited in language learning applications, although Petersen and Divitini (2004) and Kukulska-Hulme, Traxler, and Pettit (2007) point to the potential of such approaches. Ishikawa, Kaneko, Miyakoda, & Shinagawa (2009) also describe a user-created video content to illustrate linguistic items.

The CloudBank project combines the characteristics of personal use, contextual use, informal setting, social networking, and particularly user-created content to build a mobile- and web-based crowd-sourced information system to help international students further their knowledge and understanding of local UK language and culture. Although international students will typically have a high level of competence in English language and may not feel the need to enrol on formal language courses, they are still concerned with improving their facility in the language and with the native culture. The goal of CloudBank is to provide an easy and engaging way for students in this situation to share and build their collective knowledge.

Design and Development Methodology

The project will be developed over six months, using a learner-oriented Rapid Application Development (RAD) approach, using several rapid iterations of design based on learner input. The high level system concept was developed on the basis of use cases, which built on focus group findings about language learning preferences of this user group, collected for a previous project (Pemberton, Fallahkhair, & Masthoff, 2005). Our main use case is outlined below:

> Khalil is a Jordanian student at the University of Brighton. He is in the Student Union watching a football game with some English friends. A goal is scored and there is much hilarity over the goalkeeper being *nutmegged*. Khalil cannot make sense of this: There's not much connection with the nutmegs of his experience, which are used in cooking. He asks his UK friends, who explain that it means the striker played the ball through the keeper's legs. Khalil thinks other non-native speakers may be interested in this new nugget of knowledge. He gets out his Android G1 phone, starts the CloudBank app and keys in "to nutmeg: in football: to play through an opponent's legs", tagging the entry with "nutmeg" and "football". For good measure he also records an English friend pronouncing the word, and adds the recording to the entry, before sending it to the CloudBank cloud.
>
> This same evening, Keichi, a Japanese student, learns about the term *to nutmeg* through the CloudBank RSS feed on his profile page. By chance he's just been watching a video clip of the goal from tonight's match. He clicks through to the *nutmeg* entry on the CloudBank community portal and adds a reference to the video clip, so that others can get a better understanding of what it means to be *nutmegged*.

The detailed functionality and interaction/interface design of the system are being developed in conjunction with a group of potential users drawn from international students at the University of Brighton, using a participatory design approach.

System Overview

The system allows students to collect, annotate, and tag interesting or puzzling language- and culture-related content found in everyday life, including text, images, and other media, and to upload these content items to a repository.

From the repository, the information can be syndicated in various ways:

a) via RSS feeds/widgets integrated into websites, blogs, and profile pages; or
b) as alerts to subscribing mobile phones.

In addition to syndication, the repository offers a web interface:

a) to allow adding, editing, annotating, tagging, and discussion of content items; and
b) to provide a central point around which a community of practice can crystallise.

The system architecture is sketched in Figure 1.

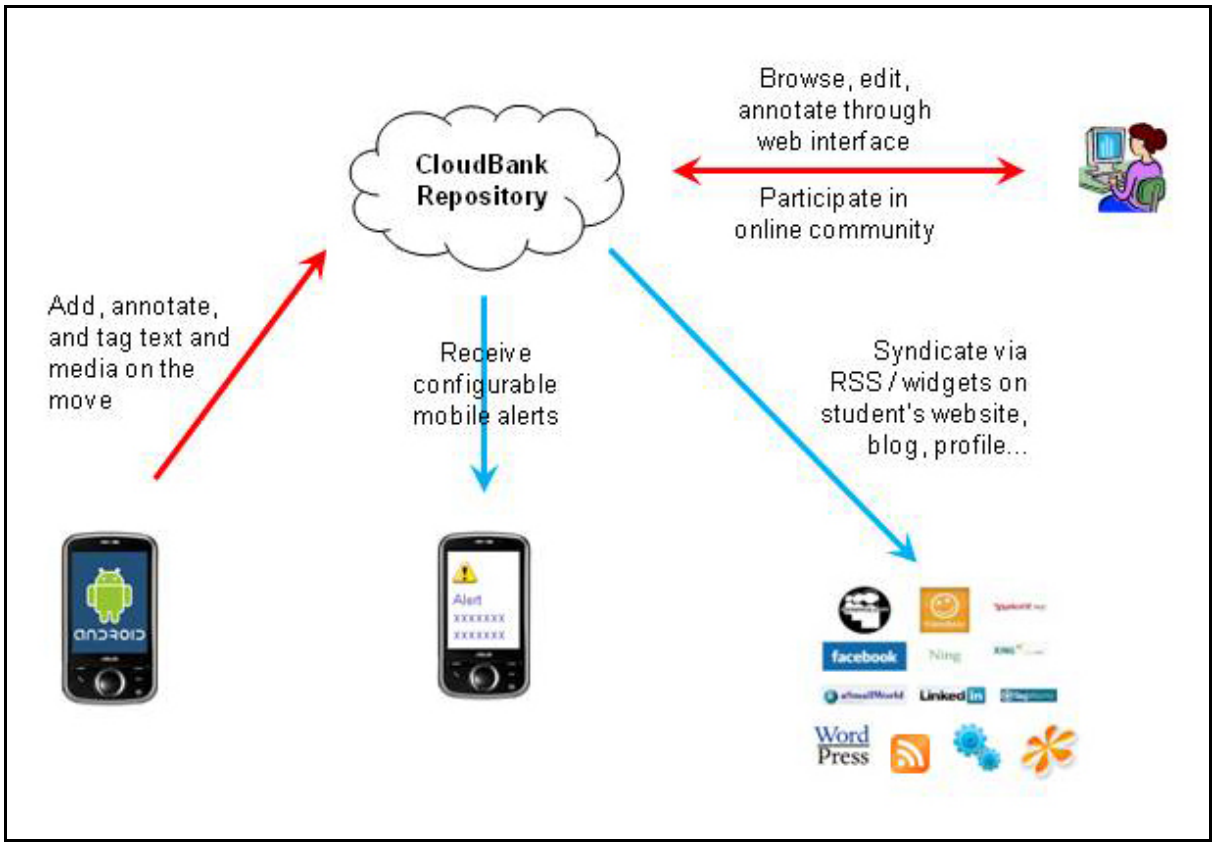

Figure 1: CloudBank System Architecture

Technical Implementation

At its core, the CloudBank system consists of a mobile client to collect, annotate, and tag content on the move, and an Internet server to store and query content. Content syndication is supported through RSS feeds.

Reflecting the user-centered RAD approach of the project, development at this early stage focuses on the rapid production of design artefacts and working prototypes that can be discussed with users in co-design sessions. The current system is therefore limited to one mobile platform (Android) and one server platform (LAMP), and focuses on core functionality required to evaluate the application in the field.

The mobile client is implemented as an Android application that communicates via WiFi or GPRS data connections with the CloudBank REST server on the Internet. The client utilizes existing functionality of the Android platform to capture audio and images, and takes advantage of open-source Java libraries for HTTP requests and XML parsing.

The CloudBank server is based on the open source LAMP software stack and uses a MySQL database to store content items together with media references and tagging information. In addition to a REST API for adding and interrogating user-generated content, the server provides RSS feeds that allow content syndication in a wide range of contexts and to multiple platforms.

Reflection

A first version of the system was evaluated with the user group in Autumn 2009, investigating both acceptability issues and usage of the system in terms of language elements contributed. Some problematic issues have already been flagged by our user group. These are mainly pragmatic issues concerned with the content that users might contribute, particularly around deliberate misuse and also the authority of the content, given that a "pure" version of the system would not involve native speakers. A number of design responses are being considered, such as a "Report this" facility, a "Check this" option (possibly combined), and the possibility of encouraging student teachers of English as a Foreign Language to sign up to the system as part of their own learning. Added to these, sustainability and cost will also be important areas to address.

The current stage is likely to lead to development of the application for a broader range of phones in order to enable wider take-up both locally and nationally. Our hope is that students will take up the system with enthusiasm, leading to the formation of a peer-learning and teaching community that is quite independent of formal provision.

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