
Get Lost: Facilitating Serendipitous Exploration in Location-Sharing Services

Ben Kirman

Lincoln Social Computing Research
Centre, University of Lincoln
Lincoln, LN6 7TS, UK
bkirman@lincoln.ac.uk

Conor Linehan

Lincoln Social Computing Research
Centre, University of Lincoln
Lincoln, LN6 7TS, UK
clinehan@lincoln.ac.uk

Shaun Lawson

Lincoln Social Computing Research
Centre, University of Lincoln
Lincoln, LN6 7TS, UK
slawson@lincoln.ac.uk

Abstract

This paper describes ongoing work in developing social computing systems and services to support serendipitous real life experiences. The paper introduces the location-aware prototype service “GetLostBot”, which uses the Foursquare API to longitudinally monitor a user’s check-in locations and intervenes when they have fallen into a predictable routine. Interventions take the form of mysterious walking directions on a map to unknown destinations that challenge the user to take an explorative attitude and go into the unknown. Early results from a user trial suggest that while users are extremely positive about the ideas and concept of delivering serendipity through social computing, in this case there was low engagement with the actual suggested new experiences and activity. Despite this, the act of the intervention itself is reported to still have intrinsic value. This finding is discussed in terms of potential design issues around supporting serendipity in future systems.

Author Keywords

Serendipity; location-awareness; recommender systems; playfulness

ACM Classification Keywords

K4.0 [Computers and Society]: General; K8.m [Personal Computing]: Miscellaneous

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General Terms

Design, Human Factors

Introduction

Recommender systems have become an integral part of many online services. By comparing one user's behaviour to others', a service can automatically generate suggestions that are more likely to be relevant and therefore interesting and helpful. For example, Amazon and other online stores can recommend products based on which different products are commonly bought together, and which items other users with similar purchase histories have bought [5]. In addition, through performing various types of feature analysis, services such as Pandora can generate recommendations based on the intrinsic nature of the content itself (for a good review of relevant literature in this area, see [1]).

Services that monitor social interactions between users can use the observed connections to further inform recommender algorithms [3]. Based on the presumption that opinions of real-world friends hold more weight than those given by strangers, Google adjusts rankings of search results to take into account, for example, mentions from friends on Twitter, whilst Facebook suggests groups you might like based on your friends' memberships.

There is no doubt that recommender systems serve an extremely valuable purpose, and allow services to intelligently add value [6] based on the attributes of each user as an individual. However, there has recently been concern about the impact of recommender systems in terms of the breadth of choice they supply to users. The core of this argument is that by only

recommending items based on mathematically determined similarity, the algorithms remove opportunities for serendipity, exploration and discovery. Hence by their very design, recommender systems restrict user freedom by reinforcing preferences for popular, safe and unadventurous choices.

The literature characterises this problem as the "diversity-accuracy" dilemma [8] since highly accurate results tend to be limited to the most popular items. For example, everyone likes the Beatles, so a music recommendation for the Beatles is probably accurate yet not interesting. Introducing more diverse recommendations results in less accuracy, which means fewer sales, which is similarly undesirable.

Serendipity

In his keynote at CHI 2011, Ethan Zuckerman [9] highlighted the potentially negative effects of what he calls "polarization". For example, it is known that when choosing online news sources, people mostly read sites that reinforce their own political biases [4]. There are concerns that these sorts of reinforcing choices lead to a compound effect of "cyberbalkanization"[2].

Zuckerman points out that, although these polarising choices appear to be part of human psychology generally, there is concern that the design of social media that uses strong social and content-based discovery systems is reinforcing and accelerating this process. His argument is that to counteract this process we need to reintroduce an aspect of serendipity into the discovery mechanisms used by social media. Importantly, this should not be carried out merely through additional randomness, but through systemic change in the way services function in order to create

“opportunities” for serendipitous experiences. Zuckerman compares this to the changes in how urban planners design cities in order to create opportunities and spaces for serendipity, rather than the optimal function (e.g. efficient traffic movement) [9].

Location-Based Serendipity

Based on these concerns, a prototype application was developed to explore the possibility of introducing serendipity into the mechanics of location-sharing systems such as Foursquare, Gowalla and Facebook Places, which, in their present form, arguably reinforce polarisation through their recommender mechanics. [7]

All three services typically allow users to “check in” to places. Through social mechanics, they allow users to share location based on social context (rather than the less useful latitude and longitude). Based on reviews and ratings from friends and other users, such services offer recommendation facilities for potential places to visit. In this way, the services add value to the users in offering personalised experiences both when visiting known and unknown locations.

GetLostBot

To explore the issue of serendipity in location sharing, an application, named GetLostBot¹, was created. GetLostBot subverts the process of recommendation in location-sharing services by introducing strong elements of serendipity and discovery.

GetLostBot does this through the longitudinal monitoring of user check-ins, and through issuing challenges when a predictable routine is detected.

¹ www.getlostbot.com

These challenges take the form of maps supplemented with mysterious walking directions to a nearby but undisclosed location, sent via email or Twitter (based on user preference). Importantly, the challenges are rare - once the user has signed up with the service, they will only receive a challenge when they have fallen into a routine, which could be days or months later.

Initially the prototype only supports the Foursquare location-sharing service, since FourSquare offers a “push” notification service that allows third-party applications to receive notifications of check-ins without user intervention. This allows GetLostBot to seamlessly integrate into the user’s normal Foursquare experience without need for additional complexities or interfaces.

Figure 1 shows the flow of information between the user, Foursquare and GetLostBot. Apart from the initial authorisation, users will never be required to interact with it directly, since all activity happens as a response to their Foursquare behaviour. Figure 2 shows an example of a challenge issued to a real user.

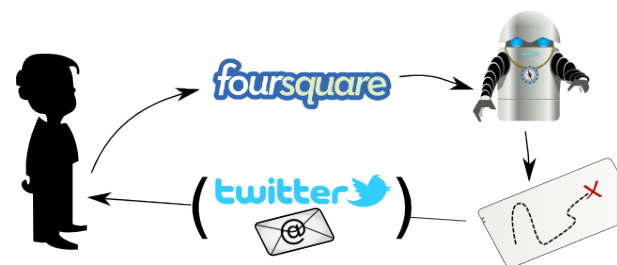


Figure 1 - GetLostBot as a background service complementary to Foursquare

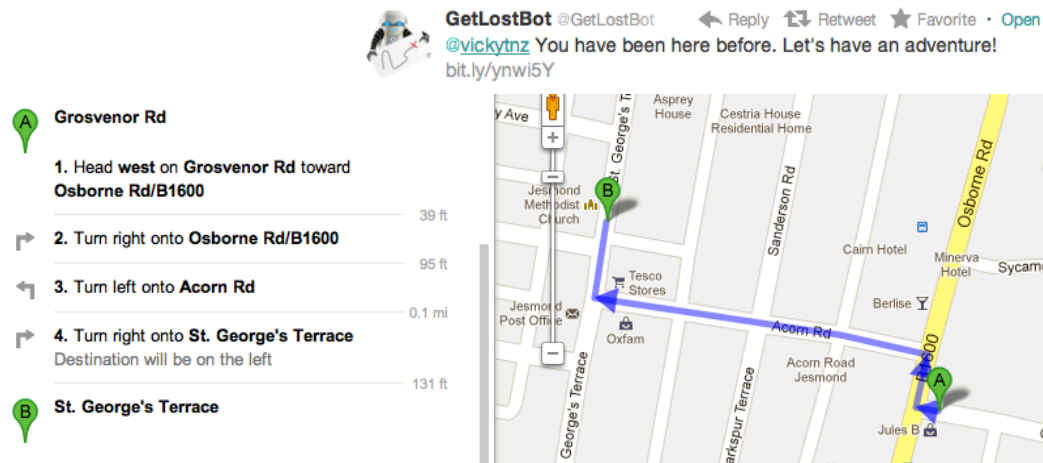


Figure 3 - Example of a challenge issued to a real user

Generating Serendipitous Locations

As mentioned earlier, Foursquare (and all other major location-sharing services) offer a built in recommendation facility for their users based on ratings and reviews from strangers and friends. This is an excellent feature for its purpose, however, GetLostBot attempts to complement this facility through more serendipitous and explorative suggestions.

Primarily, this is achieved through analysis of the categories of places where users check in. While Foursquare recommendations are based around finding places the user will probably like but have never been, GetLostBot takes the opposite approach in suggesting venues similar to those where the user has checked-in, but may never have considered visiting. For example, when checking into a bar, GetLostBot will always suggest another bar, however not one based on



Figure 2 - Which place is the challenge destination?

similarity. GetLostBot also ignores check-ins to travel or work-oriented venues (train stations, offices, etc) to avoid making uninteresting or less useful challenges (e.g. to visit a random office building when checking into a workplace). When choosing destinations, it purposefully ignores ratings and reviews in order to expose places that are not well known by the Foursquare community. In this way, challenges are imbued with a serendipitous aspect that is not present in the "safe" recommendations from Foursquare itself.

Proceduralised Serendipity

The manner in which GetLostBot challenges are issued is also extremely important. Users will only receive them when the system has determined them to be "falling into a routine". Procedurally, this means that if the past X check-ins have all been places where the user has been previously (where X is a variable set by the user in terms of a "bravery" setting), then the user is failing to explore new places and therefore is issued a challenge by the system. This means that, depending on their activity; users may not receive challenges from GetLostBot immediately. This gives the user time to forget that the application is watching their activity and therefore future challenges might appear at unexpected moments.

Finally, receiving a link to a map with walking directions, but no explicit destination, acts as a playful and daring invitation. Destinations picked by GetLostBot are always within a 2km radius of the user's current location, and by presenting them as within a short distance, the application attempts to engage the user's curiosity in order to expose them to the serendipitous experience. This also implicitly references ideas, for instance, of hidden pirate gold and treasure

maps in order to further underline the exploration and discovery aspects of the activity.

Should the user follow the directions and visit the destination, the actual location chosen by GetLostBot may be unclear, especially in urban areas (see Figure 3). This final act serves to challenge the user to reflect on their own activity based on the new context in which they have been placed. In other words, was the challenge to complete the trail left by GetLostBot or was the real challenge to break out of a routine?

Based on feedback from user tests, a feature was added to notify users if they “complete” a challenge by visiting a challenge location. Although the purpose of the application is not to actually have the users visit those locations (the intervention about their recent behaviour is enough), this helps create closure and gives the user additional reward for engaging with the playful activity of exploration.

Initial Evaluation

The GetLostBot prototype was created with the support of sponsorship from Honda and The Guardian, as part of the “Honda Dream Factory” programme. It was opened to the public shortly after the “Power of Minds” event in November 2011, and advertised via social media and on The Guardian website. Within a 5-week evaluation period, 137 distinct Foursquare users registered for the service.

After the five week evaluation, ending early January 2012, a formative evaluation of the system gathered feedback from the active user-base through a short online survey, which when combined with data from the service logs, illuminates attitudes to the application as

a concept. Of the users who responded to the survey (N=18), just 44% (8) had also used Foursquare recommendations. This limited overlap may indicate that the users of GetLostBot are not using it simply for the intrinsic value of recommendations, rather due to some other feature.

Responding to Challenges

Over the initial trial, 882 challenges were issued to users through Twitter and email. Of these, just 17 were “completed” by the user checking-in to the location determined by the application. This low engagement may be expected due to the way destinations are purposefully concealed. In the survey, only 3 out of 10 challenged users reported attempting to complete challenges. Asked about this, users seemed intimidated by the uncertainty. R8 says “I have no idea where it’s sending me, I need a clue” and R16 says “there is a big barrier between reading the challenge (which is fun) and actually physically going”. However, many users reported that this was part of the charm – “the challenges are uncannily interesting” (R18).

Attitudes to Serendipity

The majority of respondents responded positively to the concept itself, and many reported that even just receiving the challenges served a purpose in terms of a gentle reminder to explore more. “it made me see just how often I was going to the same places” (R10). “it was good to change my route” (R16). “It does remind me how set in my ways I am” (R2). This reinforces the value of the application in terms of intervention.

Discussion and Future Work

GetLostBot is the first prototype in a series of applications designed to explore the design possibilities

of serendipity in social media. The focus of this work is on location-sharing services, and GetLostBot subverts the recommendation systems to challenge users to visit new places when they fall into a routine.

An initial evaluation uncovered several interesting themes that require further investigation. Primarily, there was an extremely positive response to the concept and idea of serendipitous interventions in their behaviour. Although the actual engagement with the challenges themselves was very low, users indicated that they saw emotional value in the challenges as prompts to change their behaviour, even if that didn't lead to an attempt to actually modify those behaviours. In this way, services like this may provoke reflection and long-term changes even if users don't engage directly.

It is clear that further investigation is required into these issues, however the positive reaction to the concept of serendipity from the users reinforces the potential value by taking these approaches. Future work should explore the understanding of these concepts further by investigating the particular aspects of serendipitous design that are potentially strong enough to motivate users into changing their behaviour.

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