Description of a prototype for a social awareness system used during dinner

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CHI'12, May 5–10, 2012, Austin, Texas, USA.
ACM 978-1-4503-1016-1/12/05.

Abstract
We aim to explore the inherent social qualities around food consumption and the potential role of social systems in the kitchen. We present a prototype called FoodApp that allows a group of friends to share each other's dinnertime activities. This system is informed by prior work in domestic computing, social computing and technology probes design. The main features of the system are to support lightweight social cues about cooking and eating activity, as well as support for activity coincidences. Future studies of this system will explore whether social connectedness in the kitchen can encourage positive behaviors around food.

Author Keywords
Social computing, HCI, Food, Awareness

Introduction
Mealtime is a daily activity around which many different social mechanisms take place. For a family, mealtime can be a moment of reflection and creation of shared memories, shared cultural experience, and personal identity [2, 9]. Yet, people who live and eat alone miss out on these social processes. Our goal in this work is to understand how technology can support, augment, or create entirely new forms of social interaction around meals for those that live alone. Here, we describe the design of FoodApp, a technology probe for a small group of friends that can provide awareness of friend's mealtime activity.

Related Work

The existing body of work in domestic computing and social awareness systems informed our design. Through our design probe, we hope to gain insights into this design space for future iterations.

HCI in the cooking process

There are many examples of HCI systems for the kitchen covering different parts of the cooking process: such as grocery store purchasing [5], meal planning [1], cooking [11], and eating. These systems attempt to optimize different aspects of meals (e.g. nutrition). However, meals also play an important social role. To shift the focus from efficiency towards delight, Grimes et al. provide illustrations of ideas for celebratory technologies to support enjoyable aspects of meals [2]. The idea of celebratory technologies inspired us to explore social awareness in the kitchen.

Past projects have focused on supporting social interaction in the kitchen [6, 8, 10]. These projects recognize that meals have inherent social qualities that can be supported through interactive technology. For example, in the Sociable Kitchen, a recipe is embedded in the kitchen island, which is a prime location for social gathering [6]. In Kitchen Stories, cooking as a social activity is enhanced through an interactive digital cookbook [10]. These systems tend to support co-located activities in the kitchen. Mealtime social interactions also take place outside the home. In fact a number of mobile applications around this concept have become successful businesses: for example, in Foursquare users check-in to restaurants (i.e. reporting that they are eating there) and share their location with friends, while FoodSpotting shows friends' uploaded pictures of restaurant meals. Similar to these commercial systems, we want to connect friends who are not in the presence of each other when they are enjoying their meal in their respective homes. Our focus is on a distributed at-home mealtime experience to support individuals living alone.

Social awareness systems

Ambient social awareness systems have been shown to increase feelings of social proximity between loved ones. For example, the BuddyClock system augmented a traditional alarm clock with sleep information about an intimate other [4]. The digital family portrait connected elder parents with their children to maintain a sense of awareness about the other person's activities [7]. These studies showed that awareness systems decreased the sense of loneliness and increased the sense of social proximity. They demonstrate that people are generally interested in sharing information across homes, particularly with loved ones (i.e. friends and family). The information that is shared is mundane, but provides an important social context and shared experience. We believe that information about food practices would be well suited for this type of activity sharing.

Another relevant project is InPhase that connects families separated by distance through coincidental actions [12]. Activity coincidences happen when two individuals do the same action at the same time. For example, when two people open a door at the same time in their respective homes, a chime sound would be emitted to highlight this coincidence. Being aware of this coincidence increasing a sense of social proximity. In the context of the kitchen, we expect that knowing when a friend is eating could be insightful, but knowing that that you are eating at the same time as your friend

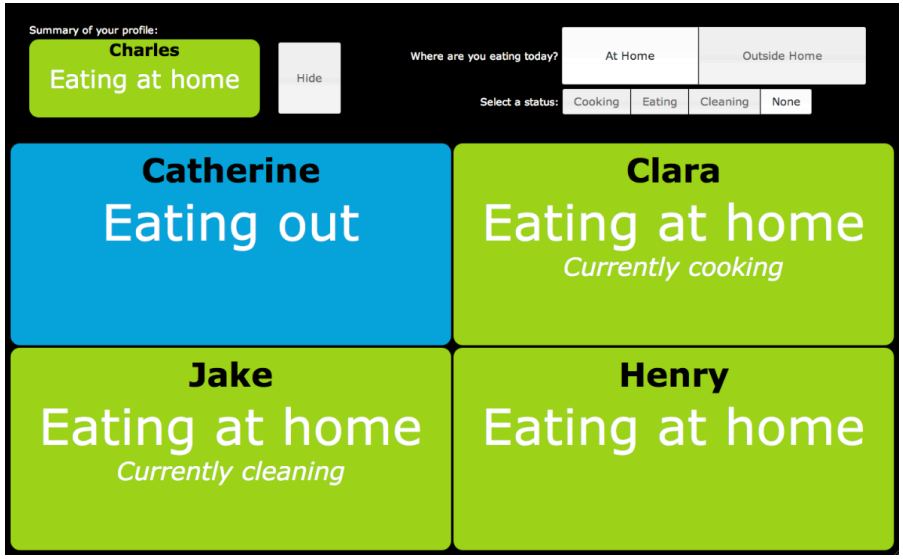

Figure 1. Design of the FoodApp interface. Current user summary in the top left corner. Checking in and setting a status in the top right. Friend mosaic in the bottom.

might be even more meaningful. We designed our system with the idea of allowing these coincidences to occur.

Technology probe

We designed the FoodApp system as a technology probe [3]: a simple, flexible tool with the aim of understanding users' real-world needs and desires, and inspiring users to reflect on new technological possibilities. It was not designed specifically to encourage or discourage specific types of behaviors; instead, we were interested in how users would appropriate the FoodApp functionality.

Design Rationale

The main interface consists of a mosaic representing each user (see Figure 1). This provides a glanceable interface for an instant representation of the social environment. Similar to FourSquare or Twitter, FoodApp user to "check in" a status by clicking on a message: "Eating at home" or "Eating out." When "Eating in", a user can optionally add granularity by selecting one of three statuses: "cooking", "eating" or "cleaning." These more detailed statuses were designed to provide more opportunity for activity coincidences [12], providing a stronger sense of social proximity.

The system is refreshed on a daily basis: every day the system will clear itself inviting the user to update their current activity. Those who don't check in are not able to see the status of the others. There is also a 'hide' button that allowed people to remove themselves from this shared space, by doing so others didn't see them as being at home and they aren't able to see the actions of others.

The interface is explicitly built with the intention of not allowing direct text-based communication. Much like the BuddyClock system, this interface provides informal social awareness cues [4]. Since this system is a technology probe, we are interested in seeing if these cues are a catalyst for more formal communication. Depending on the outcomes of our probe study, future iterations might include text-based communication. However we also expect that these informal cues might suffice to create a sense of social connection. In fact, informal communication might be well suited to the kitchen environment when user's attention is divided among the different cooking tasks.

Implementation

The system is a website written in HTML/Javascript/PHP that automatically refreshes every 5 minutes. The back-end of the system is a database that maintains

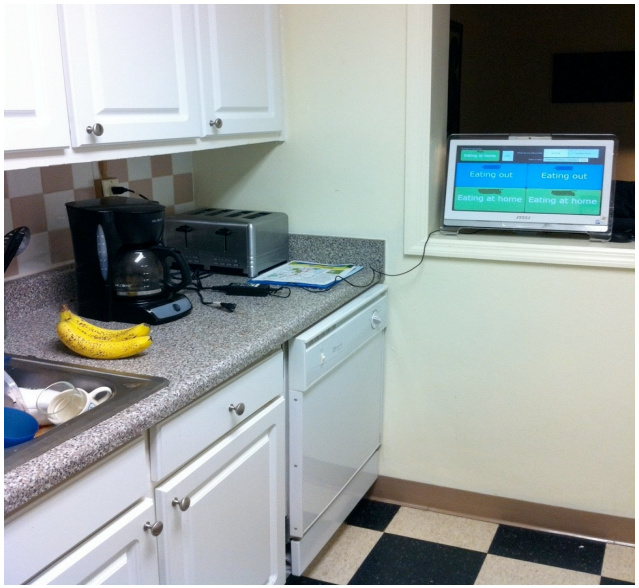

Figure 2. Installation of foodApp system on a touch screen monitor in a kitchen

the current state of all the users in terms of where they were eating, and their current cooking status. The interface is meant to be portable enough to be used on a mobile device or a desktop computer (see figure 2).

Conclusion

We described FoodApp, a social awareness system for increasing social proximity during meals that are prepared and eaten alone. This system is informed by prior work in domestic computing, social computing and technology probes design. The main features of the system are to support lightweight social cues about cooking and eating activity, as well as support for activity coincidences.

Our future work is to study this probe in context with groups of friends who live alone. Through increased sense of social proximity, we hope to see an increased engagement among users in terms of their discussions about food and meal practices. Through this work, we aim to explore how supporting social connectedness and enjoyment in the kitchen can encourage positive behaviors around food.

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