LINC, An Inkable Digital Family Calendar: The Video

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ABSTRACT

LINC is an inkable tablet-based digital family calendar designed to overcome coordination challenges within existing family routines. We illustrate its use in this video. 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. LINC can also run on multiple desktop PCs at home or work; LINC Mobile runs on a cell phone enabling calendar access when not at a computer, while LINC Web provides calendar access from a web browser. This allows families to coordinate activities wherever they may be located.

Categories and Subject Descriptors

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

General Terms

Design, Human Factors.

Keywords

Family, calendars, home, coordination, awareness

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 [1,3]. 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

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Figure 1. LINC in a family's kitchen.

simply migrate digital calendars from work into the home [3,4]. Family coordination is focused on gathering awareness of the family's activities which then enables family members to coordinate [4]. 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 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 [4]. This video illustrates LINC in action (full details are in [4]).

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 [4]. The video 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



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

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 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. Even though Kayla is the one who most often adds events to the calendar, the handwriting also lets her see who in her family has added events.

At-a-glance Awareness: LINC's design as an awareness appliance means the family calendar can be placed in a high traffic area of the home that people will pass by often, much like existing paper calendars. LINC is also always running so the family calendar is easily visible as family members pass by, there is no task-switching or computer startup required. In addition to this, LINC provides flexible color options where families can change the ink or note color to make particular events stand out. Kayla's family assigns a note color per family member and also has special colors for other 'important' events. These colors provide Kayla and her family with an at-a-glance view of events on the calendar. Kayla changes the color of the note by tapping on the color options at the bottom of a new note (Figure 2, top left under 'New Events'). She can change the ink color with the toolbar at the top of the note.

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. To see what changes have been made recently, Kayla 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: When family members are at work they cannot check most family calendars (especially if they are paper and hanging on the kitchen wall!). LINC can be installed on multiple computers, including a desktop PC at work, and calendar events are synchronized through a remote server. This feature lets multiple LINC clients run autonomously from any location (provided that an Internet connection is available during synchronization). Because calendar visibility is important, we created a LINC screensaver that shows an image of the family's calendar, transforming it into a 'nearly' always visible calendar even if it competes with other applications. Family members may also be in places where they are unable to install the LINC client like a work location with restricted computer access. For these situations, we have designed LINC Web to run in a web browser; it

displays images of the family calendar so family members can still gather an awareness of family events.

Mobile Calendar Access: Mobility is important in calendar use as it is not the case that family members are always at a PC. LINC Mobile runs on a Windows Smartphone and displays images of the family calendar; it acts as a client to the LINC server. After initially entering the family name and password using the phone's keypad, any month the user requests is provided by the server. Users pan and zoom 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

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