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SPLASH: Blending Gaming and Content Sharing in a Location-Based Mobile Application

Dion Hoe-Lian Goh, Chei Sian Lee, Alton Y.K. Chua, Khasfariyati Razikin and Keng-Tiong Tan

Wee Kim Wee School of Communication and Information,
Nanyang Technological University, Singapore
{ashlgoh, leecs, altonchua, khasfariyati, kttan}@ntu.edu.sg

Abstract. In this demonstration, we introduce SPLASH (**S**eek, **PLA**y, **SH**are), a mobile application which blends gaming with content sharing and socializing activities. SPLASH is a human computation game that generates location-based content as a byproduct of gameplay. The entertainment derived from gameplay is harnessed to motivate users to contribute content. A detailed description of the features in SPLASH and its distinctive characteristics will also be presented.

Keywords: Mobile application, content sharing, human computation game

1 Introduction

Fueled by technological advancements in mobile devices, social computing applications have empowered users to create, share and seek media rich location-based content. These applications are fast becoming popular in part due to people's increasing reliance on mobile phones and their myriad uses beyond voice calling [5]. However, it remains a challenge for users to be motivated to contribute useful information in the long run. This is because the repetitive actions required for performing these tasks will only dull enthusiasm over time [2], and contributors share content on the basis of their goodwill and other intrinsic motivations [3].

One promising approach to promote content sharing is by incorporating games into such activities. These applications, termed Human Computation Games (HCGs) [1, 4], exploit the element of fun as motivation to harness human intelligence. Computations or tasks (e.g. sharing content) are executed by players as they are deriving entertainment from gameplay. Mobile applications embodying these characteristics are becoming increasingly popular recently and is unsurprising, given the tremendous growth in the gaming industry.

In this demonstration, we introduce SPLASH (**S**eek, **PLA**y, **SH**are), a mobile application which blends content sharing with gaming activities. It is a mobile HCG that is designed to promote the seeking and sharing of content. That is, while users are entertained through playing the game, they are generating location-based content as a byproduct [3]. Such content can be accessed by other users to meet their needs. The

different features that support content sharing and gameplay will be demonstrated. Various usage scenarios of SPLASH will also be highlighted.

2 Introducing SPLASH

At its core, SPLASH allows users to contribute and access location-based content. Layered upon this service, are gaming features that gives users the opportunity to concurrently engage content through play. The application was developed for the Android mobile platform.

Content in SPLASH is in the form media-rich location-based information known as "comments". Each comment comprises a title, tags, description, one or more media elements (e.g. photos) and ratings, which are an indicator for content quality (Figure 1). Other information such as author, date and location are also implicitly captured by the system at creation time. In SPLASH's content model, a real-world location is organized into two conceptual levels. "Places" represent an arbitrary geographic area that holds comments, and examples include buildings, parks, points of interest, and so on. Places may also be further divided into "units", with each unit containing its own set of comments. For example, a mall in the real-world could be represented by a place in SPLASH. As the mall has multiple stores, each store is considered a SPLASH unit and contains comments related to it. Note however that units are optional, and a place need not be subdivided if there is no necessity for doing so.

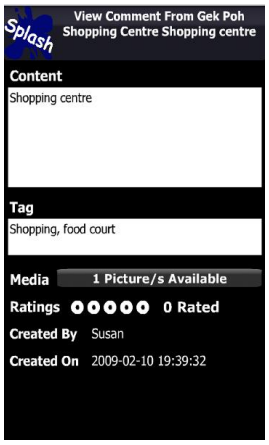

Fig. 1. A user contributed location-based comment.

Fig. 2. Markers on the map indicate availability of virtual rooms.

In SPLASH, content sharing features are entwined with gaming features through virtual rooms where users interact, share content and play games. These rooms are designed to establish a sense of community among users, which has been demonstrated to foster content sharing [3]. Put differently, each place or unit is represented by a virtual room which in turn, provides a platform for accessing SPLASH's content sharing and gaming features.

SPLASH offers map interface to access virtual rooms (Figure 2). Each marker on the map represents a real-world location (place or unit) where virtual rooms are available. Users navigate the map by panning and zooming. Accessing a virtual room is accomplished by selecting a marker of interest or by keyword search. In densely populated areas with many virtual rooms, users are first presented with a list of available rooms for selection.

Figure 3 shows an example of a virtual room. Each virtual room contains a comment board to access content associated with that location. Further, the room serves as a community-owned space which users may decorate with items purchased from a virtual store. The latter includes furniture, decorative items, musical instruments, games and other objects. By contributing these objects, users are accorded with recognition (explained subsequently), which motivates sustained usage.

Virtual rooms also offer entertainment via three types of mini-games. Information mini-games utilize nearby content to help users learn about a particular location. An example is a game that randomly selects a captured image around a user's current location to create a jigsaw puzzle. By solving the puzzle, users are able to see images shared by others. Mini-HCGs elicit information from users about the current location for the purposes of sharing. One example is a game about pets that reside in the virtual rooms. Pets need to be fed with information in order to thrive. Such information is then made available to users. Finally, casual mini-games offer pure entertainment, such as a shooting game. Mini-games are represented by an arcade machine in the virtual room (see Figure 3) and are played by selecting it.

Virtual rooms are also designed to promote socializing. Each user is represented as an avatar which can be customized with items purchased with gold (explained next). These avatars are displayed on users' individual profile pages (Figure 4) and in virtual rooms that users visit. A "friend" function allows users to add other users as friends. This allows them to quickly view updates of comments posted by their friends, and to also send private messages to them.

To further promote usage of the application, SPLASH offers a number of reward systems. First, users earn in-game currency called gold (Figure 4) when they contribute comments, rate comments or perform well at mini-games. Gold can be used to buy items or customize one's avatar. Second, the application awards badges for various milestones achieved. These include contributing targeted numbers of comments or ratings, contributing items in virtual rooms, and achieving mini-game objectives. These awards are displayed in a user's profile page. Third, public scoreboards rank users based on different accomplishments. These include rankings by amount of gold amassed, number of comments contributed, and number of comments rated.

3 Conclusion

Several features in SPLASH differentiate itself from other mobile applications for sharing content. First, the application blends gaming with content sharing to encourage users to contribute location-based information. The sense of fun that is derived from games in SPLASH provides an additional benefit to users compared to

other mobile content sharing applications where content contributions rely solely on goodwill and other intrinsic motivations. Next, the concept of virtual rooms as an extension to a physical location represents a pioneering approach for mobile content sharing applications. Within the virtual rooms, users are able to play games and socialize, facilitating the contribution of content. Also, the different genres of mini-games available provide diversity and challenge for users, and encourage repeated use. Finally, SPLASH supports an API to allow developers to contribute new games, thus promoting variety within the gaming environment. Further, these APIs also allow developers to extract and synthesize data found in SPLASH to create content mashups that can reside within SPLASH or as separate applications.

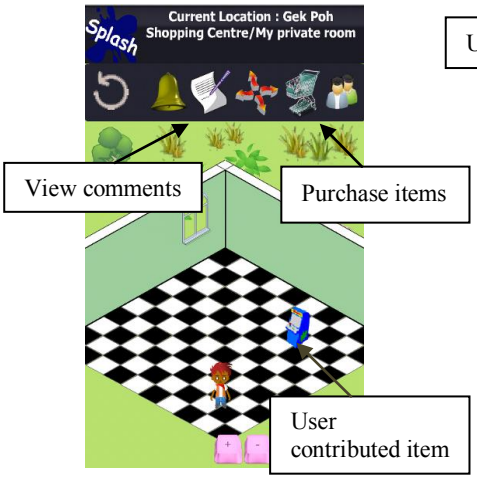

Fig. 3. A virtual room with user contributed item.

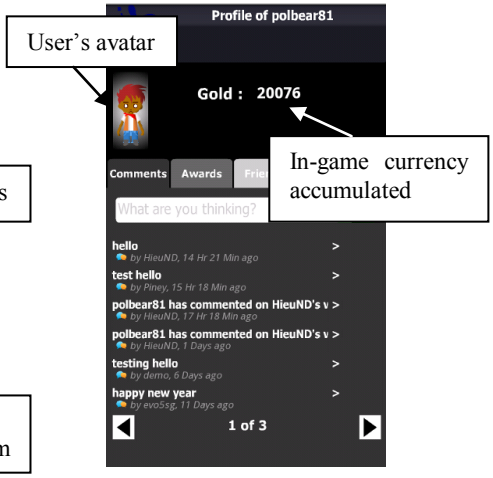

Fig. 4. A user profile with avatar and currency earned.

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