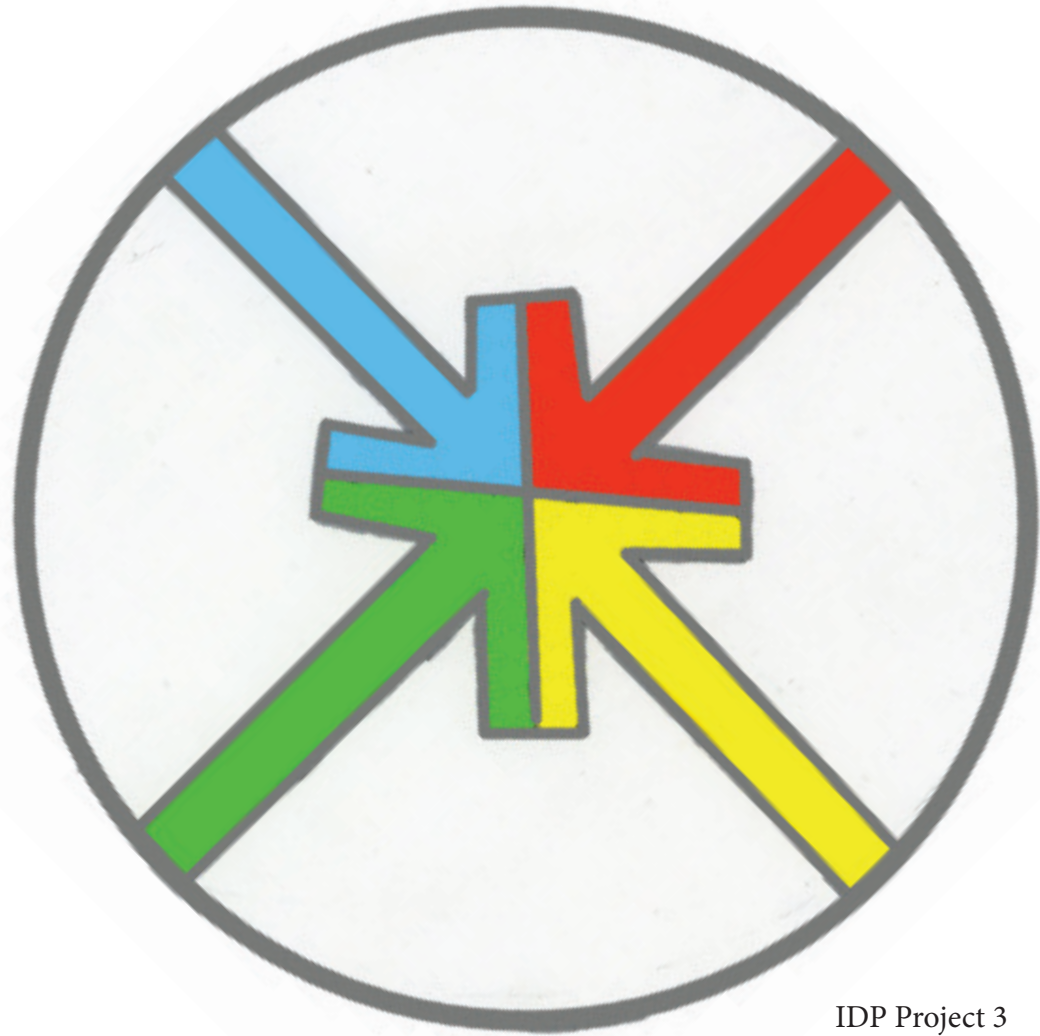


# HomeLync Portal



IDP Project 3  
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Design Mantra:

“Making it easy to connect with loved ones.”



Photo taken by Craig Harkness

# Introduction

What is home? What does home mean? How does one feel at home?

Our target group is composed of young professionals just moving out on their own. They miss their friends from college, the casual atmosphere from dorms and Greek life, and sometimes they even miss home and their annoying siblings.

- Home is many things to many people, as we found this through surveys, brief interviews, and in depth interviews. This primary research indicated that community and connection to loved ones were key elements in user's ideal homes. Home really is where the heart is, as cheesy as it sounds.
- Loved ones who are far apart yearn for a way to stay connected. While many social networks exist, they can be a poor substitute for real face to face interaction. If this wasn't the case, then everyone with an Internet connection would feel at home.
- We wanted to connect users to their friends and loved ones with ease. We wanted to capture the feeling of having someone you care about pop their head into your doorway and ask how your day is going. We wanted to simulate enjoying a movie together with your girlfriend or boyfriend, or playing a game with your friends.
- Our design solves this problem by connecting users in a new way. It allows them to just make themselves available, and any of their friends, family, or loved ones to "pop in" at any time. We've additionally created a feature to allow users to watch a movie or TV show simultaneously and enjoy the experience of hearing their loved one laugh and be able to discuss it in real time.



## Final Design Features

### Description of Features

At first glance, our device, the Homelync Portal, appears to be a dedicated Skype machine. However, upon looking closer, we can see that our conversation tool brings individuals much closer. The Homelync Portal is shaped like a small, round vanity mirror, but functions in many ways like a tablet. It is small enough to carry with you around your house, just as a friend or family member could follow you around the house to keep the conversation going, but can also be mounted in areas around the house to share activities, such as cooking a meal.

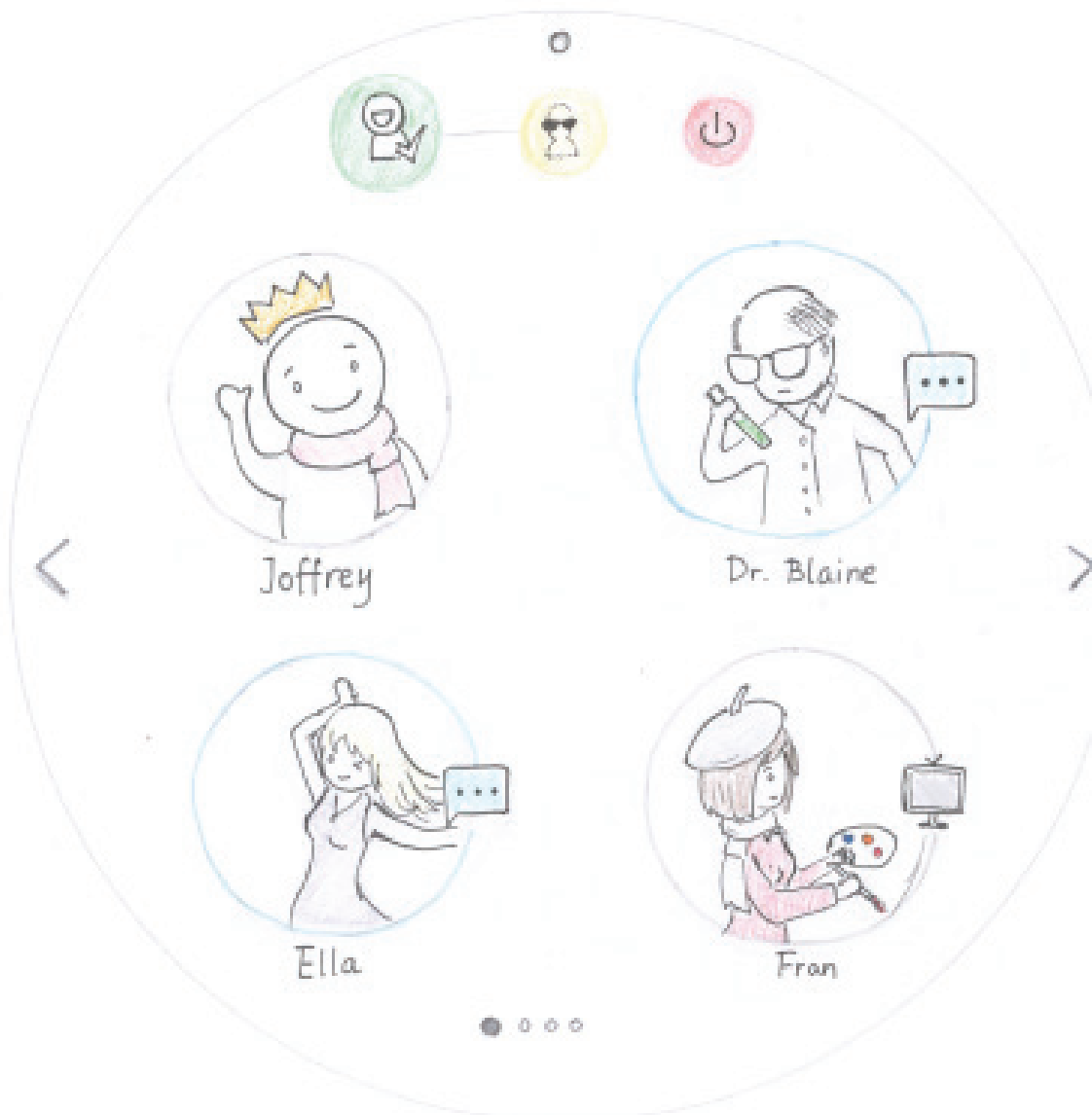
Our device, unlike many current webcams and cell phones, will have a high-quality, front-facing camera. Additionally, our device will link with Smart TV's in order to watch television shows or movies without a delay, or play games with your friends in real-time. Our devices' mounts will also function as induction chargers so the device should always have battery power for conversations.

## Final Design Sketches

Tap anywhere to wake up Portal.

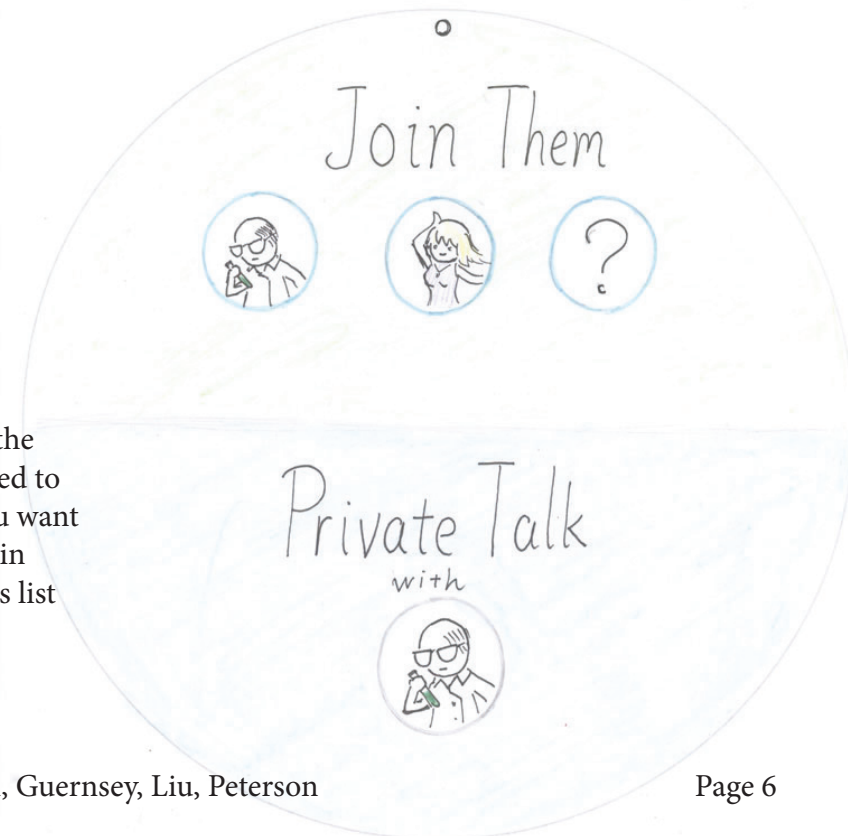
After you wake it up, you'll be "Available", so your friends can see you in their friends list. You can change your state to "Invisible" by tapping the yellow icon on the top. If you want turn off the device, you can tap the red button at the top.

Friends list shows all of your friends who are available to talk. The ones with a gray border indicate that they are not chatting with anyone now. You can tap their picture to start chatting with them immediately. On the other hand, the ones with colored border indicate that they are chatting with some friends who have the same-color-border, e.g Dr. Blaine and Ella are in the same group chatting. If you tap a friend who is in a group chatting, you need to chose whether you want to join their group or you want talk with him or her privately. You can swipe left/right to see more friends.



When you tap a friend who is in a group chatting, the screen to the right shows over their bubble. You need to choose whether you want to join their group or you want talk privately. You can see everyone who is already in their group chatting, but anyone not in your friends list will show with a question mark.

Tap to select which action you want.





## Final Design Sketches

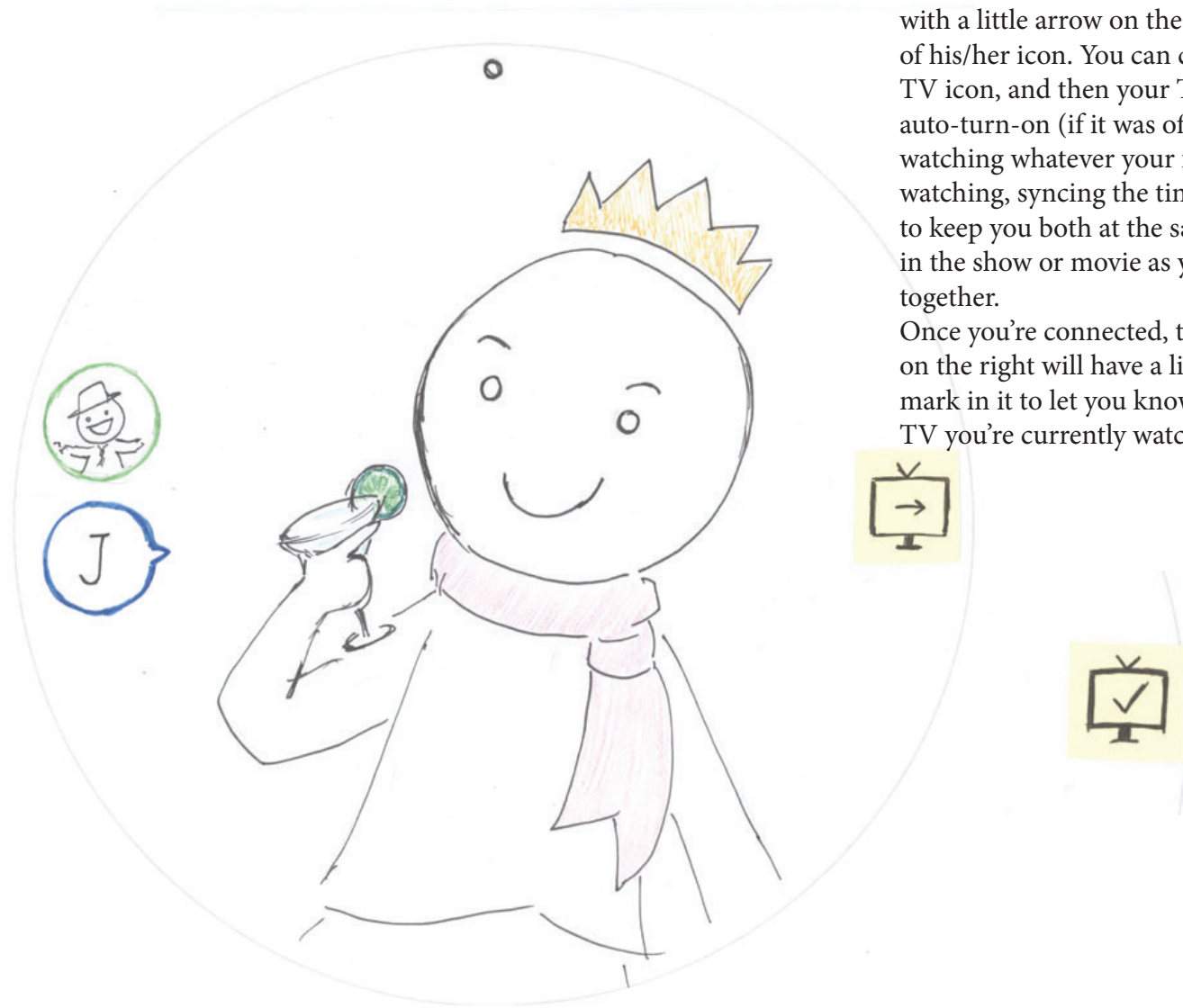
This is the screen when you're chatting with your friend(s). There will be a members list on the left side that shows everyone who is in this group chatting. Each one is a small video. The green bordered one shows the user's video. The one with blue border and a arrow indicate the one who you're focusing on (who is on the big screen).

You can tap one of them (except yourself) to change focus. If you double tap a member, you can mute/unmute that person (a red border will show up to tell you who is muted by you).



You can tap on your icon bubble to open a shortcut menu. You can quickly change your availability between available or incognito, or you can leave the videochat.

## Final Design Sketches



If one of your friends is sharing his/her TV, there will be a TV icon with a little arrow on the right side of his/her icon. You can click the TV icon, and then your TV will auto-turn-on (if it was off) and start watching whatever your friend is watching, syncing the time in order to keep you both at the same point in the show or movie as you watch together.

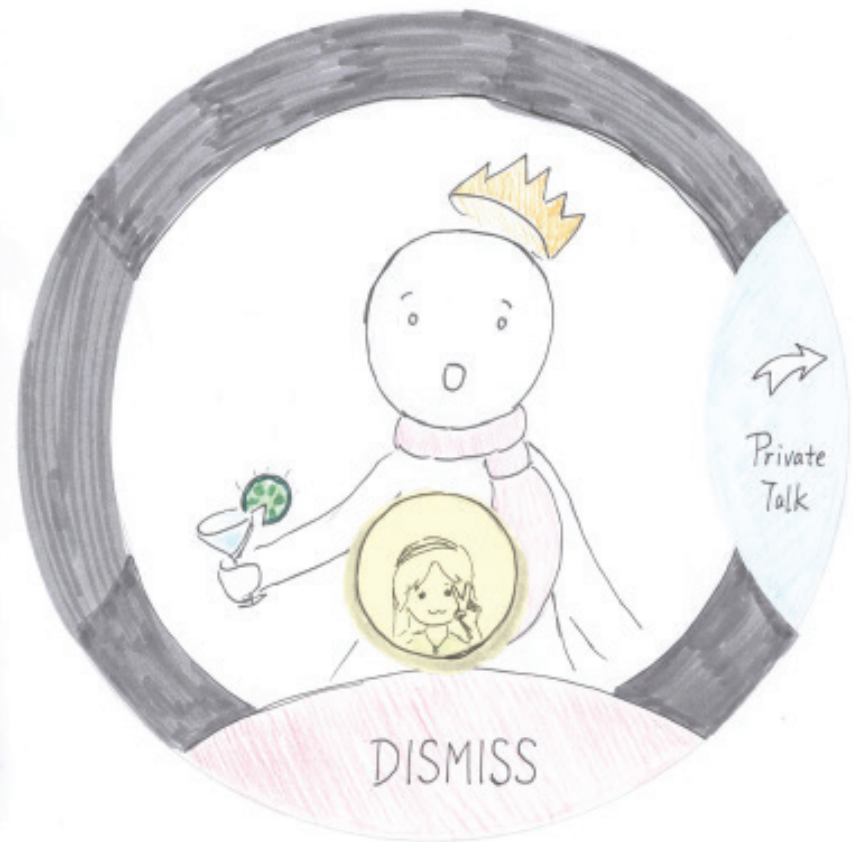
Once you're connected, the TV icon on the right will have a little checkmark in it to let you know whose TV you're currently watching.



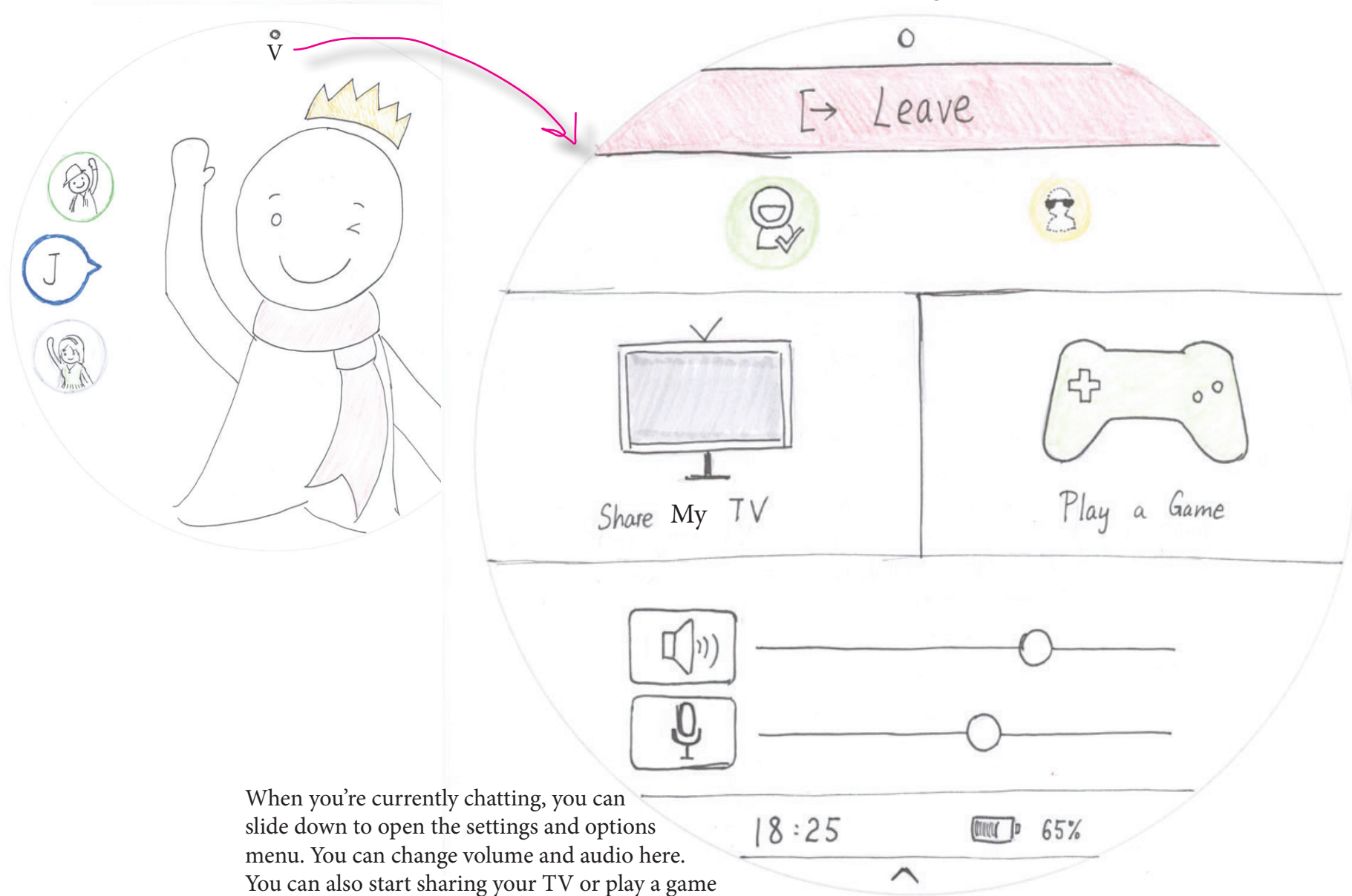
## Final Design Sketches

If a friend calls you when you are in a group chatting, his/her picture will show up on the bottom of your screen. You can hold it, the main video will slightly shrink and options will appear in panels to the sides and at the bottom of the screen. Dragging the call to the bottom will dismiss his/her call. If the friend requests a private talk, you can drag his/her picture to right. This will hang up your current call and start talking with him/her.

On the other hand, if the friend wants to join your current group talking, you can drag his/her picture to the left.

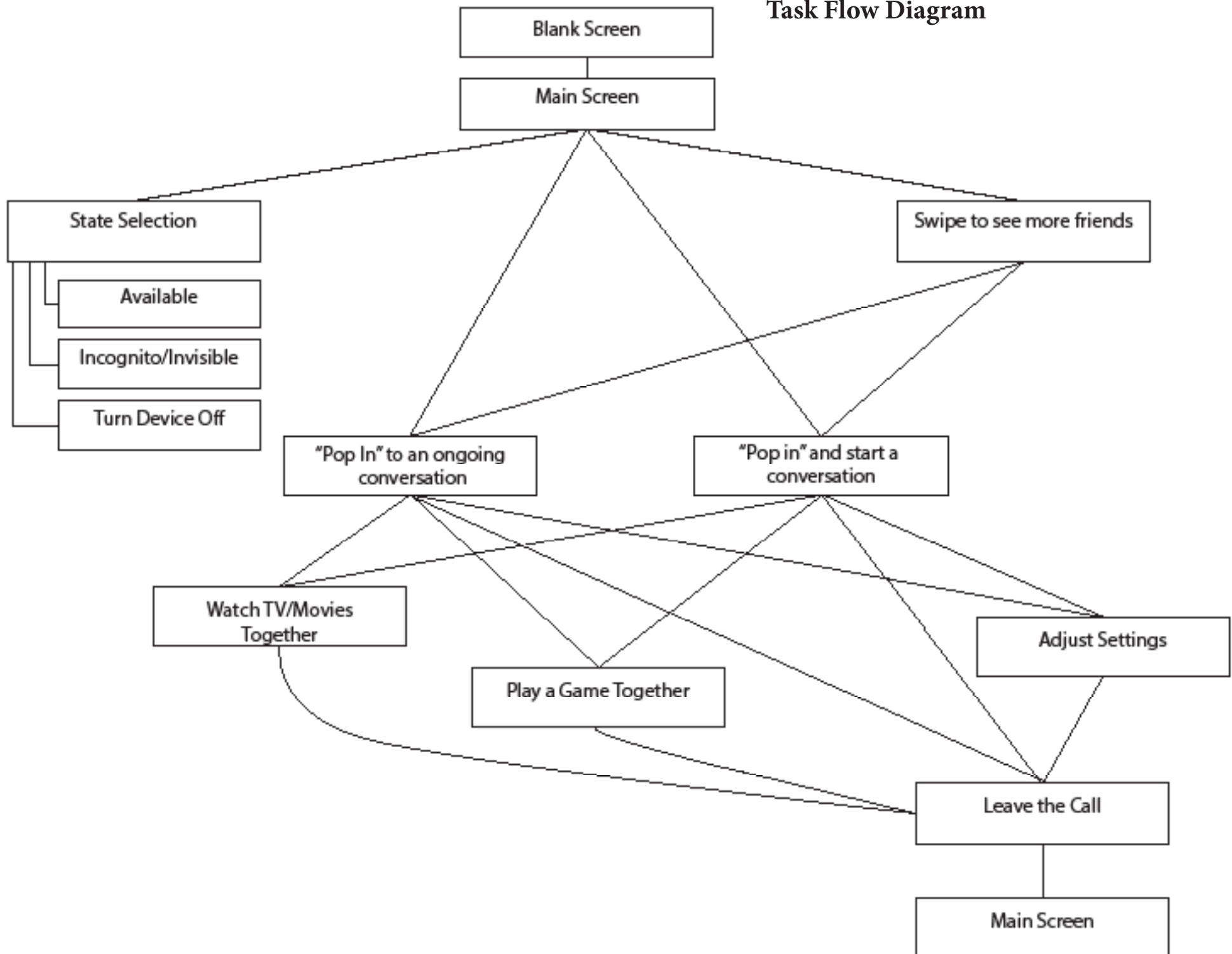


## Final Design Sketches



When you're currently chatting, you can slide down to open the settings and options menu. You can change volume and audio here. You can also start sharing your TV or play a game with your friends. If you want your friends to be able to watch the show you're watching, you would tap "Share My TV".

## Task Flow Diagram



# Final Design Rationale & Usability Summary

## Rationale

Through primary research we discovered that users find home to be a place where they have connections with friends, family and loved ones. When the user's connections to friends, family, and loved ones is stretched by distance, the feeling of home can be limited. Our design builds upon the already existing desire to communicate with more than voices and connect with loved ones far away.

Products like Skype and Hangouts already offer a solution, however both are only applications that rely on decent and functioning hardware, such as external webcams and built-in cameras, such as the iSight. These products do not simulate the feeling one gets when you can, without warning, walk into a room through an open door, sit with the resident, and just "hang out". Through this interaction with our device, not only can you have a conversation, but you can watch movies and television or play video games together.

### What?

We are bringing far away friends, family, and loved ones closer virtually.

### Why?

Primary research showed that connections and community make a home.

### How?

Our device does this by video messaging in a new way. Our design makes it easy to bring your loved ones into your life and spend time with them when they're far away. You can see when they're available (unless they're incognito) and "pop in" for a chat. Being able to "pop in" makes your loved ones just a button tap away, instead of an hour-long drive or unanswered phone call. You can watch a movie or TV together and our device will make sure the video is synced up so you're seeing the same scenes at the same time - because sometimes you just want to relax with the people you care about. You can take the device and put it on your counter so you and your friends can cook or eat dinner together. You can put it in your weight room and work out together. Our device is a portal, giving you a connection to your friends' and loved ones' lives.

## Usability Testing Summary

From our usability tests, we found these aspects of our design needed iteration:

- We could take out the unnecessary slide at the beginning that displays "I'm here!"
- The user needs a better way to change their availability, inside and outside of a call.
- The user needs an easier-to-reach way to leave a call.
- Incoming call interactions should be able to be completed in a few different ways.
- The user needs an affordance to know there's a pulldown menu.

What we did to fix these issues:

- We took out the unnecessary slide.
- We made it possible to change availability status from the friends list, from the pulldown menu, or by clicking on your own icon in call.
- We made it possible to leave a call from the pulldown menu or by clicking on your own icon (which would pull up options next to your image).
- In order to answer an incoming call, the user can tap the call icon, then the option they want, or drag the incoming call to the option they want.
- We included a chevron at the top of the screen to show "pulldown-ability".

## Primary Research

We conducted a rudimentary survey and interviews about the home to narrow down on users viewpoints of home. Survey questions included:

- What does “home” mean to you? • How does it make you feel?
- When you are home, where do you spend most of your time?
- What reminds you of home the most?
- If you had to choose one product that embodied your concept of home, what would it be?
- We had six respondents and the answers were varied. The results were ultimately not very useful. It was not until we conducted more in depth interviews that we found the core of our project. We conducted seven in depth interviews. While many interviewees thought of home initially of a place where there things were and where they slept at night, when asked what would make a place more like a home, and the majority of interviewees mentioned some variation of loved ones, friends, and community.

See appendix p. 30 for more information about primary research.

## Secondary Research

We initially did some basic secondary research in order to find out more about Electrolux and GE, including their mission statements and product lines. We also looked into current home automation products. Additionally, we looked at various blogs and magazine posts about how people feel about and relate to the home. We found a wide range of emotions and decided to talk to individuals and do other primary research to garner more specific information.

We found that according to Silvia and Barona, “people preferred the round circles more than the angular hexagons and the curved polygons more than the angular polygons” (Silvia, Barona, 2009, pg. 41).

### Personas

#### Ben Miller

26

Software Engineer

Recently moved to California from North Carolina

Recently hired by a large tech company

Recently graduated from college with a masters in software engineering

Enjoys good beer, playing board games like Settlers of Catan, and going hiking

Ben has a new, well paying job, and after just graduating college he finally has disposable income. However, his social life has taken a nose dive. His friends from college are spread throughout the country, and his girlfriend Jessica is still living in North Carolina. These friends were like family, he misses them all and wants to stay connected. He's feeling really displaced and disconnected in this new city. He often thinks about watching movies with friends on the weekends and how they used to go out to the bars and play board games. Facebook lets him see what others are doing, but it sometimes just reminds him how far away everyone is.

He talks to his girlfriend on the phone a couple of days a week, and he texts her every day, but trying to figure out when they're both available sometimes just doesn't work out. He's hoping that she will move out to join him soon, but her job is keeping her in North Carolina. They are in a committed relationship and he's thinking about popping the question soon. They both just want to spend time together like they used to.



(<http://o.onionstatic.com/images/22/22310/16x9/700.jpg?0162>)



### Personas

#### Joni Jones

31

Housewife

Lives in London

Husband works for Google

Has a master's in education

Is a TV and movie connoisseur, just took a wine tasting class, writes romance novels and self publishes them on Amazon

Joni has been living in London with her husband Levi for two years now. She has made new friends, but she is still very close to her friends back in the states, who come over to visit once a year. One of her favorite pastimes is watching and critiquing TV shows and discussing them with her family and friends. Her closest girlfriend lives in Chicago, and they use Facebook Messenger and Snapchat all the time to send pictures and stickers, but they both really miss having those girl's nights where they would watch chick flicks and talk late into the night. She fondly remembers when she lived in a sorority and her sisters would just pop in to chat at any time.

She also misses her parents, who live in Champaign, Illinois. She and her husband can only make it back to the US once in a while. Joni is very close to her mom, and she really misses eating meals at home. Cooking with her mom has always been a tradition on Thanksgiving, and this year they aren't going to make it. Joni plans on making a Thanksgiving dinner with her husband, but she knows it just won't be the same.



([http://www.phoenixconventioncenter.com/img/people/sales\\_mgr\\_Jessica\\_mitchell.jpg](http://www.phoenixconventioncenter.com/img/people/sales_mgr_Jessica_mitchell.jpg))

## Usability Storyboard



In this scenario, we can see Ben has just gotten home from a long day and is ready to relax in front of the TV. He decides to turn on the Homelync Portal. He's filled with glee when he sees his friend Carol is online.

He taps Carol's picture. She pops in to his screen and they start talking.

They decide that they're both tired and would like to just relax and watch something together. They decide to watch an episode of Gilmore Girls.

Ben turns on his TV then goes back to the Portal. He swipes down to open the pulldown menu, then selects the TV icon in order to start hosting his TV. Now Carol can tap the TV icon to start watching Ben's TV.

With their TV's synced, they can both enjoy a relaxing time together.

## Usability Testing

### Usability Test 1:

*User: 26 year old male, new in the work force, recently out of school, and living away from family. Misses dropping in on friends (without calling first) like was acceptable in college. Has a smartphone and is a casual gamer.*

#### **You arrive home and decide to “open your door”.**

He taps on the screen, then taps on the green “I’m here” button.

#### **You see an old friend you want to talk to.**

He clicks one of the available friends. When asked why he chose the friend with the crown, he said that the orange friends were already chatting with somebody and the friend with the crown was currently gaming and he wanted to see what game they were playing.

#### **You ask if they want to watch your TV.**

He clicks on their own picture to try to bring up options such as “host tv viewing”.

#### **If you want to add a new friend to your current conversation, what do you do?**

He clicks the center of the screen waiting for some options to pop up. When nothing happens, he taps on his picture at the left side. The user is a bit frustrated and doesn’t know what to do next.

#### **Another friend calls you, and you want to add them to the conversation.**

He drags the image of the person calling to the center (on top of the current person).

#### **If you want to hang up with your current call and change to the new call, what do you do?**

The user asks, “Is it this side thing here?” Our facilitator responds, “Maybe.” The user drags the new caller to the right side panel, successfully switching the call.

#### **If you want to dismiss the new call, what do you do?**

The user slides the new caller down to the red dismiss area.

#### **You’re sick of being bothered by other callers and just want to be visible to your friend. How do you change your availability? (You are currently in a call.)**

The user taps on his picture. When nothing happens, he

## Appendix: Usability Testing

says, “I think it would make sense to be able to change my options by tapping on myself.”

#### **After watching TV with your friend, you want to hang up.**

User attempts to drag his picture away from the screen.

When that doesn’t work, he shrugs and says, “I guess they’ll just have to hang up first.”

We show him the menu and he selects the red “end call” button.

#### **Now you don’t want to be bothered but also don’t want to turn off the device.**

User taps on the incognito icon from the friend screen.

### Insights & Solutions:

- When user clicks on their own icon in chat, options related to their status and hosting should come up. User’s status would be displayed by a green, yellow, or gray circle around their own icon. (Green - available, yellow - incognito, gray - inactive)
- We explored variations on the “adding a call” option prior to prototyping. Since some users tap the main call and others tap the “+” icon, it might be best to make it so either one of these actions adds the new call to the current one.
- We need an affordance (or an onboarding process?) at the top of the screen so the user knows there’s a pulldown menu.
- User thinks a pulldown would indicate things other than chat options - so not necessarily inviting a new person to the group.
- User would like the ability to save screencaps of tv/game/people. Perhaps this could be gesture based?

## Usability Testing

### Usability Test 2:

*Male student, 24. Graduate student - PhD in History. Would like a better way to communicate with grandparents and friends from his hometown.*

#### **You arrive home and decide to “open your door”.**

The user tapped the blank screen.

#### **You see an old friend you want to talk to.**

The user tapped the orange friend with a chat box, thinking that meant they wanted to chat.

#### **You ask if they want to watch your TV.**

The user asked out loud if their friend wanted to watch TV. Once the menu was shown to him, he selected the TV icon.

#### **Another friend calls, but you don’t want to talk to him.**

The user tapped the incoming phone call and then the dismiss button.

#### **After watching TV, you have to go.**

The user tapped on the image of himself. He then tapped on the center of the device. He explained that, “In Skype, if you click the call, a hang up button appears from the bottom.”

#### **Now you don’t want to be bothered but also don’t want to turn off the device.**

The user tapped on the image of himself again. He mentioned that he thought a state menu and options should come up from tapping on himself.

#### **Another friend calls you, and you want to add them to the conversation.**

The user tapped the incoming call, then tapped the center main call (instead of the add button). When we asked if there was any other action he may try if that didn’t work, he said he might tap the left side panel, but wasn’t sure what the icon with the number next to it was. (In our design, this signified the number of people currently in the group chat.)

#### **If you want to hang up with your current call and change to the new call, what do you do?**

The user swiped from right to left (explaining that he thought that would switch callers).

## Appendix: Usability Testing

**You’re sick of being bothered by other callers and just want to be visible to your friend. How do you change your availability? (You are currently at the friend screen.)**

The user successfully tapped “Incognito” mode from the friends screen.

### Insights & Solutions:

- Some users see the orange chat box as an invitation instead of as a “busy” message. If a user wants to start a call with someone that is busy, two options can come up over the person-that-they-want-to-chat-with’s icon - “Join conversation” or “Ask them to switch calls”.
- The pulldown menu is understandable to iPhone users, but not to Android users. Most people attempted to click on their own icon for options related to themselves (such as hosting, availability, or hanging up). It may be more intuitive to have those options pop up from the user’s icon while other more technical (sound, connection settings) pop up from the pulldown menu. We can also explore having the same options pop up from either the user’s icon or the pulldown.
- The icon in the left side panel with the number of friends currently in the chat is confusing and may be too much information. The user will likely implicitly know the number of people already present in the conversation.



## Appendix: Usability Testing

### Usability Testing

#### Usability Test 3:

*Female student, 19. Currently four hours away from home and homesick.*

#### **You arrive home and decide to “open your door”.**

After a few moments of being unsure, the user tapped on the blank screen.

#### **You see an old friend you want to talk to and so you “pop in” to chat.**

She taps on the image of a friend with an orange chat box. She mentions that it, “Looks like my friend wants to chat with me!” When she sees the options to join the conversation or ask to talk privately, she pauses and says, “Oh! Okay. The chat means already chatting. I’ll join them.”

#### **You ask if they want to watch your TV.**

The user taps on the icon of herself first, then muddles for a moment before seeing the chevron at the top of the screen. She swipes from the top for more options, then taps on the TV icon.

#### **Another friend calls you, and you choose to dismiss it.**

She taps the incoming call, then taps the dismiss button.

#### **You have to leave, so you hang up.**

She looks around the screen, then pulls down the menu and taps the red “Leave” circle.

#### **Now you don’t want to be bothered but also don’t want to turn off the device.**

She sees the availability options at the top of the friends screen and taps “Incognito” mode.

#### **Another friend calls you, and you want to add them to the conversation.**

She hesitates, then taps the “+” icon on the left side.

#### **If you want to hang up with your current call and change to the new call, what do you do?**

She looks at the right panel but says she doesn’t know what the arrow icon means. She tries tapping it anyway.

#### **You have errands to run and have to leave the house.**

#### **What do you do?**

She ends the current phone call and navigates to the friend

screen, where she then taps the “Power” icon to turn the device off.

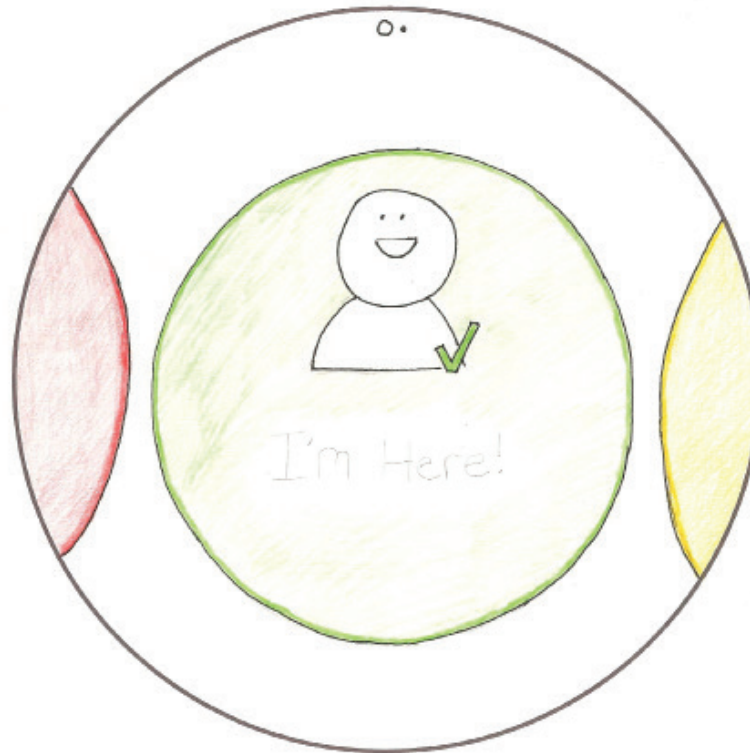
#### Insights & Solutions:

- The orange chat box may still be an issue, but once the user realizes that orange friends are chatting, they don’t make the same mistake again.
- The chevron at the top of the screen has helped the user find the pulldown menu.

## Appendix: Prototype for Usability Testing

### Prototype Used for Usability Testing

After Joni taps the dark screen to wake up the device, the availability screen appears. Joni can choose if she wants to set her status to available, incognito, or turn the device off again. After she selects her availability, the screen automatically changes to her friends list.



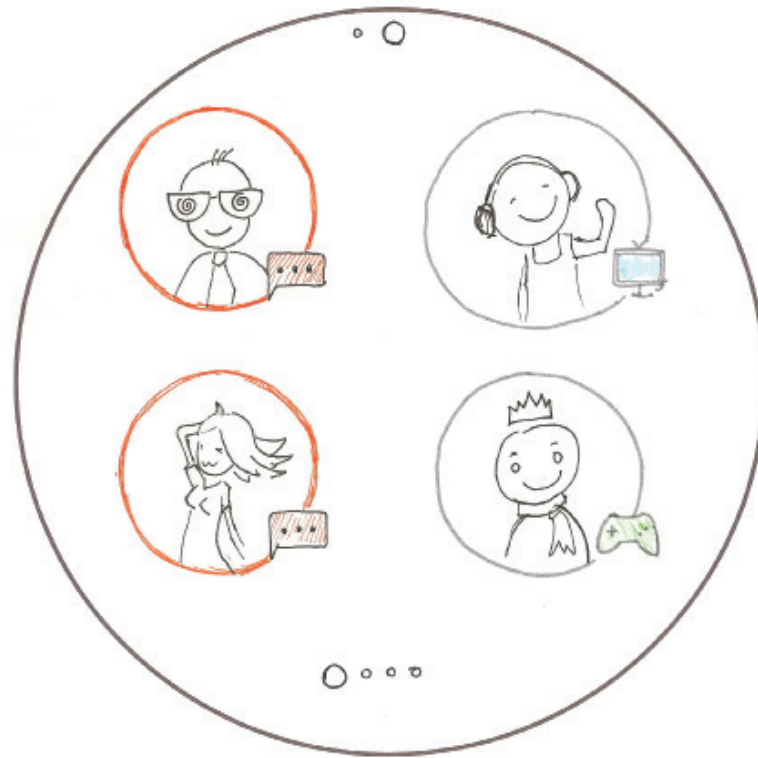


## Appendix: Prototype for Usability Testing

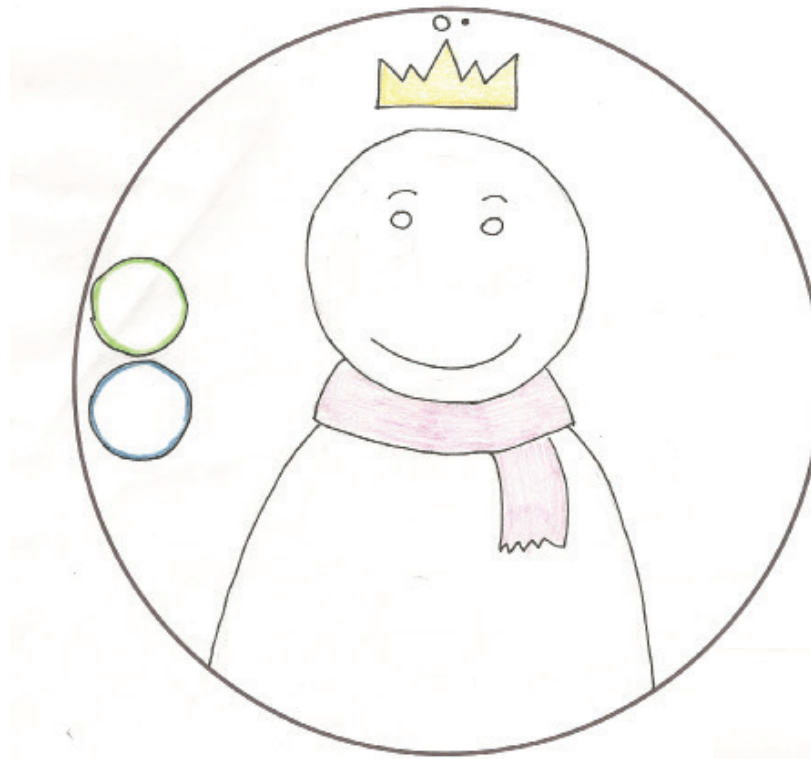
The friend screen.

Originally, our prototype had just the friends list. After our first usability test, we changed this screen to show availability and power options and took out the “I’m here!” starting screen.

Here Joni can change her availability, turn off the device, and see that two friends are currently busy talking to each other, one friend is watching TV, and one friend is playing videogames. She can scroll through her friends list by swiping from right to left.



## Appendix: Prototype for Usability Testing

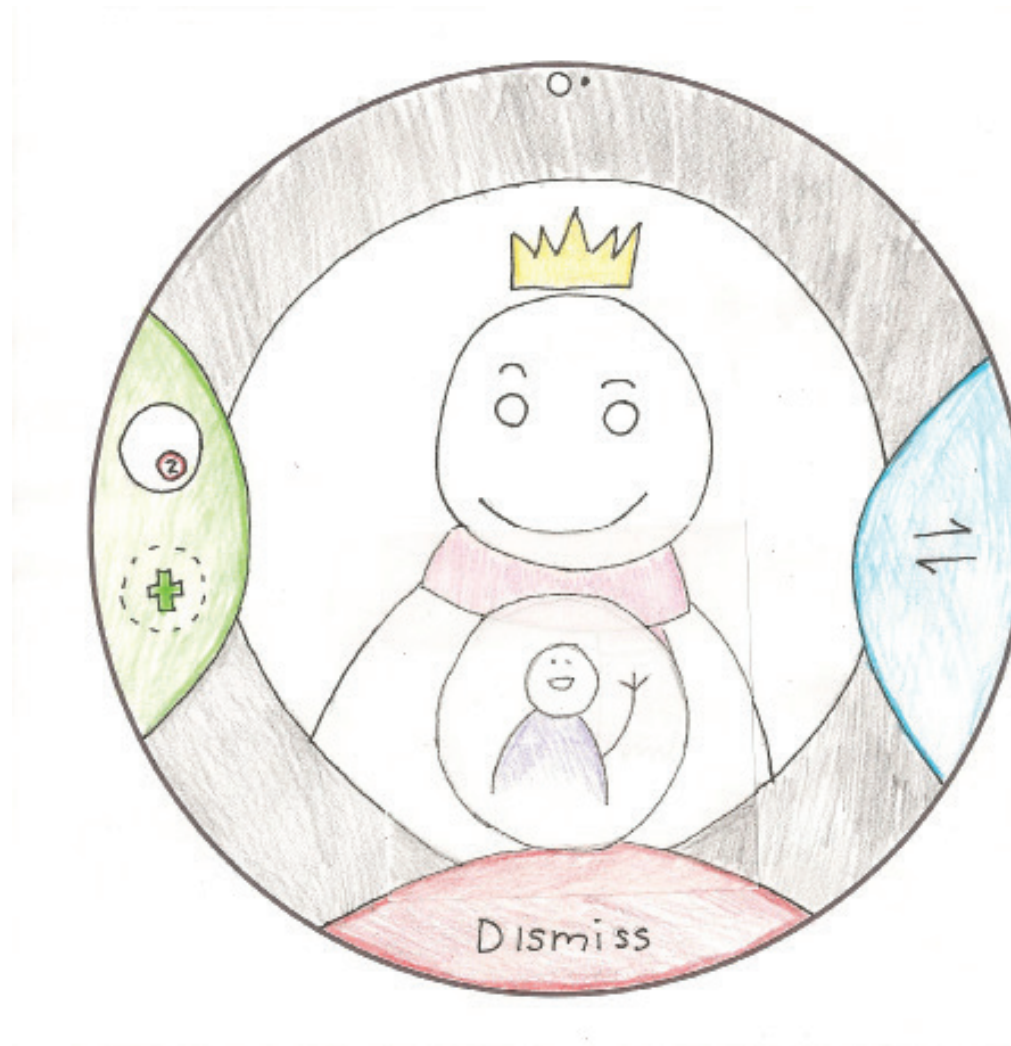


Joni is currently talking to her friend Royal and her other friend Blue (whose image appears in the blue bubble to the left). Her image is shown in the green bubble to the left.

Now Joni has an incoming call! The incoming call bubble pulses to let her know it is actionable. She sees her friend Pat is calling.

Joni taps the incoming call bubble.





Once Joni's finger is on the incoming call bubble, the center video shrinks slightly and actionable panels come up on the sides and bottom.

Joni takes her finger off the incoming call bubble for a moment and sees that the panels disappear and the center video zooms back in to take up the whole screen. The call bubble is still pulsing near the bottom of the screen.

She realizes that in order to choose an option, she must leave her finger on the incoming call bubble and drag it to one of the panel options.

She wants to add Pat to the current video conversation she's having with Royal and Blue, so she drags Pat over to the "+" panel.

"Say hello to Pat!" She says to the videochat group as she waves to the camera.

## Appendix: Prototype for Usability Testing

This is the pulldown menu, which can be pulled down from any screen to reveal these options.

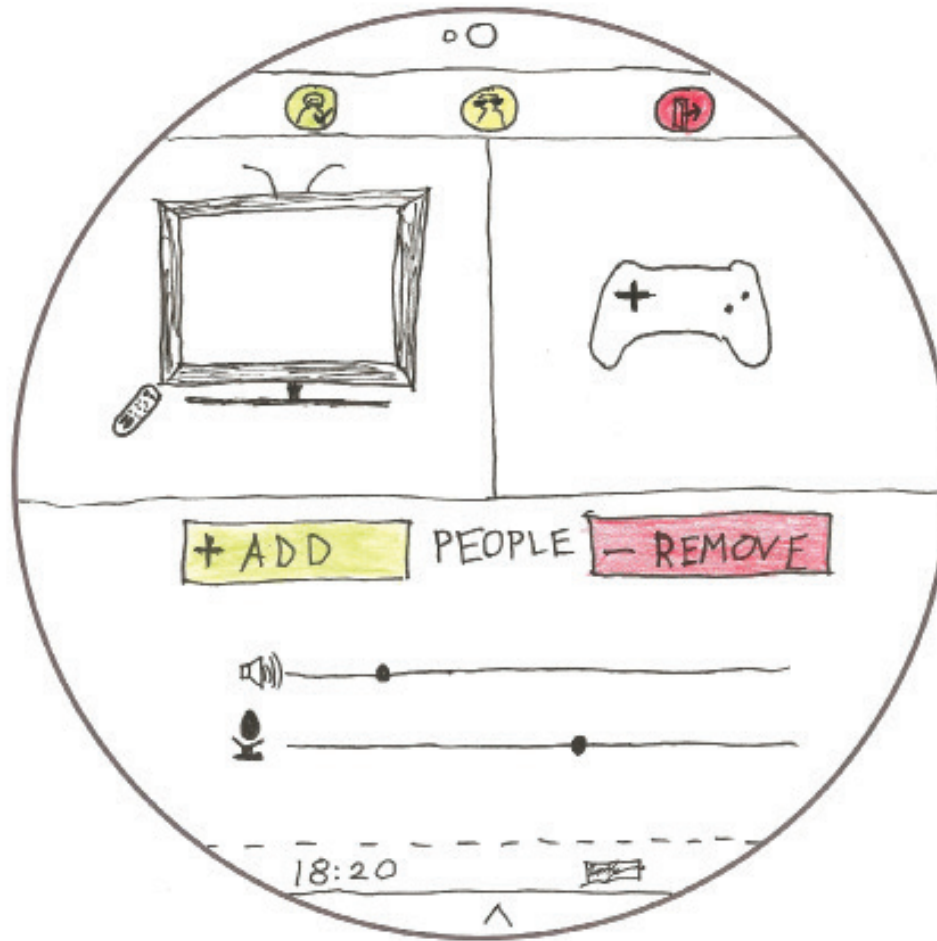
Joni isn't sure how to reach it since there is no affordance showing on other screens. To fix this, the designers have added a chevron at the top of the screen to show pulldown-ability.

The top level of the menu shows availability options: Joni can say she's available, go incognito (so her friends can't see she's online, but she can still interact as if she's online), and the option to leave the current call (this option changes to a power button when this menu is pulled down from the friends list screen).

The next level gives Joni options to host something on her TV or a game. Below that, she can invite people to watch or remove people from the group chat.

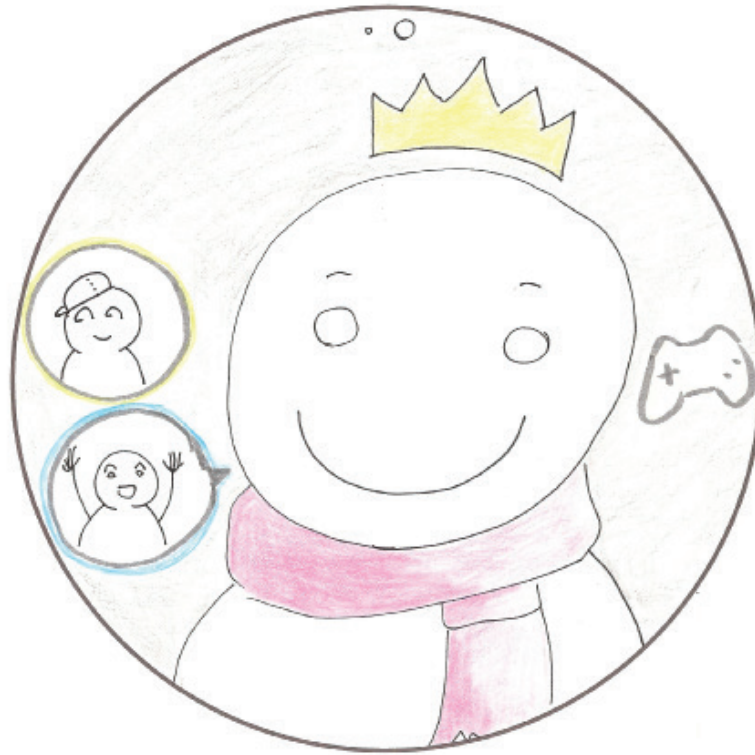
Then Joni has more technical options like the volume and mic levels, the time, and the amount of battery charge.

At the bottom, a “^” shows the ability to close the menu.



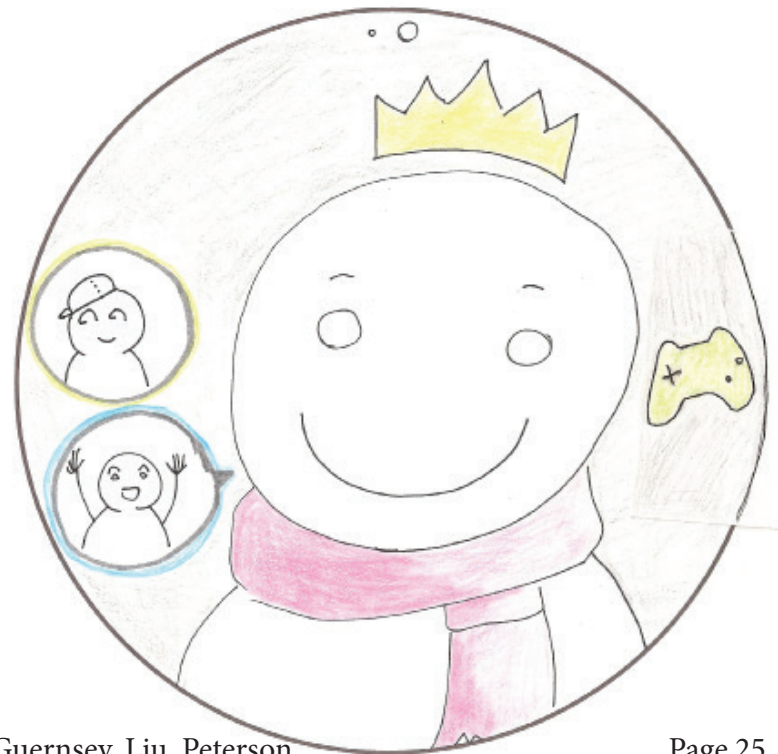


## Appendix: Prototype for Usability Testing



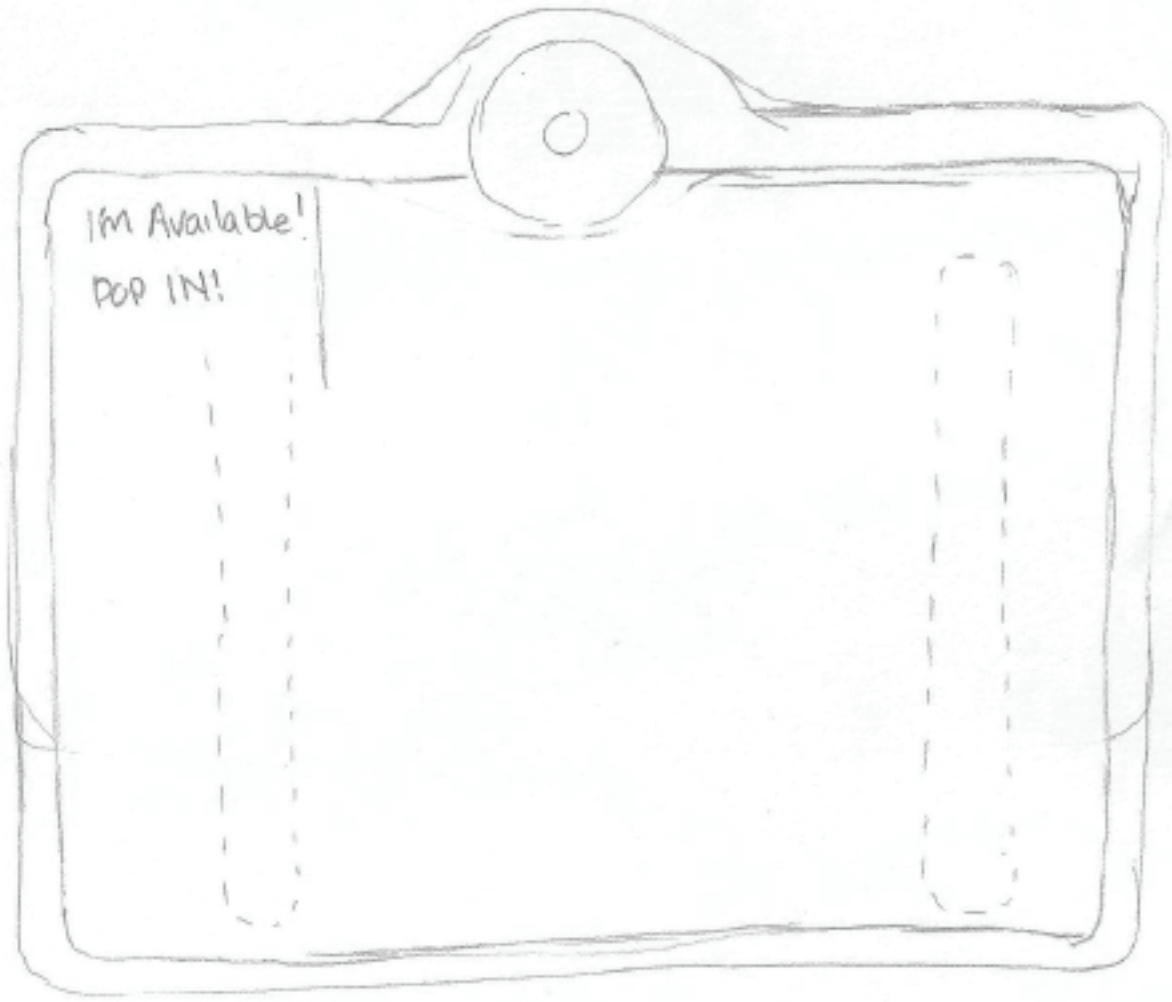
While in a call, if your friend is already playing and broadcasting a game, you can tap the controller icon in order to tune in to their gameplay. Their gameplay would appear on your TV screen while the chat device would stay focused on your friends' faces.

Once the user's TV is showing the friend's game, the controller icon becomes bolder and selected to afford feedback about whose game the user is currently watching.



## Appendix: Early Sketches & Brainstorming

An early sketch investigating the interface. After some psychological research showing people prefer round objects, and considering the human head is round, we changed the shape to be circular.





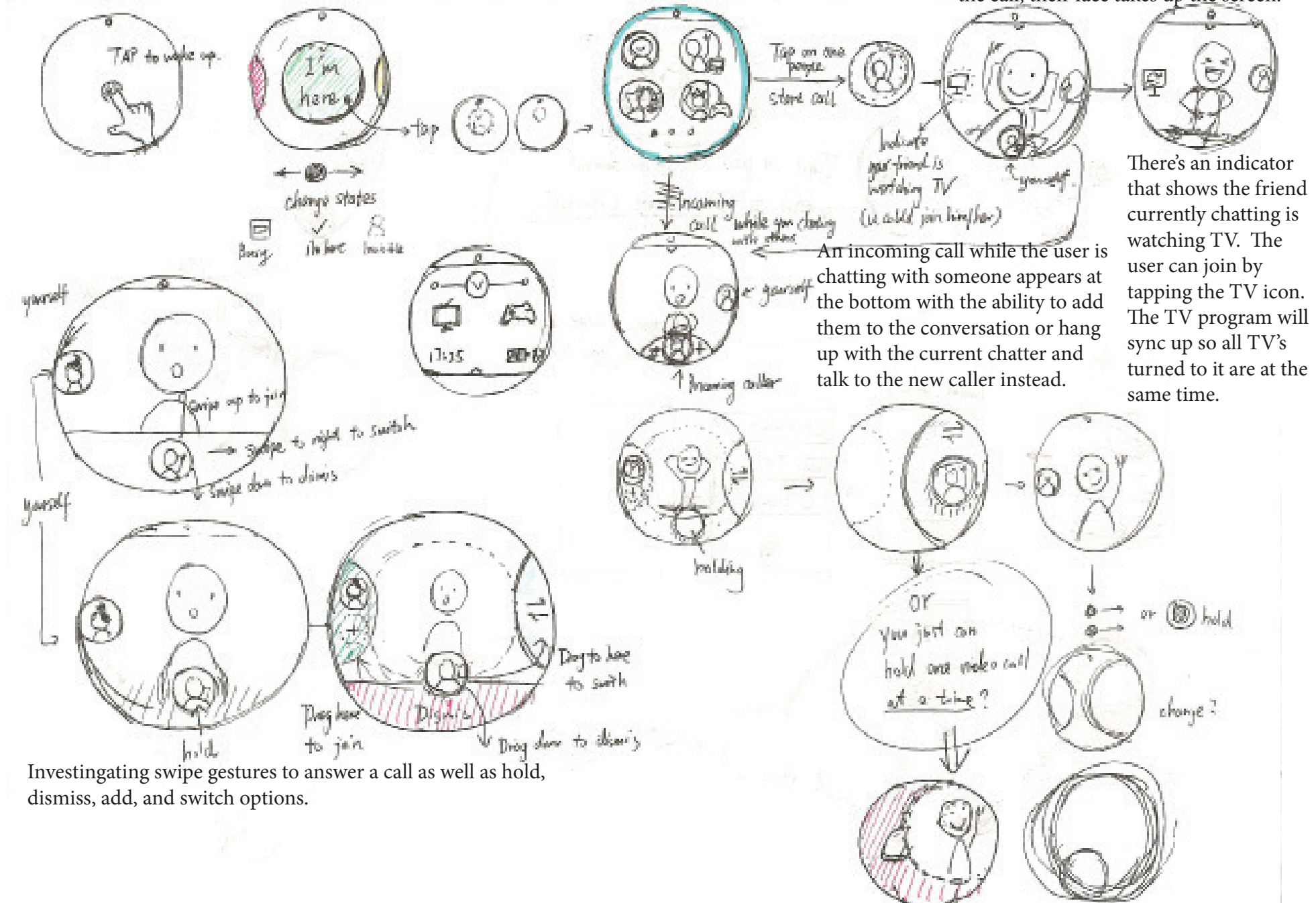
## Appendix: Early Sketches & Brainstorming

Tap to wake up

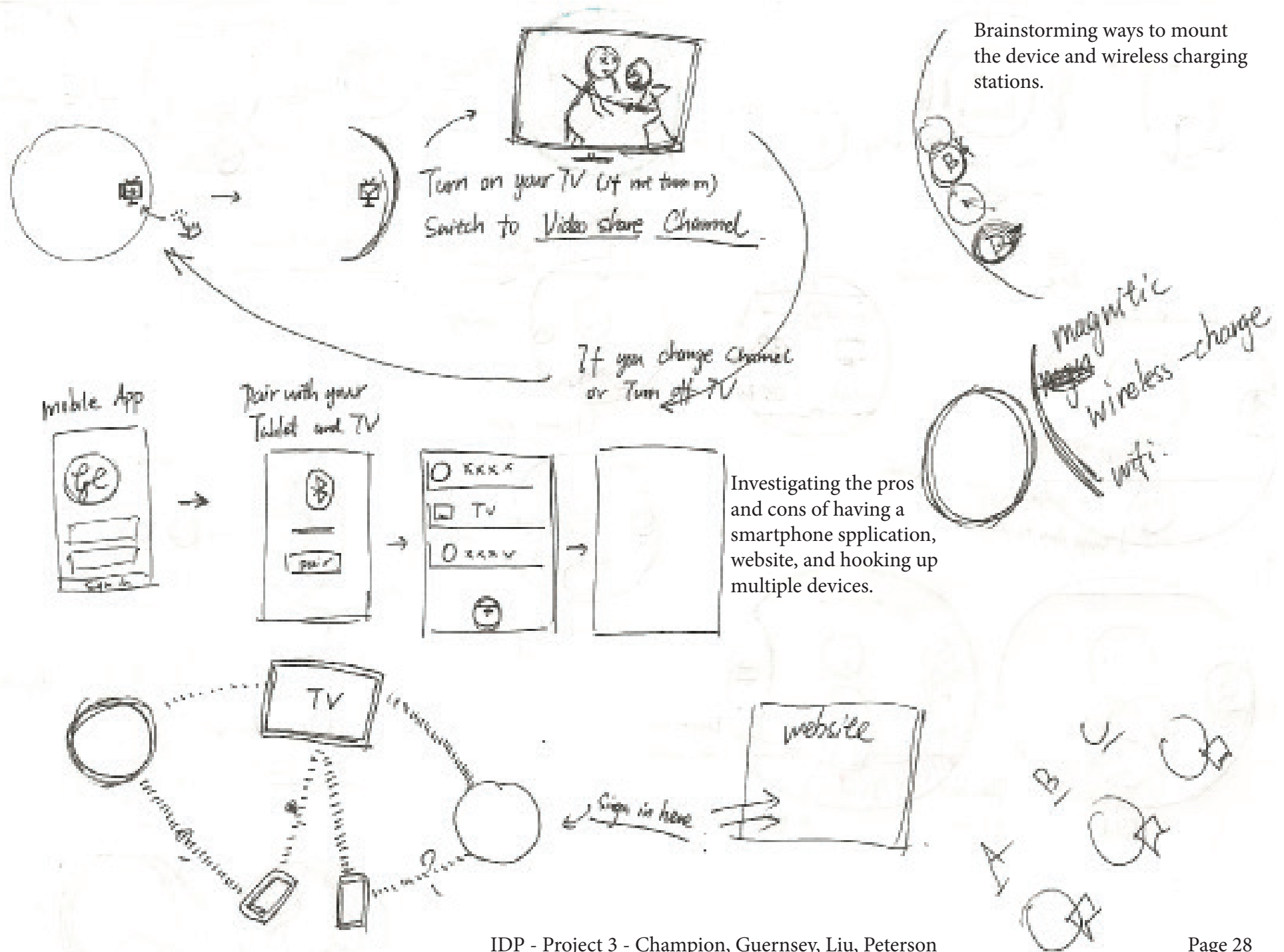
Tap “I’m here” to set that you’re available

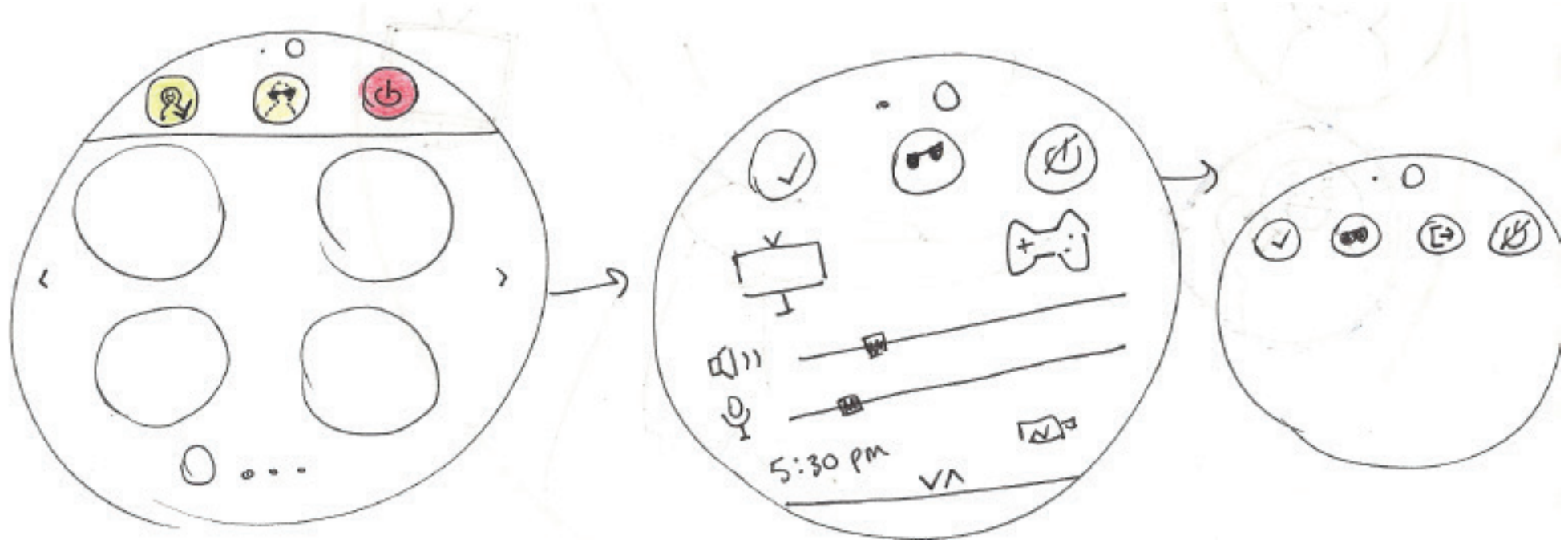
The screen changes to show friends list and their availability.

When the user taps on a person, a call is started. When that person accepts the call, their face takes up the screen.



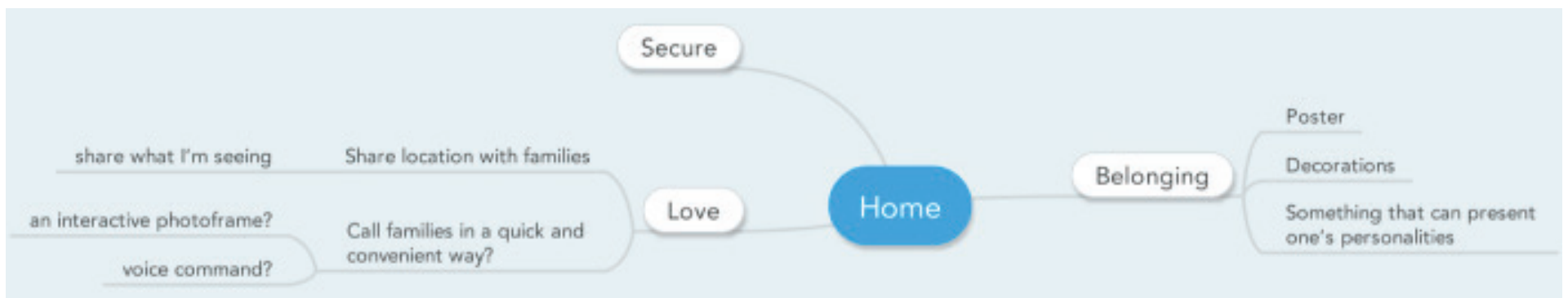
## Appendix: Early Sketches & Brainstorming





Exploring how to lay out availability-changing buttons.

Exploring Problem Space



## Appendix: Research

### Survey

What does “home” mean to you?  
 How does it make you feel?  
 Home to me feels like welcoming.  
 It inspires lots of good memories to come rushing back all at once and often makes me reminisce of times in my life when things were not as complicated.  
 Home is where my things live and where I sleep. It is always changing, always in flux. Having a home makes me feel grounded- like I have a foundation when I am out and about in the world.  
 Home is where family is. Not a specific house or location. It’s a place where your a with people you feel safe.  
 A place where I can relax and be myself.  
 comfortable, stress free, at eas  
 Home is where the heart is; it makes me feel safe.

When you are home, where do you spend the most time?  
 I spend time and talk to my family, play with my pets and visit friends at my old favorite hangout spots  
 This home... Living room (tv & computer are out here)  
 In the bedroom or kitchen  
 In terms of hours, it would have to be in bed.  
 in the family room  
 Bedroom

What reminds you of home most?  
 Hanging out at my good friend’s house in the woods/country or being with them at our favorite bar.  
 This is a very hard question to answer- I guess... My husband?  
 Safe and warm  
 Family and pets  
 open spaces, quiet  
 pets

If you had to choose one product that embodied your concept of home, what would it be?  
 A Schooner from my favorite bar  
 Blanket  
 The kitchen stove.  
 My bed (maybe because I’ve been away from it for a while  
 spicy woodland scented candle  
 snugly bed

### Interviews

Bofei  
 She is currently living in Shanghai, but she is originally from Beijing. She lives alone, but feels at home because her friends always come over to hang out with her and sometimes bring food. She always has something to do with people on the weekends, and her family is always available to talk to. She feels safe and surrounded by love. She believes home is a place that is

full of love and that makes her feel secure.

### Jiantao

He is currently studying in Jingde, but is from Xuzhou. He currently is living in a dorm. His roommate is local, and so he is always alone. He does not feel at home there because there is no one that he loves near. He believes that a home is full of emotions and that it is not just a place to sleep and eat.

### Jessi

Home is where I live and where my things live. It is where my toothbrush holder is. Homey items would be things like personal blankets and comfort items. Home is the place where you go at night. In the big picture home is where I grew up, where my foundation is.

She just moved to London and she does not feel at home yet, but there are aspects of home where she is living. On her recent honeymoon, she and her husband’s room on the cruise ship felt like home because there was a routine and it was a home base for their adventures. She had also developed a sense of community there. She is very comfortable traveling and doesn’t really miss home. The one thing that would make her feel more at home

is her friends back in the US.

Kevin

Home is where I live, where my stuff is, and where I go at the end of the day. Physical things like clothes and my computer make a home.

He feels at home in his new apartment. When he travels he doesn't think of home and doesn't miss it.

Jon

Home is where I sleep, and where I control my router. It is where I have control. The bed is the most important physical aspect of my home.

He feels mostly at home in his new apartment, knowing the surrounding area better would make him feel more at home. He thinks of home when he travels, but mostly as a way to compare it to where he is when he is traveling.

Ben

Home is where I feel most comfortable. I don't have to be politically correct, I can be myself, and I don't have to worry about who I am. I feel safe at home. My bed is the most important physical aspect of my home, it eases the worries of the day away.

He feels mostly at home, but would feel more at home if he had more contact with loved ones. He wishes he could just walk over to see his friends, but instead they are hours away. A product that could more easily facilitate relationships would be great.

Miller

Home is contextual. I will tell coworkers that I'm going home, and I mean my apartment, but if I call my parents and tell them I'm coming home to visit, it means to their place. Home is where I can take my pants off. Home is relaxed and familiar, a place to return to. Being connected to friends makes a place homey. A close bar, a comfy bed and chair, and a computer makes a home.

## Work Cited

### Work Cited

Silvia, Paul J., and Christopher M. Barona. "Do people prefer curved objects? Angularity, expertise, and aesthetic preference." *Empirical studies of the arts* 27.1 (2009): 25-42.