DINNER AT 6 | Validation & Refinement

HCI   Jason Chalecki

IntD   Susan Dybbs

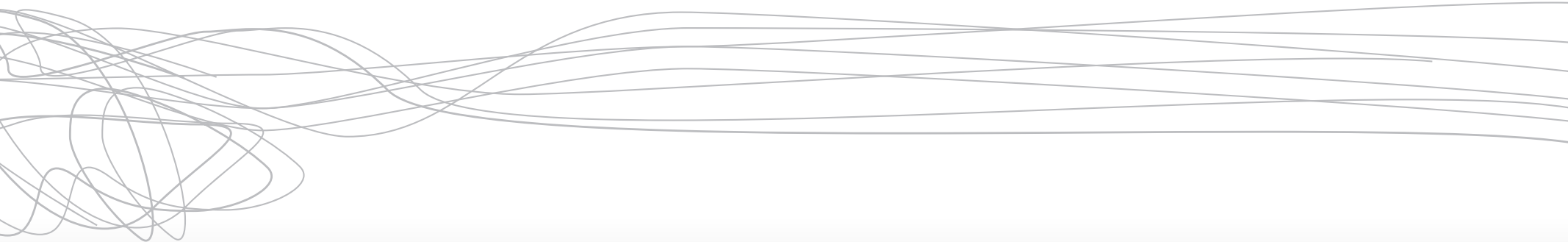CPID   Rebecca Hume

IntD   Min Kyung Lee

HCI   KC Oh

PROJECT REVIEW

project definition
system model
service placement

How can
pervasive computing
enhance
family connections **?**

PROJECT DEFINITON
FAMILY CONNECTIONS

Our team chose to focus on how families might experience increased connectivity
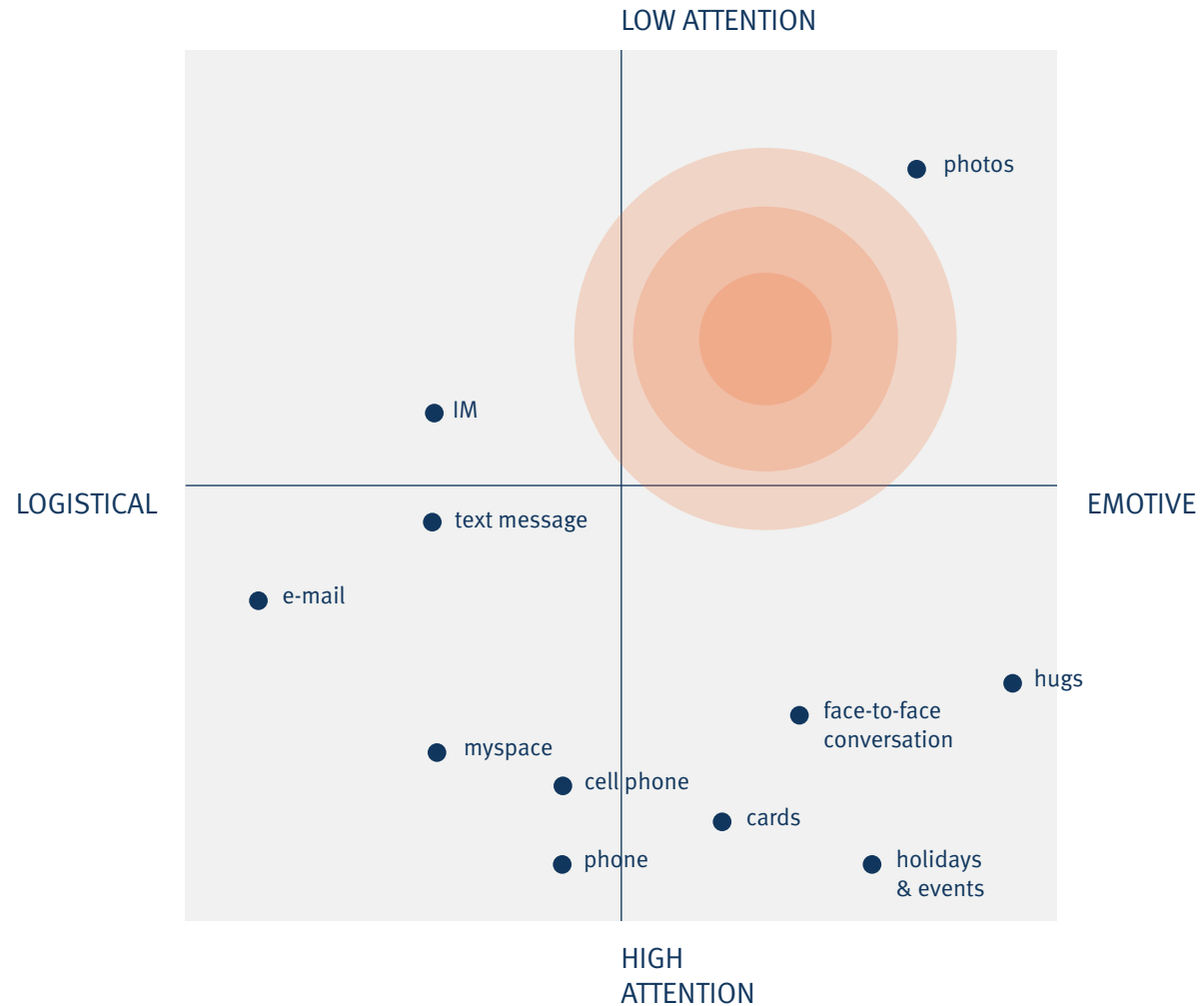through pervasive computing and unlimited bandwidth.

Emotive Network for Families

1. Emotive
2. Low Attention
3. Easy Access

SYSTEM MODEL

HOW IT SHOULD BE

Our solution is a network service for families that runs on existing and service-specific devices. This integrated system will enable continuous emotion-based connectivity, provide easy access to family members, and require low attention.

LOW ATTENTION

● photos

● IM

LOGISTICAL   EMOTIVE

● text message

● e-mail

● hugs

● face-to-face
conversation

● myspace

● cell phone

● cards

● phone

● holidays
& events

HIGH
ATTENTION

SERVICE PLACEMENT
ATTENTION & EMOTION

Most current means of communication either do not allow for sufficient emotive quality or require more attention than family members are regularly able to devote. Our service increases emotive connections and fosters a sense of awareness while requiring minimal attention.

PROTOTYPE & TESTING

sensing awareness
metaphor creation
prototype
findings
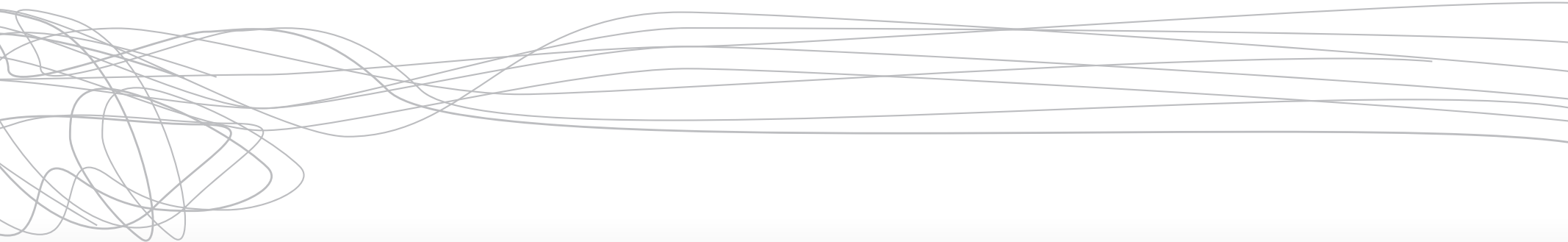
frequency of display views
random photos
ambient noise
statistics on colors present
handwriting

voice message
schedule
amount of phone time
environmental temperature
body temperature

change in location
elevation
amount of computer time
blood pressure
credit card purchases

What can provide awareness?

proximity
personal enviroment
capture activity
video capture
in a chair
mood

ambient light
change in motion
acceleration
heart rate
electricity usage
water usage

in bed
orientation of sensor
air quality
weather
location

SENSING AWARENESS
ACTIVITY & ENVIROMENT

We identified many metrics that might effectively measure information for family awareness. From these, we selected three non-invasive methods to gauge both personal and environmental activity levels.

abstract   concrete

METAPHOR CREATION
ABSTRACT VS. CONCRETE

When dealing with emotion-based information, selecting the appropriate display and interaction metaphor is important. We came up with a number of abstract and concrete ways in which we might convey a sense of family connection and awareness.

PROTOTYPE
A BALANCED DIRECTION

We selected a metaphor of individual "portals" that move across a surface. This balanced the abstract emotive qulaities of sensing a family member's activity level with the concreteness of photographic representation.

1. Navigation

We asked participants to perform a series of tasks in order to learn how easy it was for them to create new content, view and add to other family members' content, and adjust settings.

How would you view content your sister has created?

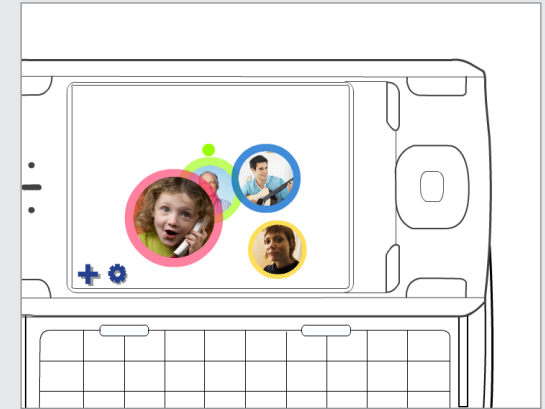**How would you change the picture displayed for you?**

2. Resonance

It was also important to determine whether we had chosen an appropriate visual metaphor for displaying emotive information.

Who would you want to be connected with by this product?

How do you feel about the information displayed through this product?

3. Significance

Using a flash prototype to simulate the kind of motion someone might see on the display, we wanted to discover whether these movements were significant and "readable" for people.

Can you talk about the motion you see on the screen?

How might you interpret this?

PROTOTYPE
TESTING PLAN

In testing prototypes, we focused not only on navigation and usabiity, but also on determining whether the display seemed appropriate and meaningful.

From our test
we learned
that people.....

require **better visual cues** for navigational icons

associated profile **management with personal detail** space

easily navigated detail of family member

require **dynamic prototype** to understand ambient display

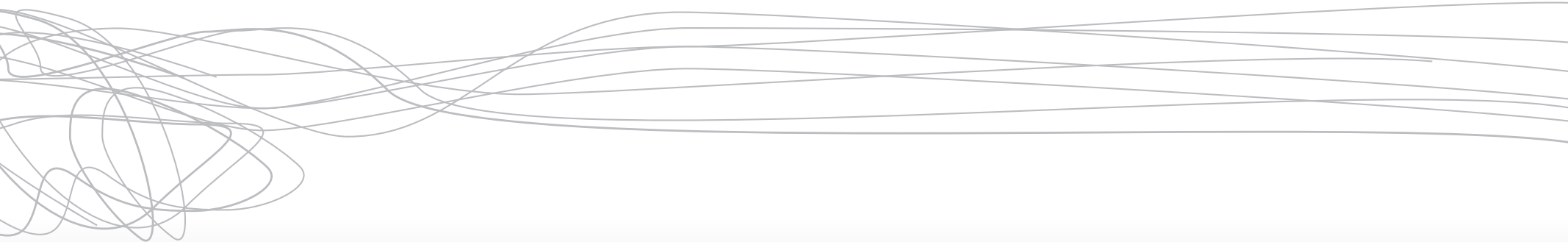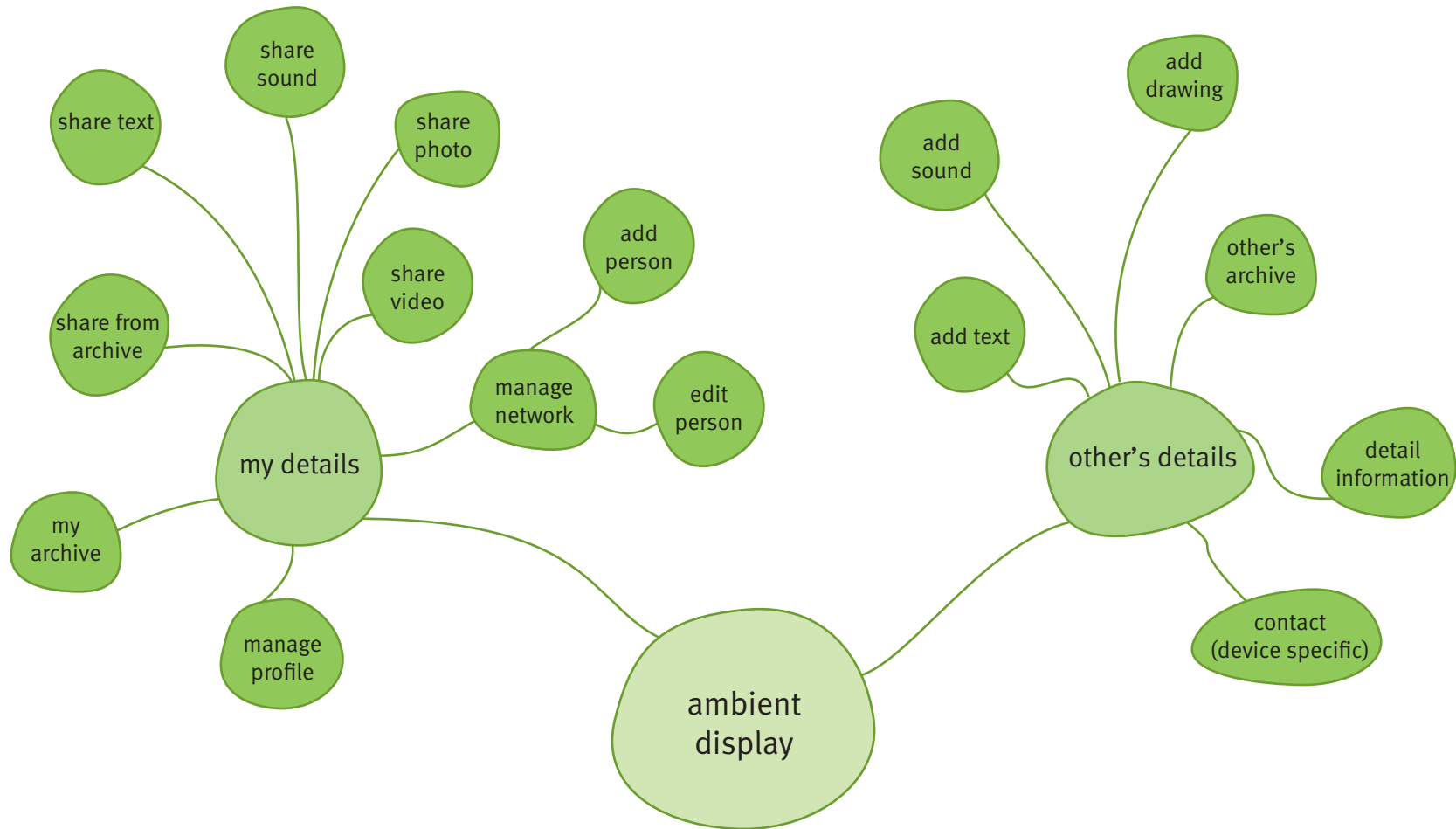desire display's subtleties to be **pronounced and specific**

FINDINGS
MIXED RESULTS

After testing participants across the family spectrum, we found that they experienced some difficulties but liked the sense of seamless sharing and awareness.

REFINEMENT

system model
features
motion
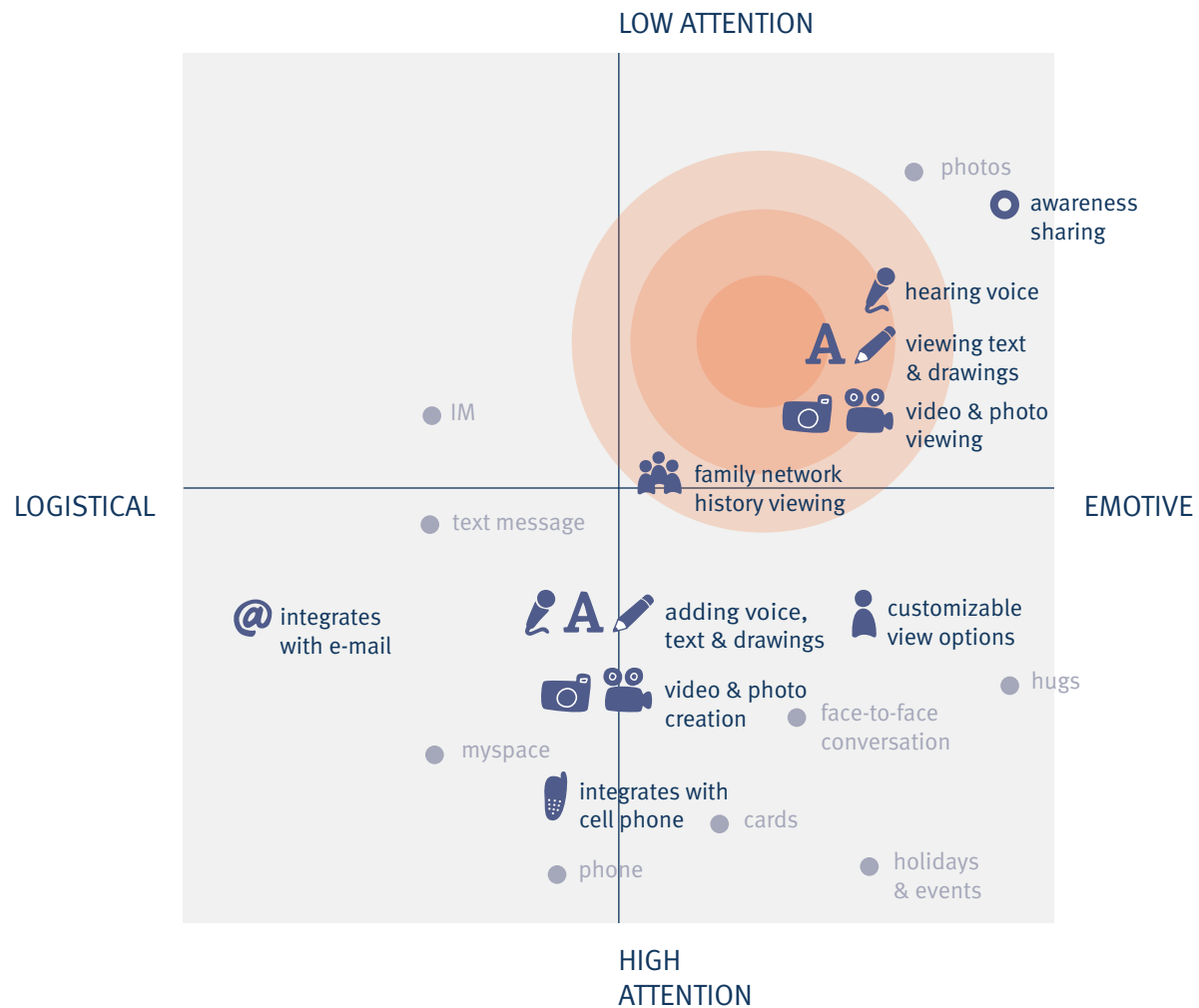personas & scenario
business plan
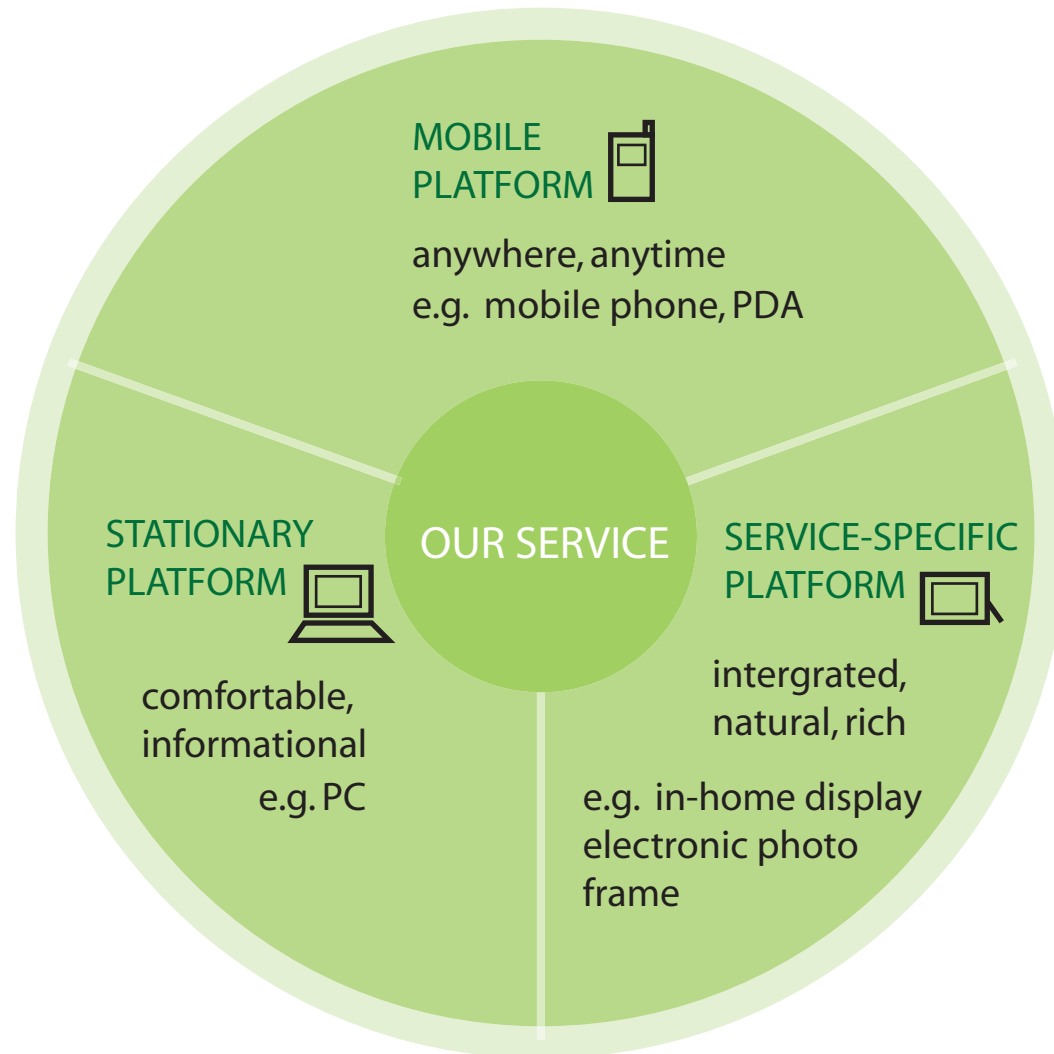
SYSTEM MODEL
TASK FLOW

From an ambient awareness display, individuals can choose to view detailed content of their own or posted by other family members. From another's detail, they are able to add to the content or contact the person; from their own, they can generate content or configure settings.

LOW ATTENTION

photos

awareness sharing

hearing voice

A viewing text & drawings

video & photo viewing

IM

family network history viewing

LOGISTICAL

EMOTIVE

text message

@ integrates with e-mail

A adding voice, text & drawings

customizable view options

hugs

video & photo creation

face-to-face conversation

myspace

integrates with cell phone

cards

phone

holidays & events

HIGH ATTENTION

FEATURES
ATTENTION & EMOTION

Based on feedback from our prototype tests, we refined our feature set, making sure each contributed to increased awareness and emotional communication at low attention levels.

MOBILE PLATFORM

anywhere, anytime
e.g. mobile phone, PDA

STATIONARY PLATFORM

OUR SERVICE

SERVICE-SPECIFIC PLATFORM

comfortable, informational
e.g. PC

intergrated, natural, rich

e.g. in-home display electronic photo frame

FEATURES
MULTIPLE PLATFORMS

The network will be accessible through multiple platforms: in the home, at the office, and on the go.
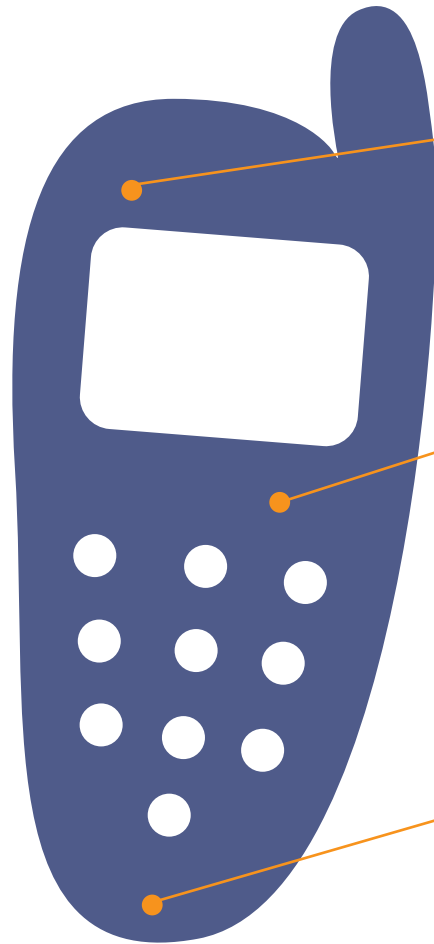
CAMERA
provides ambient light information

GPS
provides information on personal
movement & activity level

MICROPHONE
provides ambient noise information

FEATURES
SENSING AWARENESS

With a standard cell phone, awareness data will be gathered through the camera, microphone, and GPS sensor. This data is constantly sampled and averaged for the past hour, providing personal and environmental awareness information for the family display.

NEW CONTENT

When new contents or updates are added, a new satellite shape appears . Its color corresponds to the color of the individual who made the change.
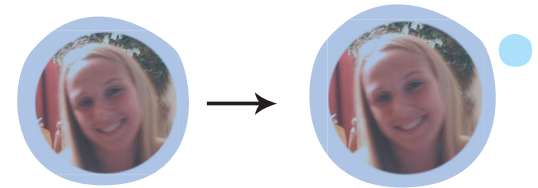
ENVIRONMENTAL ACTIVENESS

Color intensity and pulse rate change according to the activity level of each individual's surrounding environment.

[color]

calm   active

[pulse]
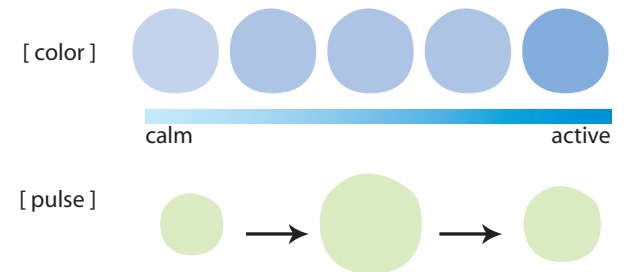
PERSONAL ACTIVENESS

As an individual's rate of motion changes the speed of the circle's motion changes.

[speed]

calm   active

COMMUNICATION PATTERNS

[bumping]

The frequency of "bumping" between circles correspoonds to how often the individuals view or update one another's content.

SOUND Ambient sound corresponds to the family network's aggregate activity level.

IDENTITY The photo shown in each circle is selected by the individual displayed.

COLOR Individuals assign other family members' circle colors according to their own preferences
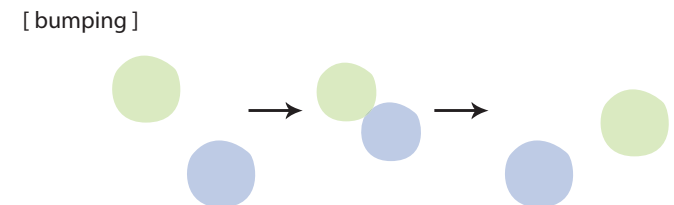
MOTION
ATTENTION & EMOTION

We carefully refined the awareness display, making sure different movemetnts of family members' circles corresponded intuitively to environmental and personal activity levels.

JULIA BJORNSTAD

AGE: 63
STATUS: married, to Robert Bjornstad for 37 years
LOCATION: Rockland, Maine

Julia feels a deep-rooted sense of commitment to her family and community. History and tradition are very important to her. Despite being retired, she remains physically and intellectually active. She looks forward to holiday gatherings throughout the year.

AMY ROLLINS

AGE: 31
STATUS: married, to Michael Rollins for 4 years; 2 year old daughter Samantha
LOCATION: Cleveland, Ohio

A mother, a wife, a daughter, a sister, and a career woman, Amy is always on the go. She loves spending time with her daughter and watching her grow. Making a positive impact through her job is important to Amy, but she sometimes feels guilty about bringing work home as much as she does.

RYAN BJORNSTAD

AGE: 29
STATUS: single
LOCATION: Silver Lake (Los Angeles), California

Ryan is passionate about the power of film to convey emotion to wide audiences. After graduating from college, Ryan stayed in LA to pursue a career in the film industry. Working his way up by doing independent films, Ryan is finally getting his big opportunity to do a film for a major studio.

PERSONAS
MEET THE FAMILY

Family members have differing communication modes and needs. Our scenario focuses on Amy, but involves her mother, Julia, and brother, Ryan, as well.

interactive scenario

SCENARIO
CONNECTION IN MOTION

Click the link to view our scenario.

|	Awareness	Unrestricted Viewing	Unlimited Storage	Share					Add				
				📷	🎥	🎤	✏	A	📷	🎥	🎤	✏	A
FREE	●	●											●
PREMIUM	●	●	●	●	●	●	●	●	●	●	●	●	●

BUSINESS PLAN
SYSTEM FEATURES

The service is subscription-based, but also includes a free level with limited adding and no content origination capabilities. Subscriptions can be purchased individually or as a family package.

NEXT STEPS

refinement & testing
expert review
product name & identity

TEST
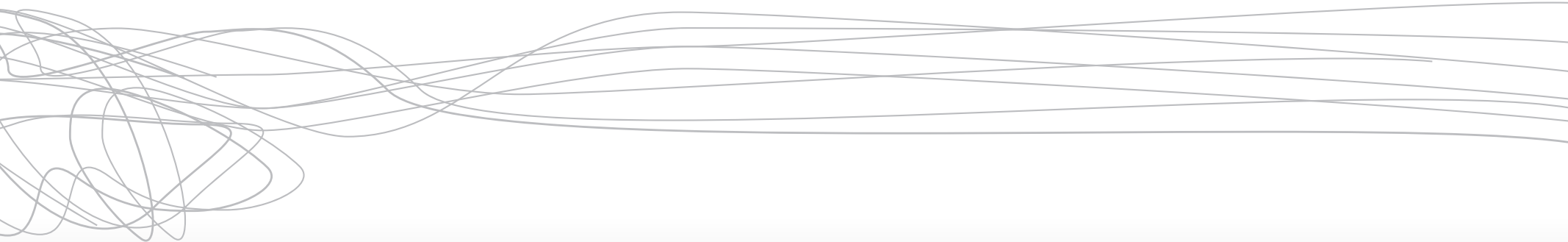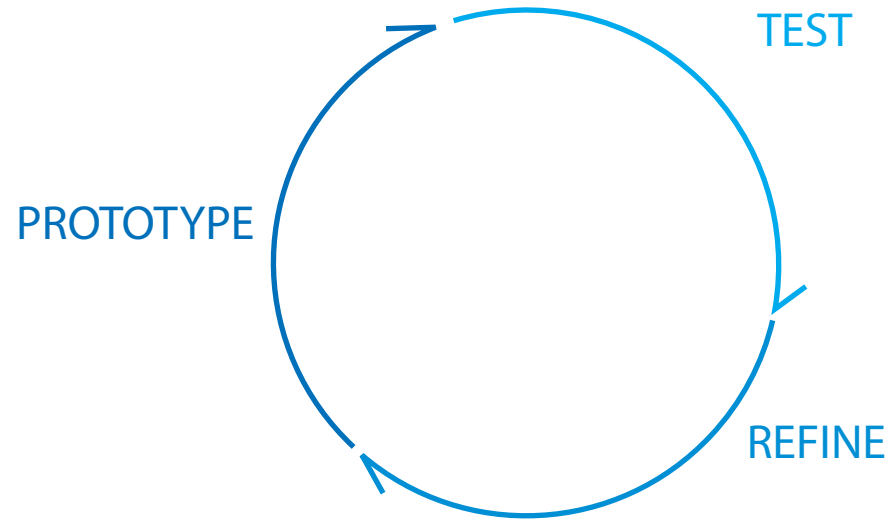
PROTOTYPE

REFINE

NEXT STEPS
REFINE , REFINE, REFINE

We plan to continue testing and refining our prototype, as well as reviewing the system with experts in emotive design and information visualization. As we refine the visual language for the system, we will develop a product name and brand identity.