

A Demo of Family Calendaring using LINC

Carman Neustaedter
University of Calgary
2500 University Drive NW
Calgary, AB, Canada

A.J. Bernheim Brush
Microsoft Research
One Microsoft Way
Redmond, WA, USA

Saul Greenberg
University of Calgary
2500 University Drive NW
Calgary, AB, Canada

carman@cpsc.ucalgary.ca

ajbrush@microsoft.com

saul.greenberg@ucalgary.ca

ABSTRACT

LINC is an inkable tablet-based digital family calendar designed to overcome coordination challenges within existing family routines. As an awareness appliance, LINC can be placed in any home location to provide *at-a-glance family calendar awareness* which in turn can enable family coordination. In this demo we will illustrate LINC's simple and flexible interaction, how LINC provides change awareness and how family members can access the calendar while mobile and at work using LINC Mobile and LINC Web. This allows families to coordinate activities wherever family members may be located.

Categories and Subject Descriptors

H.5.3 [Group and Organization Interfaces]: Computer supported cooperative work

General Terms

Design, Human Factors.

1. INTRODUCTION

Coordinating family activities often requires a complex system involving planning events, rescheduling them, and much more [1,2]. Family coordination routines also extend beyond the home to include scheduling and coordinating events while mobile or at work [1]. At the heart of many families' coordination systems is a paper calendar that families use to record and stay aware of each others' activities. Paper calendars are easy to use, mobile, and personalizable [2], yet they are not easily available from the many locations that family members frequent during their daily activities. Some families use multiple calendars to overcome this problem, yet this brings challenges of synchronization [1,2].

Technology offers promise for family calendaring. Via networking, digital calendars can make calendaring information ubiquitous and simultaneously accessible from a variety of locations. This lets families more easily view, coordinate and update their activities and events. The challenge is that we cannot simply migrate digital calendars from work into the home [3]. *Family coordination is focused on gathering awareness of the family's activities which then enables family members to coordinate* [3]. This contrasts with workplace practices where coordination is done by sending meeting invites which assign people to events. Thus, families need a digital calendar that can provide them with *easy awareness of the entire family's activities*



Figure 1. LINC in a family's kitchen.

while being as *simple to use* as the paper calendar that many are already accustomed to using. Commercial digital family calendars have been designed for the web (e.g., FamilyScheduler, Trumba), yet they are still not designed around the awareness model needed by families. For this reason, we have designed LINC, a digital family calendar, specifically to meet family coordination needs. A video [4] shows LINC in action and full design details are in [3].

2. AWARENESS AND COORDINATION

LINC is an inkable digital family calendar (Figure 1) designed to be a simple awareness appliance (prototyped with a Tablet PC) that provides the benefits of a digital calendar, yet is still as simple to use as a paper calendar [3]. The demo and this paper describe the features of LINC that are focused on enabling family awareness and coordination. Figure 2 shows the events of the Jones family where Kayla, the mother, is its primary scheduler.

Shared by the Family: LINC is designed to be a shared family calendar that can display all activities that will affect the family. This contrasts work and online family calendars which are typically designed for the individual. After providing the family password initially, LINC users do not have to logon to LINC or otherwise authenticate themselves.

Simple and Flexible Interaction: Adding events to LINC is a simple process, much like paper calendars. Kayla hand-writes on an empty sticky note under 'New Events' with the Tablet PC stylus (Figure 2, top left) and then drags the note on to the calendar where it shrinks to fit. Kayla can resize notes by dragging the bottom right corner of any note. This technique also allows her to create events that span multiple days. The handwriting itself is important for it provides Kayla and her family with flexibility: they can freely format notes to fit their personal style. For Kayla this is important because the types of events she adds to the calendar vary as well as the information she



Figure 2. LINC on a Tablet PC showing a sample family's calendar.

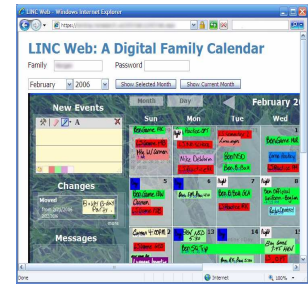


Figure 3. LINC Web and LINC Mobile.

wants to write down (e.g., sometimes Kayla writes the time on the event, other times she doesn't). The handwriting also lets Kayla and her children draw pictures (like the cake on June 11th and heart on July 7th) to represent events or recognize who added events.

At-a-glance Awareness: Kayla's family has LINC placed in a high traffic area of the home so as family members pass by they can easily gain an awareness of family events. LINC's design as an always-on awareness appliance supports this: there is no task-switching or computer startup required. Kayla's family uses LINC's flexible color options to provide at-a-glance awareness of which family members have events. She assigns a note color per family member by tapping on the color options at the bottom of a new note (Figure 2, top left under 'New Events').

Change awareness: Other family members also use the calendar in addition to Kayla and it is important to know who has updated or added events on the calendar. When Kayla checks her calendar, she can look at the last change under 'Changes' (Figure 2, left), or the last 100 changes by clicking 'more.' Along with each change, Kayla sees a description of the change type and a small image of the prior version of the note. When Kayla clicks on a change, the event is highlighted on the calendar.

Calendar Access from Work: Kayla and her husband, Karl, also need to check the family calendar periodically while at work in order to coordinate family activities. Kayla has installed LINC on her work PC, which synchronizes with other LINC clients using a remote server. This feature lets multiple LINC clients run autonomously from any location (provided that an Internet connection is available during synchronization). Karl can't install LINC at work because of security restrictions. Instead, he gains an awareness of the family's activities using LINC Web which displays an image of LINC in a web browser (Figure 3, top).

Mobile Calendar Access: Kayla and Karl are not always at a computer and need to check the calendar while mobile. They both run LINC Mobile on their Windows Smartphone (Figure 3, bottom). It displays images of the family calendar and allows Kayla and Karl to pan and zoom around the calendar to gather an awareness of activities.

3. CONCLUSION

LINC is a digital family calendar designed to meet the coordination needs of families by providing easy awareness of the calendar in the home, at work, and while mobile. We achieve this through an awareness appliance model along with web and mobile phone versions of LINC. Our continued efforts involve using LINC as a design probe to better understand how families coordinate when using a digital family calendar.

4. REFERENCES

- [1] Beech, S., Geelhoed, E., Murphy, R., Parker, J., Sellen, A., and Shaw, K., The Lifestyles of Working Parents, *Report HPL-2003-88R1*, HP Labs, 2004.
- [2] Brush A., and Turner, T., A Survey of Personal and Household Scheduling, *Proc. Group 2005 Posters*, ACM Press, 2005, 330-331.
- [3] Neustaedter, C., and Brush, A., "LINC-ing" the Family: The Participatory Design of an Inkable Family Calendar, *Proc. CHI 2006*, ACM Press, 2006.
- [4] Neustaedter, C., Brush, A., and Greenberg, S., LINC, An Inkable Digital Family Calendar: The Video, *Video Proc. CSCW 2006*.