

Photo Polling Wall: Expressing and Sharing Ideas on Public Display

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Abstract. Photo Polling (PP) Wall is an interactive polling system in which community members can express and share their ideas on certain subjects through public displays, mobile devices, and social network services. The PP wall system will be a combination of multimedia services (sound effect), public display, mobile web service and client & server. With these features, we propose the PP wall system as an experimental platform for developing other interactive contents.

Keywords: Public displays, Social Network Services, interaction design, mobile devices, Unity engine.

1 Introduction

We are witnessing a proliferation of displays in public spaces, such as advertising billboards, information boards and simple screens for showing television or video contents [1]. These displays typically suffered from the lack of user interaction. In the regard we designed “Photo Polling Wall”, an interactive polling system in which community members can express and share their ideas on certain subjects through public displays, mobile devices, and social network services. This system is expected to be a fun and effective platform for communication in a relatively intimate community such as schools and workplaces [2, 5].

2 System Design

“Photo Polling Wall” is a photo-based polling system with mobile accessibility and SNS characteristics. The PP Wall is designed with the following three basic ideas.

First, the PP Wall is composed of the profile photos by users and chosen examples by an administrator for visualization. Lots of people are willing to reveal their identity to the other people [3].

The second idea is that it is polling system in response to the designated topic from an administrator. Because people can express their opinion as well as voting, the PP

Wall has to be designed for people to write down comment. They can use mobile devices such as smart phone [4].

Third, the PP Wall takes advantage of Facebook. With the already popular SNS, accessibility and usability problems can be relieved, and the system can be extended into an alternative social media.

2.1 Polling Procedure

The user first connects to the PP Wall web page through the QR codes, which are placed around public displays and logs in to the Facebook account. The page shows the ongoing poll's items set by the polling administrator and other users who have already participated. The user selects an item, makes a comment, and supports other user's opinions.



Fig. 1. Stepwise sequence to the PP Wall access

2.2 Display

The display client of the PP Wall is implemented with Unity Engine (<http://unity3d.com/>) [5]. Display clients are connected to a PHP server which receives necessary data from the Facebook and sends processed data back to the clients.

2.3 Visualization

In designing the PP Wall, there are two main goals. The first is to intuitively represent the ongoing situation of the polling. The second is to give the user proper visual feedback to encourage participation.

The client shows items with respective photos, names and colors by the administrator. The items freely move around on the screen. They push back each other, changing their courses continuously. When the user selects an item in the mobile device, the item gets larger in size. Since the camera is programmed to focus on the largest item, the most popular item is placed at the center of the screen. When the user joins the polling, his/her Facebook profile image is zoomed in and the choice and comment are displayed at the bottom of the screen. Consequently, the competitive nature of the polling is intuitively conveyed.

The profile image is attached to the selected item by a spring-like string. It periodically bounced against the selected item back and forth pushing other items away. When the participant makes an additional comment or agreed with other participant's comments, the profile image gets larger. Besides, a colored speech bubble with emoticons is attached to the profile image. As a result, active users are rewarded by being more visible than others.



Fig. 2. Displaying the PP Wall

2.4 Development Details

On the mobile client side, mobile web pages with PHP are the main interface. On server side, the database saves whole data from users' devices. Based on data from the database, this system prepares the necessary resources for the web pages and public displays. Finally, to get user information from Facebook and post back the polling result on Facebook, this system is registered as a Facebook app.

3 Evaluation

We activated the PP Wall through 3 community-based displays for 5 days. We installed a screen with projector in KAIST library. We gave the four topics for 5 days. The first topic was the plan of this vacation. We changed the topic next day which was the career after graduating, and we operated the PP Wall all night. The participants increased gradually from the second day. The topic on the third day was about favorite idol groups. For the last, we chose the topic, which late-meal do you want to have for tonight.

4 Results

4.1 Data Analysis

We got total 170 comments. Except comments by the same participants, we found out that 114 students took part in this experiment. We found that some friends of the participants reacted on Facebook walls about some popular and simple topics such as favorite Idol groups. We didn't expect this kind of further participation in Facebook. Because the topic of voting were designed to be posted on Facebook walls when the participants joined in the polling. In other words, even those who could not see the display were informed about the ongoing voting from Facebook.

Furthermore, we discovered several friends of the participants clicked 'Like' in Facebook about the posted topics of the PP Wall. They left meaningful opinion about the topic.

4.2 Continuous Participation

'Continuous Participation' is defined as joining or clicking more than once within 5 days. In case of the PP Wall, log-in state is maintained until intentionally logging-out. About 20 percentages of all participants had a tendency of Continuous Participation. It showed a possibility to develop a new kind of Social Networks Service using public displays. If the experiment period is longer than 5 days, much data might be collected for more accurate results.

4.3 Place for Communication

The participants can leave comments up to 80 letters. Because this experiment was conducted in a particular community, the participations tended to discuss about community-based topics. For instance, some campus couple uploaded comments like a love letter. Moreover, even though the participants didn't know each other, they freely expressed themselves as to the topics as they seemed close friends. We can forecast that PP Wall can be an interesting system for gathering data or sharing opinions.

5 Conclusion and Future Works

The PP wall system is a combination of multimedia contents (sound effect), public display, mobile web service and client & server. In this regard, the PP wall system as a good platform for developing other interactive contents.

However, this study had limitations regarding accessibility to the system. We designed the PP Wall to be accessed with Q.R code but many users were not familiar with the Q.R code. We also found a problem in Facebook log-in process. Since 'allow' button is located at the bottom of the display on some smart phone, going to the next page is difficult.

In our current version, the voting scene was not broadcasted to the user's personal devices due to some technical difficulties. If the broadcasting feature is implemented in the next version, users will be able to play the PP wall remotely as well as in front of the large displays with friends. It means that the PP wall can be a unique combination of a mobile game and a SNS-based social game. This will make the PP wall a new kind of group participatory game in which people share opinions and comments and have game experience at the same time.

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