

Life is Sharable: Mechanisms to Support and Sustain Blogging Life Experience

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ABSTRACT

Recent trend in the development of mobile devices, wireless communications, sensor technologies, weblogs, and peer-to-peer communications have prompted a new design opportunity for enhancing social interactions. This paper introduces our preliminary experiences in designing a prototype utilizing the aforementioned technologies to share life experience. Users equipped with camera phones coupled with short-range communication technology, such as RFID, can capture life experience and share it as weblogs to other people. However, in reality, this is easier said than done. The success of weblogs relies on the active participation and willingness of people to contribute. To encourage active participations, a ranking system, *AgreeRank*, is specifically developed to get them motivated.

Categories and Subject Descriptors

H5.1 [Information Interface and Presentation]: Multimedia Information Systems – *Artificial, augmented, and virtual realities*; H.5.2 [Information Interface and Presentation]: User Interfaces – *Interaction styles*; H.4.3 [Information Systems Applications]: Communications Applications – *Information browsers*.

General Terms

Algorithms, Design, Human Factors.

Keywords

Mobile phone, RFID, wireless networking, weblog, peer-to-peer communication, collaborative system.

1. INTRODUCTION

Camera/video mobile phones have changed the way of communication between people a great deal. In perfect situation, users of the mobile phones can take a picture or video clip of their spontaneous life experience and share it instantly with others over wireless networks such as WiFi, GPRS, EDGE, HSDPA, etc. More recently, with the introduction of moblogging, the captured life experience can be published to weblogs via the mobile phones. Users can also search and read weblogs for items of

interest on their mobile phones [6]. The concept of this work is that weblog posts can be associated with information that depicts more about the captured experiences such as location¹ and physical objects. Our approach is to augment places and everyday objects that exist with purposes related to users' activities with RFID tags. In this way, users can publish or access the weblog posts about the places or objects they have encountered via mobile phones coupled with RFID technology. This would enable people who have common interests to find out each other and see what others said about the things or places that attract them. According to Hourihan, moments of shared experience can be powerful connectors between people who have the same interests in similar scenarios [1][5]. This general framework: giving to and obtaining from the community keeps the balance and sustains the community itself. Webloggers benefit from the satisfaction of getting the attention of the audience whereas readers benefit from having their curiosity satisfied.

2. ARCHITECTURE OF THE SYSTEM

The system is designed with supporting and sustaining the experience sharing community in mind. Research work has shown that users are more interested in the most updated shared life experiences [3]. Therefore, the contents of the community must be dynamic and the contribution to the community must be active. This is realized by the hybrid file sharing architecture and a novel voting system. In the hybrid architecture, mapping between weblog posts and tagged objects and places uploaded by webloggers as well as elements that indicate the level of popularity of tagged entities updated from the interaction between readers and webloggers is maintained by a central server. The weblog itself is stored on the user preferred weblog servers. Details of this architecture can be found on [4].

3. VOTING TECHNIQUE

The essence of the success of systems of this kind (i.e. web 2.0 applications) is the willingness of participants to provide information resources to the community [2]. Also, the powerful effect of the collective intelligence is based upon not only the webloggers contributing life-experience on their personal weblogs but also the collective attention of the readerships select for value. For this purpose, we design a ranking technique called *AgreeRank*

¹ *Crunkie* by wavemarket: <http://www.crunkie.com>

to enhance the grading level of participation in our system. *AgreeRank* is somewhat similar to *PageRank* [7], which is what Google exploits to determine the importance of a web page. By using *PageRank*, the web search engine can provide the most popular and useful web pages for the users. In the same way, *AgreeRank* is a ranking technique to derive the level of similarity between a user and the rest of community from their interaction mediated by the proposed architecture.

The computation of *AgreeRank* has two steps. Firstly, the ranking scores are propagated from users to weblogs. Secondly, the ranking scores are propagated back from weblogs to users. In detail, the ranking score of each user is portioned out to the weblogs, including the ones they agree/disagree with and have no comments on, after browsing. The proportion of these three kinds of weblog acquirments is described as $m_1:m_2:m_3$, where $m_1 > m_2 > m_3$. For example, assume that the proportion of these three kinds of weblogs is 2:1:0. Given that a user has rank score 1 and agrees with 2 weblogs, has no comment about 1 weblog after browsing, and disagrees with 1 weblog, he/she must distribute score 0.4 to each weblog he/she agrees with, 0.2 to the weblog he/she has no comment, and 0 to the weblog he/she disagrees with. Also, B and R are vectors over all weblogs and users respectively. The elements of B and R are the ranking scores of weblogs and users respectively. We can define a matrix A_1 that carries out the score distribution in the first step by $B = A_1^T R$. In the second step, the writer of a weblog always retains half of the ranking score of the weblog. The remainder score is evenly distributed to the users of the victory camp, which could be either one of agreeing camp, disagreeing camp, and no-comment camp. We can also define a matrix A_2 that carries out the score distribution in the second step by $R = A_2 B$. To integrate these two steps, the *AgreeRank* is designed as $R = AR$, which $A = A_2 A_1^T$.

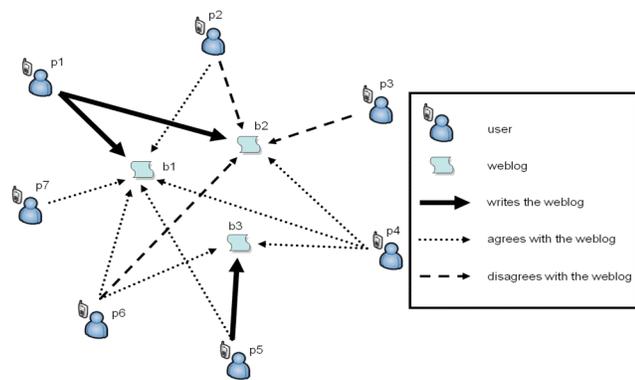


Figure 1 AgreeRank in action.

Figure 1 demonstrates the proposed *AgreeRank*. In this example, there are 7 users and 3 weblogs. The matrices A_1 , A_2 , and A can be formed according to the definition of *AgreeRank*. After initializing the vector R equally among users ($R = [1111111]^T$), the recursive process starts. After 3 iterations, given that the portion of weblog acquirments is 2:1:0, matrices R and B converge to $[2.33, 0.57, 0.27, 0.89, 1.47, 1.16, 0.31]$ and $[3.07, 1.60, 2.33]$ respectively. We can see that the webloggers' *AgreeRanks* are higher than pure readers'. Also, the users p4 and p6 both vote three weblogs, however, the p6's *AgreeRank* is higher than p4's. This is because that p6 disagrees with the

weblog b2, which is also disagreed by the majority of the users, whereas p4 agrees with it. This explains that arbitrarily agreeing with weblogs will not lead to high scores. In another case, the user p7's *AgreeRank* is higher than p3's. It is because the ranking score of the weblog that has more agreements is higher than the weblog that has more disagreements. This explains that this approach encourages users to share certain life experiences with others.

4. CONCLUSIONS

This paper has introduced a system architecture that allows users to find timely and relevant information about shared life experience posted from like-minded others right at the objects and places of common interest using latest technology developments in mobile device, wireless communication, peer-to-peer, weblogging, and sensor technologies. The system architecture provides a cost-effective platform to encourage people to share life experiences. *AgreeRank* voting system is developed to enhance and get people motivated. It exposes the level of viewpoint consistency of all users no matter they are webloggers or readers. As long as the pure readers are willing to interact with webloggers via voting, the viewpoint consistency between them and others can be derived. Therefore, the proposed *AgreeRank* is ideally fair and versatile ranking method.

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