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# The Family Board: An Information Sharing System for Family Members

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**Abstract**

Family members must communicate on a regular basis to plan and coordinate their everyday activities. They also have to sift through and stay aware of the many pieces of information that come into the home in relation to their everyday happenings. In this paper, we describe our design of the Family Board: a distributed system that provides a mean for family members to message one another and handle the incoming information that they must deal with on a daily basis. The system runs in a web browser and family members can share messages and information to mobile devices as well situated displays in the home. We expect that our system could help users communicate and share information with their family members better.

**Author Keywords**

Domestic computing; interaction design; family communication

**ACM Classification Keywords**

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

**Introduction**

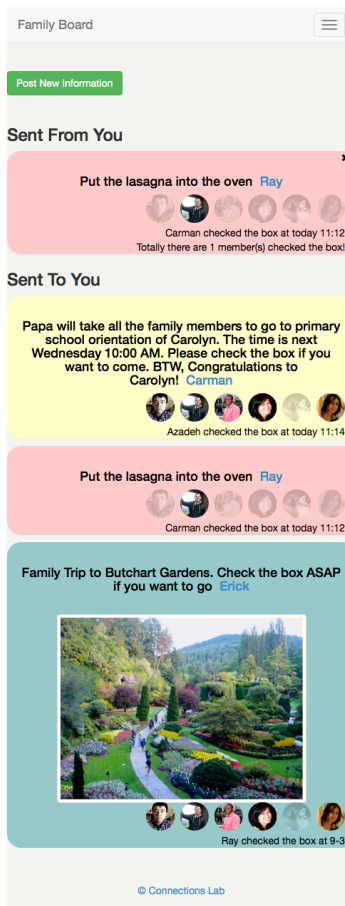
Family life is complex and involves a large amount of communication, coordination, and information sharing amongst family members [5]. Family members talk about their plans and activities when at home in person together and they phone, email, or text throughout the

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**Figure 1.** The main page of the Family Board.

day to micro-coordinate [5]. They also have a large volume of incoming information that is brought into the home, often in paper format [1, 2, 5]. This might include notices from school, schedules for extracurricular activities, or program guides for recreational activities. As these items move into the home they are placed in various locations as a means of showing their importance [1, 2]. Yet, despite these routines, it can still be difficult for family members to keep track and stay aware of the activities that are going on, and correspondingly communicate with others about them. One reason this happens is because it can be difficult to know what is most important to deal with and at what point in time [1].

Our system design illustrated in this paper, the Family Board, provides a means for family members to communicate with one another and organize and handle incoming information. With the Family Board, users can post simple messages that can be shared with family members. Messages are tagged with a sense of 'priority' so that others know how quickly they may need to respond to information. Messages can also be shared with specific devices in certain locations of relevance or at certain times.

Next we describe related systems that our design work builds upon. Following this, we describe the design of the Family Board.

### Related Designs and Inspiration

The Family Board builds on a rich history of designing family communication and coordination tools. It is most similar to Sticky Spots [3], a messaging system that allows users to send short messages or images to tablets placed throughout the home as contextual displays. The

main difference is that Sticky Spots does not allow users to prioritize incoming content. It also does not support sharing information to locations outside the home, such as a smartphone while a user is at work.

The Family Board also draws on design ideas from LINC [6], a ubiquitous digital family calendar that gives users an experience similar to using a paper calendar in order to make calendars more ubiquitously accessible. The Family Board is not a calendaring application per se, but it does allow users to share information related to calendar events.

Wayve [4] is a messaging device that runs in a situated display within the home. Users can send handwritten messages and images to other Wayve devices placed in various locations or homes. Thus, it offers place-based messaging like the Family Board; however, it does not support the display of prioritized content. Home Note [7] is also a situated messaging device that supports location-based messaging to a single device in the home. Again, it does not support the display of prioritized content.

### The Design of the Family Board

The Family Board runs on a web platform that can be accessed via computers, laptops, tablets and mobile phones. Users simply need an account and password to login. The system is divided into three parts: the message creation page, the main board, and the priority-setting page.

#### Posting Messages and Sharing Information

Figure 1 shows the main board running in a web browser. Users click the 'Post New Information' button at the top of the page to send textual messages to family members. Figure 2 shows the message creation

**Figure 2.** The message creation page.

**Figure 3.** Different level of the priority filter slider.

page. Here users can choose who in their family a message is intended for, what device it should appear on, and what time it should be delivered (e.g., now, 5pm, etc.). For example, users can select a display in public area and the message will appear on the selected device at the appropriate time. Displays in more public areas of the home (kitchen, living room, etc.) will show messages that are intended for all family members. We imagine that in this way users can quickly find their common messages at the right location without signing into the system. Time is important in case particular information should surface at a relevant time. For example, a message about putting food into the oven may be best received just before dinner. These attributes reflect the way family members may want a message to appear in a particular location of relevance or at a certain time [2].

Users customize the view of their messages by changing the background color. We provide four different colors for users to choose from. The meaning of each color is not fixed: Family members can decide the meaning of colors as they please. For example, some family members may choose to use colors for specific topics, people, or to represent urgency (this is similar to that found in [6]).

Users can choose to display images and videos in their messages to further customize them. They can also include web pages by pasting a hyperlink into the new message window. This causes the web page to display in the message via a screenshot. We imagine these features to be useful for sharing activity information found on school notices (e.g., by taking a picture) or details about community information and special events.

When sending a message, users choose a 'priority' level that helps determine how it appears on the receiving device. There are six options: Very Low, Low, Medium, Urgent, Very Urgent and *Let the System Decide*. The default option is *Let the System Decide*, which will apply recipient-defined priority rules to the message. We describe these rules below.

### Viewing Content

Users view content in the main board (Figure 1). 'Sent From You' items are shown at the top of the screen and include messages sent from the current user's device to particular family members. This lets a user keep track of the information that they have sent to others in order to follow-up on it, if needed. 'Sent To You' items are shown at the bottom of the screen and are messages targeted for the current user and his or her device.

Each message item contains small image thumbnails in the bottom right corner of each family member. These initially appear greyed out but clicking on them toggles them to be in color. We imagined this feature could be used by familiar members in a flexible way to quickly and easily indicate replies to a message such as, "I've seen it," "I'm okay with it," etc. Over time, family members could develop routines and shared knowledge around these types of actions. Users can click a 'Hide' label in the top right corner of each message to hide it. If further action occurs to it, such as a user clicking their picture thumbnail, it will reappear to show the action.

Messages are sorted in the main board by the priority score, from highest to lowest. Upon touch, a slider appears at the bottom of the board and allows users to

### Set Default Information Priority

Base on	Condition	Priority	Control
Time	Now (< 10 mins)	Very Urgent	Delete
Time	< 1 week	Low	Delete
Author	Azadeh Forghani	Urgent	Delete
Keyword	bill	Urgent	Delete

**Figure 4.** Priority-setting page.

filter messages according to their priority. We set 5 levels for the filter: *All, Above Low, Above Medium, Above Urgent, Only Very Urgent*. Figure 3 shows several levels of the slider. Our goal was to allow users to rapidly locate high priority messages.

#### *The Priority-Setting Page*

Figure 4 shows the priority-setting page where users can define rules as to what priority score a message should receive. Three types of rules are supported:

*Time:* users can set a priority score based on a message's sent time. E.g., older messages could be of a lower priority than recently sent messages.

*Author:* users can set a priority score based on who sent them the message. E.g., messages from particular family members might always be 'urgent' such as from a spouse.

*Keyword:* users can set a priority score based on keywords that appear in the message. E.g., family members might decide to include the word 'urgent' in any message that is really important. The system could then prioritize based on that included text.

If a message matches more than one rule, the rule with the highest priority is followed.

### **Conclusion and Discussion**

This paper outlines our prototype design of the Family board, an information sharing platform for family members. In the future, we plan to extend our system to include additional types of incoming information. For example, we imagine that the Family Board could show incoming emails or Facebook messages. We also plan

to conduct user studies to find out how an online platform like the Family Board can help users to coordinate and stay aware of family activities, messages, and incoming information.

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