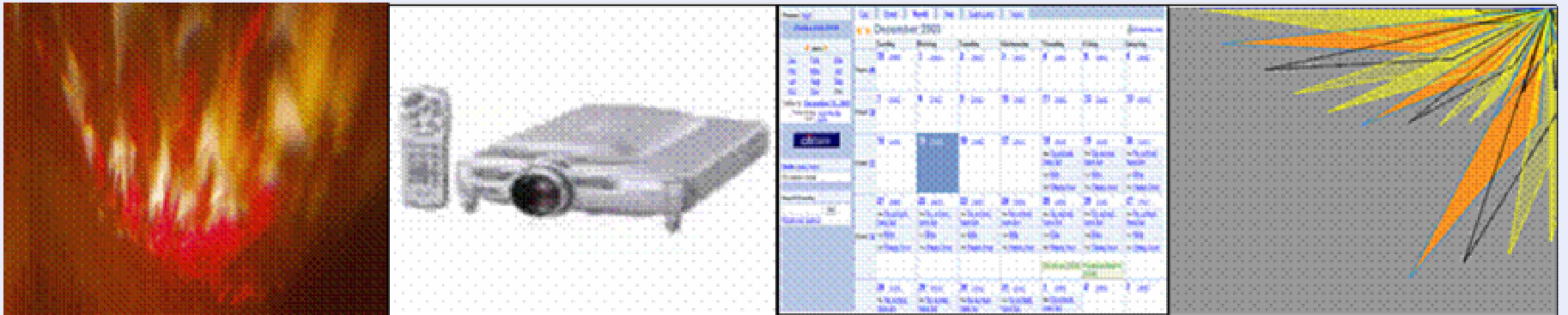Babak Ziraknejad
Design Machine Group
University of Washington

eFrame!
An Interactive Projected Family Display

Outline

- Objective, Goal, and Motivation
- eFrame Concept
- Related Work
- eFrame Technical
- Future Work and Conclusion

Objective:

To establish a web-based calendar and digital artwork into a physical environment that is dynamically updated.

Goal:

To reduce or minimize the use of existing methods; computer teamwork of viewing and updating your online calendar, as well as displaying digital artwork

Motivation:

- Collaboration between family members, and dynamic planning
- Quick access to information while away from the computer terminal
- Ease of use for the not so savvy computer users
- To monitor the unoccupied spaces to provide an added sense of awareness
- eAnimated poster to provide entertaining and engaging animations and still photos, while unit is not used for information gathering

Research Question:

Will eFrame reduce time spent at the computer terminal, and provide a more reliable reminder system?

eFrame at Home

The user has the option of positioning the projector and eFrame at a location of their choice. Preferably, the location would be in a popular and common area of the house.
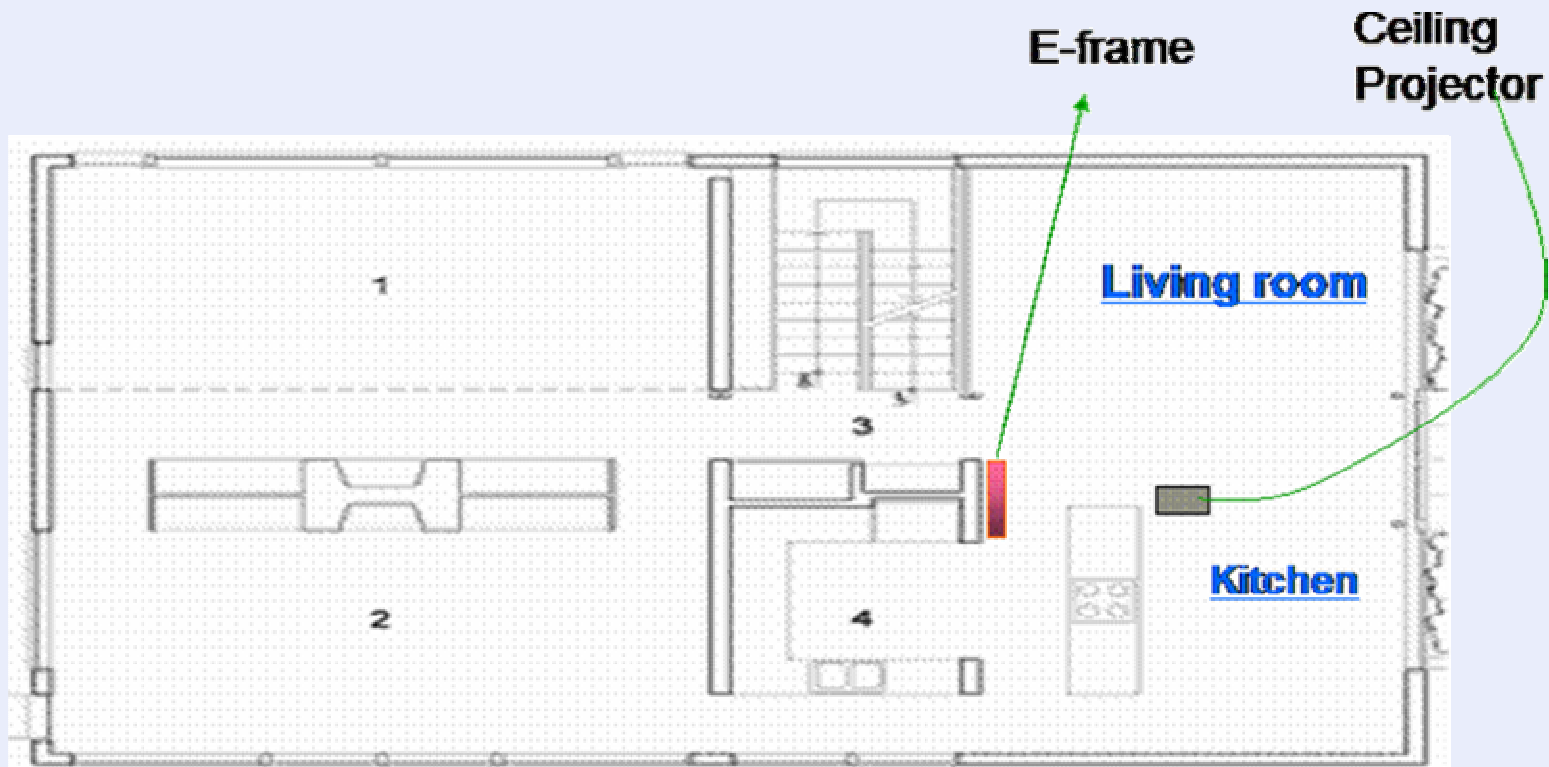
eFrame Concept

eFrame provides the ability to:

- share family on-line calendar and contact information in a common area, living room. Tracking family members schedules and family planning are simplified
- perform basic edits to the on-line calendar without a keyboard
- monitor the unoccupied spaces as well as who is at the front door, at user's request
- have an interactive picture frame that allows the users to change the content as desired
- Automatically display your daily tasks upon arrival at home

Related Work

LumiTouch: An Emotional Communication Device

Angela Chang, Ben Resner, Brad Koerner, XingChen Wang, and Hiroshi Ishii, MIT Media Lab and Harvard University

Lumitouch system consists of a pair of interactive picture frames. With the use of Internet, when one user touches her picture frame, the other frame lights up. The touch is translated to light over an Internet connections.
Similarly, eFrame is touch-sensitive

Window Seat: Yeonjoo Oh, Doo Young Kwon, Babak Ziraknejad, Jennifer Lewis, Ken Camarata, Ellen Yi- Luen Do, Mark D Gross, University of Washington, 2002

Window Seat is an interactive furniture piece that acts as a control mechanism for viewing and navigating remote or non-existent locations, such as a scale model of a building or virtual world.

eFrame also
Allows to monitor
unoccupied spaces

Digital Family Portraits: Supporting Peace of Mind for Extended Family Members Elizabeth D. Mynatt, Jim Rowan, Annie Jacobs and Sarah Craighill

The digital family portrait augments a common household object; such a picture frames to provide qualitative visualizations of an extended family member's daily life. The digital family portrait would gather information from sensors in the home. Similarly, eFrame uses a common household object; the frame, to provide information regarding family members.
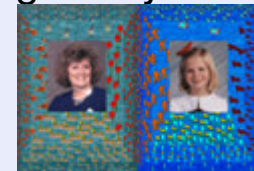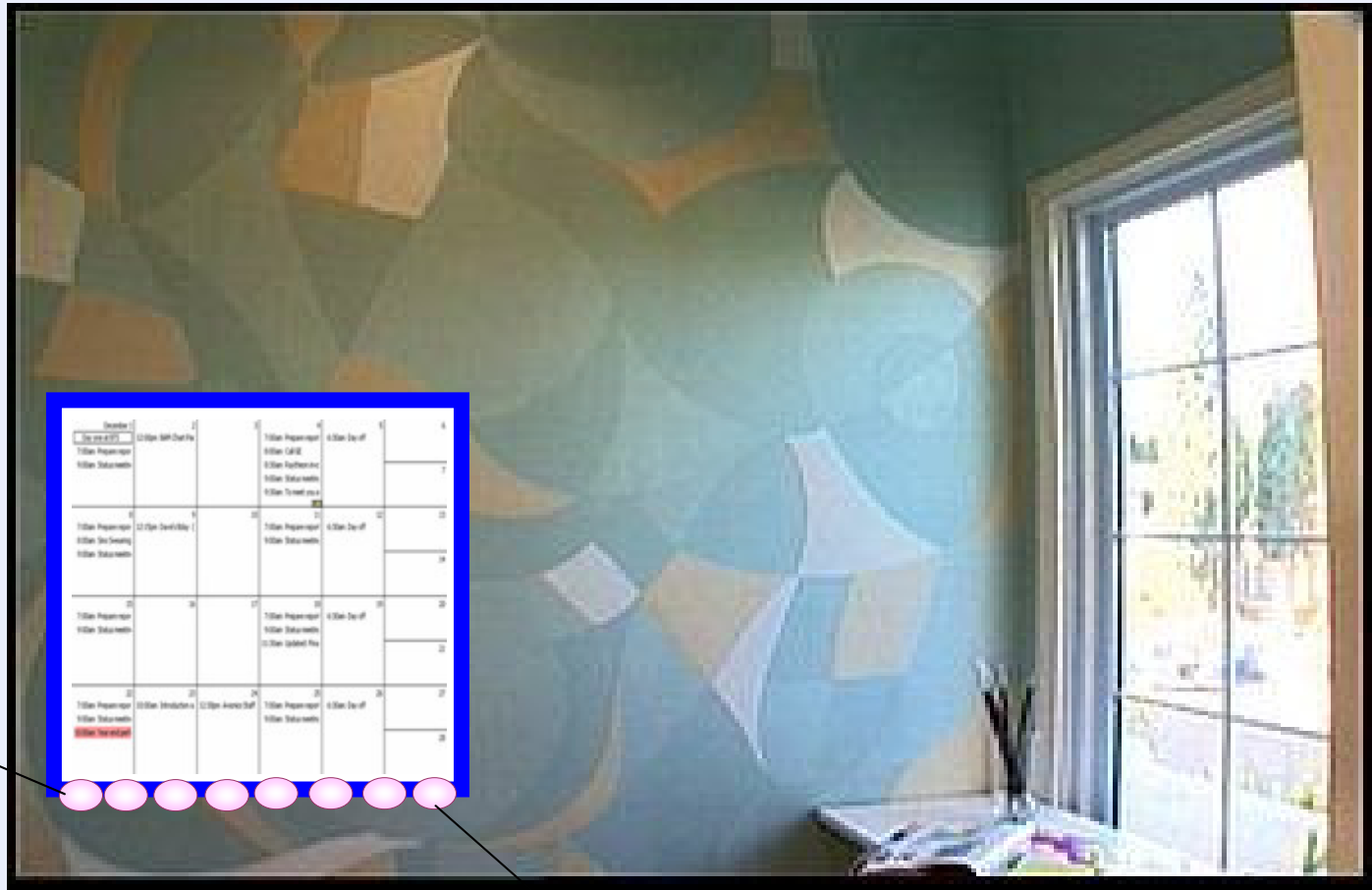
Button #1

Button #8

Figure 1, eFrame on the wall

eFrame (Technical Overview)

eFrame (figure 1) is composed of various components. The overhead projector is used to reflect the information onto a 28"X40" frame. A Handy Broad facilitates the communication between the sensors and the computer through the wires. An integral part of eFrame is the database that allows the users to select from predetermined tasks to populate the online calendar fields dynamically.

Programming codes allow the eight touch-sensitive, push-pull type sensor-buttons and knobs on the actual frame to execute predefined tasks for the users.

eFrame (Technical Overview)

eFrame can detect the user arrival as she/he pulls up in the car to the garage.   The program automatically loads up the online calendar, for the specific family member to view activities

The buttons incorporated on the eFrame allow the users to override or independently operate the unit without with relaying on the cars in garage. For example buttons number (s):

1 and 2 are used to recognize the user as they are touched

3 and 4 allow the users to navigate back, and forward

5 allows the users load animations onto eFrame. Displaying an infinite number of animations and digital artwork (eAnimated poster) on demand or while on standby

6 allows the users to activate the web cam by the front door and receive a live video feed of the area

7 allows the users to connect to the database to select predetermined tasks from a dropdown menu in order to dynamically populate the online calendar fields on need basis.

8 allows the users to escape or turn off the unit by pushing the button once or twice, respectively. Button number 8 may be also used to turn to the unit on.

8 Samples of what may be viewed on eFrame and eAnimated poster

Animation

Front door
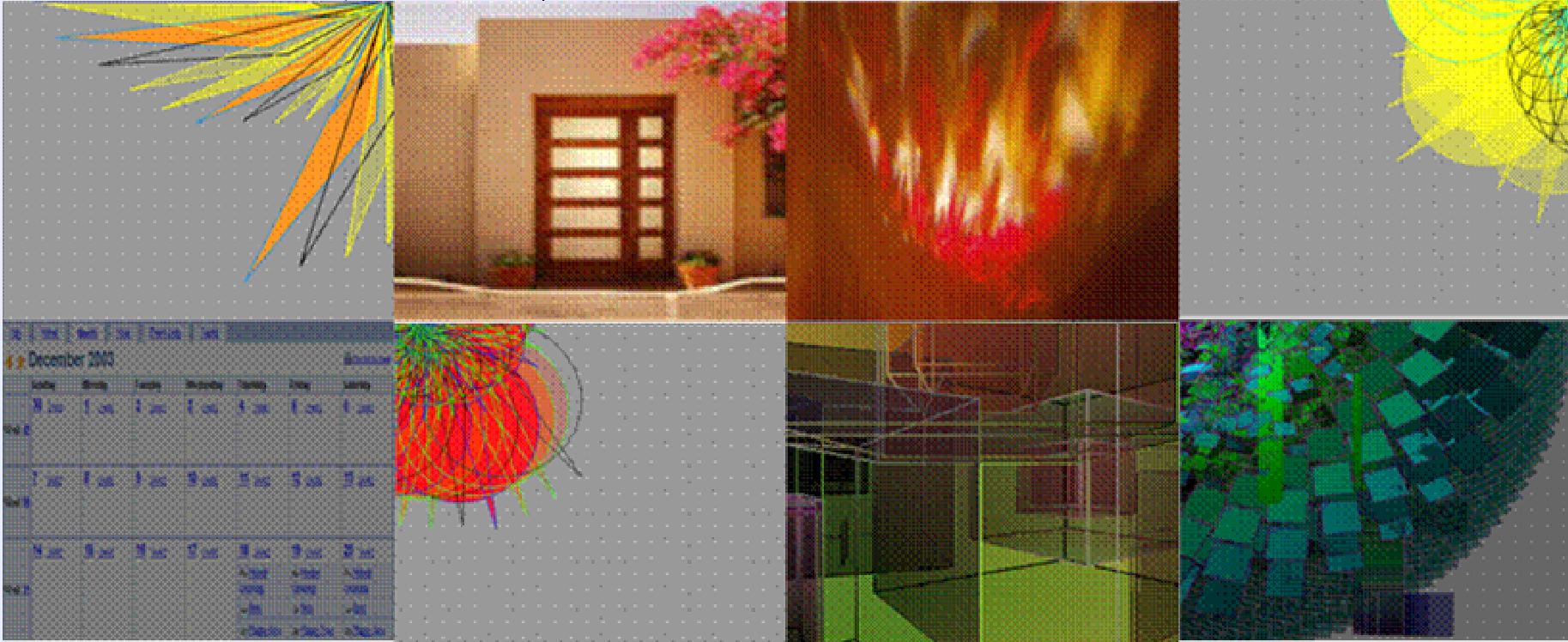
Online Calendar

Animation

Future Work and Conclusion

- To implement wireless technology since, wired interfaces are often cumbersome, limiting, and unattractive
- E-mail, read capability and notification system
- To detect unregistered users as they attempt to approach the house
- A smart projector switching system that detects what room is occupied in order to transfer information in to the occupied spaces and automatically turn off unit in the unoccupied spaces