
Harvesting communal interaction with public displays through place-dependent "community displays".

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Abstract

We explore the concept of "community displays" based on the analogy of community gardens, where information is communally owned and shared. We propose that community displays be designed as essential part of public space, communal and shared, local and location dependent, needing nurturing, and able to produce physical and aesthetic outcomes. This can be achieved by conceptualizing displays as physically owned and bound to the place they belong to, but formed of pixels that belong to a co-located community. Finally, we propose that community displays should focus on sensing and visualizing community member relationships, visits, co-operations and nurturing actions in order to lower the complexity that arises when displays are used in public settings.

Keywords

Community, Public Displays, Social Media.

ACM Classification Keywords

H.5.3. Information Interfaces and Presentation.Group and Organization Interfaces - Collaborative Computing.

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Introduction

Social networks, either virtual or real, are conditioned by geographic proximity [2] and depend on daily interactions that occur in the public spaces of the cities we cohabit. Co-location in such spaces allows for a sense of “common place” that enhances social interaction and the sense of community between the people that share such spaces. New display technologies (e.g. urban displays or digital facades) wishing to become part of public interactions need to understand the nature of community interactions and public space. Our work aims to understand the definition of place as perceived and lived by the members of the communities that use them on a daily basis. We have focused on exploring the local coffee shop as epitome of urban public space where communities gather to socialize. Based on the metaphor of community gardens; where large numbers of individuals gather to socialize, seed and harvest food and personal links that in turn help build a sense of community; we have developed the concept of “community displays”. We defined community displays as situated public displays tied into the organic functioning of urban communities by depending on communal and cooperative interaction, dependent on presence, needing nurturing and producing rewards for the community.

Defining Urban Places

In order to understand the nature of urban public space, we performed an initial observation of 4 different coffee shops, bars and study lounges within The University of British Columbia. 29 participants aged 21 - 39 responded to a survey designed to measure (1) perception and usage of the public spaces, (2) perception and interaction with co-located friends, (3) usage of public and private displays, and (4) perception of, and interaction with, co-located people. Our analysis indicated that 25% of participants perceived public places as transient, e.g. “to grab a snack”, 26% considered them as

social hubs, e.g. talk to friends and people-watch, while 29% used the spaces to either work or read. We found that 77% of participants used the space several times per week, and 55% used the space for more than an hour. Public displays were perceived as integral part of such places, but 56% of participants used them to “kill time when bored”. Respondents agreed that both public and private displays were used in a social manner when social interactions, e.g. meeting new people, increased. In such case, displays were frequently used as part of the space, along with board games, furniture and posters, as “discussion accessories”. Further analysis of open-ended questions showed that the public spaces surveyed were conceived by their users as formed by three components:

1. The people present in the place, i.e. friends, relatives or possible new acquaintances.
2. The social or aesthetic qualities of the space.
3. The products consumed in such a place and that make it unique, including drinks and media content.

Community Gardens and Community Displays

A community garden is a place where people “own” a piece of shared land they nurture and cultivate. With time, these places evolve into complex patterns of collaboration and/or competition rarely seen in other communal endeavors. Moreover, community garden users generally see their share of land not only as their property but as a representation of themselves as part of a community. Community gardens have many benefits including addressing personal problems, better community cohesion, creation of new bonds with neighbors and enjoyment of both the garden’s aesthetic and productive values [1]. These benefits result in sustainable

communities fully aware of their actions and their effect on the environment or place they occupy. Community gardens are defined by their communal usage. That is, owned and used by a collective to produce food owned both by individuals and the community that operates the garden. Government owned gardens are common in urban environments, where land is legally owned by the local government but leased, at low costs, to local communities. In a similar manner, we can conceptualize public displays as owned by individual parties, i.e. the local government or a coffee shop, but maintained and operated by the community that uses it. Although the public displays are physically owned and bound to the place they belong to, their pixels are shared and manipulated by an engaged community that expects a reward of their repetitive "nurturing". We call this paradigm "community displays", or situated displays that are (1) an essential part of public space, (2) local and location dependent, (3) communal and shared, (4) in need of nurturing, and (5) able to produce physical or aesthetic outcomes.

Guidelines for Community Displays in Urban Settings.

Following our definition of community displays we provide an initial set of guidelines to design prototypical, yet flexible, public display content and interactions that promote communal usage.

1. An essential part of public space: Public displays are generally deployed in socially active public environments and as such should be linked to the qualities that make such spaces special. For example, large displays should be treated as part of the architectural design of such places. Their placement, form factor and content should take into account colour palettes, shapes and proportions of the space.

2. Communal and shared: Hierarchical manipulation and visualization of data should be avoided by designers as it generally leads to non-communal paradigms of interaction. Display content should belong to the community, rather than being associated with specific individuals. For example, collaboratively building a "phrase of the day" would be preferred to sharing customer pictures from online social networks.
3. Local and location dependent: Public displays, and their content, must be based on "presence" and limited to a local community. Location-dependent interaction is an asset, rather than a limitation for community displays. For example, sharing a list of people "available to talk" can promote meaningful casual interaction within members of the community.
4. Needing nurturing: Interactivity should be founded on repetitive social actions (e.g. participating in discussion, creating friendship links, collaborating in group activities). Gardens need constant care, similarly public displays and their content should be designed to engage people in constant interactions that enhance the content or produce rewards. An example would be ambient visualizations that are only displayed as a result of collaboration between co-located individuals.
5. Able to produce physical and aesthetic outcomes: Rewards, of physical (e.g. products, discounts) and aesthetic (e.g. pleasant visualizations) nature are key components to achieving public displays that form part of the perceived nature of urban public spaces. For example, rewards in a coffee shop can be either a free coffee or an aesthetically pleasant visualization.

Information in Community displays

We propose a simple and scalable approach to sense and represent data that community displays depend on. Our definition of community displays focuses on four fundamental types of data:

1. Relations. Quantity and quality of person-to-person links that a specific user has created with other people that use the community display.
2. Visits. Information related to duration and rate of visits to the place, where the community display resides.
3. Co-operations. Quality and quantity of actions performed in a cooperative manner, e.g. voting for the same song in a vote-based music jukebox.
4. Nurturing actions. Quantity of actions taken by community members to maintain their share of the community display content.

Researchers have explored anthropomorphic [3] visualizations of human social interaction with success. However, our initial survey of public spaces suggested that minimalistic and eye-catching visualizations are more efficient at attracting the attention of public space users and, if well designed, reduce the mental effort needed to decode the information. This is due to the fact that (1) public displays only serve as background support to existing social interactions, and (2) public displays vary in form, capabilities and usage, leading to content and interaction paradigms that are complex and difficult to measure. We suggest that limiting to visualizing the components outlined above can be beneficial for both designers

and the communities that interact with public displays in a daily basis.

Conclusion and future work

We have proposed the paradigm of “community displays” as an initial approach to public displays in urban environments, where co-location, communal interaction, nurturing and rewards are used to enhance social interaction between members of the communities that use such spaces. We have presented an initial set of design guidelines and a first approach to sensing and visualizing information through such displays. We are currently applying these concept to several prototypes to be tested in a local coffee shop to validate, and if necessary extend these guidelines.

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