A Festival-Wide Social Network Using 2D Barcodes, Mobile Phones and Situated Displays

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ABSTRACT

This paper reports on the authors’ experiences with an exploratory prototype festival-wide social network. Unique 2D barcodes were applied to wristbands and mobile phones to uniquely identify the festival participants at the CO2PENHAGEN music festival in Denmark. The authors describe experiences from initial use of a set of social network applications involving participant profiles, a microblog and images shared on situated displays, and competitions created for the festival. The pilot study included 73 participants, each creating a unique profile. The novel approach had potential to enable anyone at the festival to participate in the festival-wide social network, as participants did not need any special hardware or mobile client application to be involved. The 2D barcodes was found to be a feasible low-cost approach for unique participant identification and social network interaction. Implications for the design of future systems of this nature are discussed.

Keywords: 2D Barcode, Festival, Identification, Interaction, Mobile, RFID, Situated Display, Smartphone, Social Network

INTRODUCTION

In the Web 2.0 area social networks have played a pivotal role. They connect people throughout the world, regardless of their actual localization, enabling participants to communicate and easily share experiences and content. Recently, social networks that take advantage of the physical and spatial proximity of the participants have gained attention. Festivals are creating websites that allow people to register, exchange information, opinions, ratings, etc. In addition festivals increasingly use popular social networks, such as Facebook and Twitter as communication means for participants. These social networks are more focused on a particular event and can have some unique features related to the fact that participants will be (at some point) in the same location at the same time. Music festivals are interesting in the context of urban computing (Kindberg, Chalmers, & Paulos, 2007) as they typically form small city-in-a-city environments with short lasting communities.

In this paper we present a prototype system that uses 2D barcodes on festival participant wristbands as means to participant identification in the system, and enable linking the festival...
participants to a personal profile. This profile can be used in several different applications in a festival-wide social network. The social network applications are built on top of the simple social network framework we created for the CO2PENHAGEN music festival event where our initial experiments were carried out.

RELATED WORK

Barcodes on wristbands have been applied in health care typically to promote patient safety, such as patient identification to eliminate medical errors and medication mistakes (Mun, Kantrowitz, Carmel, Mason, & Engels, 2007). However, in the area of mobile social applications (Smith, 2005; Thom-Santelli, 2007) barcodes have mainly been applied to link physical objects in the environment to available information (Hansen & Grønbæk, 2008). Other applications of barcodes include games (Schmidmayr, Ebner, & Kappe, 2008), situated learning (Kurti, Milrad, & Spikol, 2007), tourist applications (O’Hara & Kindberg, 2007), focusing on the barcode augmenting a physical object with information typically presented through a mobile device. Thus the use of 2D barcodes for festival participant identification in this study is a novel approach. Swedberg (2009) reports on the use of RFID as identification technique used on tickets at the Ohio Music Festival, however, the experiment did not include other applications of RFID in the festival context. Zeni, Kiyavitskaya, Barbera, Oztaysi, and Mich (2009) employed RFID for crowd tracking at different festival events.

In the present study the 2D barcodes allow us to use low-cost off-the-shelf solutions as the means to support social network interaction, and thereby enable quick and cheap prototyping of different social network applications, such as interaction by means of situated displays in a festival setting. Prior work on large situated displays has focused on applications in CSCW research and groupware systems (Brignull & Rogers, 2003; Churchill, Girgensohn, Nelson, & Lee, 2004; Greenberg & Rounding, 2001).

Tuulos, Scheible, and Nyholm (2007) describe how mobile phones and large public displays were used in a large-scale game involving collaborative story writing in an urban environment. An experiment with social interaction on a situated display in a festival setting has been tested using a collaborative story writing game (a WAP based solution) by Coulton, Bamford, and Edwards (2008) and Peltonen et al. (2007) experimented with additional touch-based interaction on large displays. Jacucci, Oulasvirta, Ilmonen, Evans, and Salovaara (2007) carried out field trials with CoMedia as an approach to support spectators in event coordination and sharing of media and presence at large-scale events (such as a music festival) using mobile phones.

Our focus is to study the use and feasibility of participant wristbands with 2D barcodes for unique identification of participants to enable interaction in festival-wide social network services that we created for the CO2PENHAGEN festival. The focus is on combining the physical presence in a festival environment with the virtual one in terms of a number of social network applications, where the interaction is enabled by the 2D barcodes linking individuals to the social network.

THE CO2PENHAGEN FESTIVAL

The CO2PENHAGEN festival was a two-day music festival and arts event with 40+ bands playing, lounge areas, and activity areas with a set of installations with an emphasis on environmental aspects. Thus one of the aims of the festival was making it run entirely on renewable energy produced locally at the festival site situated just north of Copenhagen in Denmark. The grounds were divided into several areas (zones) including:

- Music Zone - with two music stages
- Activity Zone - with a DJ-stage
- Lounge Zone - where participants could relax, listen to music, or watch a film
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