
A Pervasive Game to Promote Social Offline Interaction

Maurizio Caon

University of Applied Sciences and
Arts Western Switzerland
Fribourg, Switzerland
maurizio.caon@hefr.ch

Elena Mugellini

University of Applied Sciences and
Arts Western Switzerland
Fribourg, Switzerland
elena.mugellini@hefr.ch

Omar Abou Khaled

University of Applied Sciences and
Arts Western Switzerland
Fribourg, Switzerland
omar.aboukhaled@hefr.ch

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Abstract

Human relationships are migrating from the physical world to the virtual world. Pervasive games can be a valuable and enjoyable method to bring people back to the physical world. In this position paper, we present a concept for a pervasive game, which integrates some specific mechanisms aiming at promoting social offline interaction.

Author Keywords

Pervasive games, ubiquitous computing, social interaction, offline interaction.

ACM Classification Keywords

H.5.3. [Group and Organization Interfaces]: Theory and Models

General Terms

Design, Human Factors.

Introduction

Technology has thoroughly changed the way people communicate and interact. Social networking and ubiquitous connectivity are drawing people from their physical environment. In fact, the current trend of interpersonal communication is shifting from the physical to the virtual world. This phenomenon affects the quality of the relationships. Indeed, Sherry Turkle argues that people "don't want to intrude on each

other” anymore and, for this reason, they use computer mediated communication in order to “hide from each other even as we are constantly connected to each other” [1]. Online relationships are not equivalent to face-to-face relationships and computer mediated communication should only supplement in-person communication rather than replacing it [2]. Therefore, bringing the human-human interaction back to the physical world assumed a growing importance and it determined the birth of a scientific community focused on the promotion of technology aiming at fostering social offline interaction [3]. In particular, pervasive games can assume a key role in motivating people to interact offline. In fact, pervasive games are an emerging game genre that pushes the physical and social boundaries of traditional games. To be more precise, the “pervasive games are no longer confined to the virtual domain of the computer, but integrate the physical and social aspects of the real world”, as Magerkurth et al. stated in [4]. In this paper, we present a concept for a pervasive game that aims at promoting social offline interaction.

Games and Social Interaction

In the pre-computer era, games used to be a significant catalyst of social interaction. In particular, interaction in pre-computer games included human to physical world interaction and human-to-human interaction. The birth of video games involved a significant decrease of user's physical activity and social interactions [4]. Researches in the past demonstrated that video games may take the place of friends, leading to social isolation [5]. The Internet and the birth of online multiplayer video games reintroduced the social aspect of playing [6]. Unfortunately, these video games involve only online interaction bounding the user's life to the virtual world.

This trend meant to change with the introduction of pervasive gaming, which is “an emerging genre in which traditional real-world games are augmented with computing functionality” to bring the entertainment back to the physical world [4]. Moreover, the survey presented in [7] reports that there might be a strong market for pervasive games for both casual and hardcore gamers. In fact, people showed a positive attitude towards pervasive gaming and, in particular, about its social aspect. A first attempt of conquering this market can be found in Google Ingress¹, which had a significant success in some areas [8].

The Game Concept

The proposed game concept is a role playing game based on mobile devices coupled with interactive public displays. Other pervasive games based on the coupling between smartphones and public displays exist but they usually are for casual gamers. This concept is a location-aware multiplayer role-playing game and addresses hardcore gamers. In this game, each player has the ability to see things coming from a parallel universe. The players can move in the physical world following the instructions on the mobile phone to find new items or to fight and capture monsters. The player can increase his/her personal level accomplishing quests and fighting monsters. The novelty introduced by this concept consists in the integrated mechanisms aiming to promote the social offline interaction among players. These mechanisms are inspired by the mechanisms that can be found in massively multiplayer online role-playing games (e.g., [6]) but they have been redesigned in order to bring those interactions to the physical world.

¹ <http://www.ingress.com/> (Last visited: 14 June 2013)



Figure 1. This scenario depicts a group of users collaborating during a quest in the physical world (the smartphones are highlighted in red).

Quests

The players must cooperate in order to achieve a common goal and gain a reward. The players must be in the same place in order to start the quest and the game provides them different hints that can be understood only if put together (every player receives a unique hint in his/her smartphone). The quest may include enigmas and fights against virtual monsters. The enigmas can involve finding the solution in the physical world, e.g., using the inscriptions on monuments (Figure 1). Using the monuments enriches the game experience since it promotes also the cultural context of the physical world. Distributing the hints compels users to converse in order to solve the enigmas. Another part of the quest could involve playing mini-games that require the different smartphones to be aligned in order to display all the information of the game (as in the Google Chrome racer²) and coordination of the team. Cooperation is the key element of this mechanism. Moreover, the exploration of the physical world required by this type of pervasive game involves some physical activity in order to foster a healthy behavior.



Figure 2. This scenario depicts two users dueling on an interactive public display (in yellow) coupled with the smartphones.

Arena

Competition in games is very motivating and for this reason we included combats. The combats are implemented coupling the smartphones with interactive public displays. The personal information is transferred on the interactive public display where the players can start a strategy game using the captured monsters. We included some mini-games for attack/defense bonus. The adoption of the public display is due to its ability of engaging people on many levels, including also

spectators and bystanders; in fact, public displays can nourish passive engagement, active engagement, and discovery, as reported in [9]. This mechanism should not only encourage the social interaction between players but also among spectators (as represented in Figure 2). Moreover, the presence of an audience provides a sense of social presence and a spectacle. This leads to the concept of design for audience/player interactions that should be taken into account during the development of the game [10]. Coupling smartphones with a public display means also that they can be used as controllers or additional private displays. The public interactive displays should be placed in specific accessible public places that the players could consider as a physical meeting point for all the community, as video arcades used to be in the past.

Trading

The exchange of items is an important occasion for social interaction and to establish new relationships with unknown players. The offered items should be visible by all the players and the transactions should be allowed only in specific physical locations known as markets. This mechanism should turn the markets into meeting points for social interaction.

Fun

This concept focuses on the concept of People Fun of the Lazzaro's four fun keys model [11]. The aforementioned mechanisms aim at incentivizing cooperation, competition and communication, which are the main features of People Fun. Moreover, Lazzaro stated that co-located group play enhances the gaming experience since being in the same physical space

² <http://chrome.com/racer> (Last visited: 14 June 2013)



Figure 3. Testing the first implemented prototype as proof-of-concept of the scenario presented in Figure 2.

allows additional multimodal interaction beyond what is available in the game alone [11].

Conclusion

In this paper, we presented a concept for a pervasive game aiming at encouraging social offline interaction. We are developing a prototype as proof of concept (as depicted in Figure 3) and in order to conduct experiments with users to assess whether the presented mechanisms will significantly incentivize the social offline interaction. For the development of this system, we are using the rapid prototyping combined with an iterative user-centered design approach.

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This concept has already raised some questions: is this game going to motivate players to invest the effort to travel in order to find other people in specific places at a specified time? There will be enough physical space for large communities? We believe that our concept and the relative questions could stimulate an interesting debate about the role of pervasive games for the promotion of social offline interaction; the valuable feedback (hopefully consisting of answers and further questions) about the proposed mechanisms provided by the experts attending this workshop could be crucial for the future development of this type of games.

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