

## **Project: Mayhem**

### **Team Members:**

Group Manager - Eli White

Documentation - Meaghan Kjelland

Design - Jabili Kaza & Jen Smith

Testing - Kyle Zemek

### **Overview**

Developers see a task they want their computer to do, and know they can make it happen. Most people don't think of their computer as a tool they can really control for what *they* want. Instead, they download apps that developers built hoping that they can find parts of it that do what they want. We want to change the paradigm of computer usage for standard users to being able to use their computer as their personal servant, telling it what they want to do. We aim to solve this problem by providing a simple interface to connect events, both tangible things as well as networked services to reactions which can range from home automation to pure software based things. By doing this we aim for people to come up with problems and tasks they do every day, and know how to use their computer to solve them.

### **Contextual Inquiry Participants**

User 1: Gordon

Gordon has recently graduated from the University of Washington and now has more free time after work to use gaming systems and media players. He has a lot of experience interfacing with technology and trying out new technologies. He will often try things once and never use it again if he doesn't find it easy to use, or does not find the function of the technology to be useful. He is concerned with ease of use in any system he uses, and would like to be able to automate more things that he does every day.

User 2: Kerry

Kerry is a 58-year old homeowner who is a prime example of our target audience. She owns a laptop, has a Facebook account, and uses her phone primarily for texting her friends and family, but she would not consider herself a techie. When she has a problem with her computer or can't figure out how to perform a certain task, she usually asks her husband or children for help. Recently she has become concerned with trying to save money around the house: utility prices in her neighborhood have gone up, so she is trying to become more energy-conscious in her power use. We visited her at home in order to find out what she does to conserve power.

User 3: Bret

Bret is a current business student at the University of Washington focusing in

accounting. He regularly interfaces with technology for a finance position he holds with Amazon. His daily tasks include communicating with his colleagues, giving presentations, and reviewing Excel reports. He considers himself to be fairly tech savvy, but relies on devs at the company to help him with more complicated issues. Overall he would like to increase his usage of software to increase his productivity. We chose Bret as he represents a business user that interfaces fairly heavily with technology.

### **Contextual Inquiry Results**

When we visited Kerry's house, she told us that she recently read a magazine article about "Energy vampires", or electronic devices that still draw electricity even when turned off. She thinks simply unplugging things around the house will make a difference, so she has begun turning off or unplugging appliances when she knows they are not in use. Kerry would be very interested in using Mayhem for home automation, because she could program the system to turn off all nonessential appliances and power strips automatically whenever she leaves the house or exits a room. She very much likes the idea of using the system to help control her home's energy usage. Her house is fairly large, so it is tedious for her to go around manually plugging or unplugging devices whenever she wants to use them. She also sometimes has trouble remembering which appliances she may or may not have left plugged in. For example, the first time she unplugged the toaster oven, she later forgot it was unplugged, and spent several minutes trying to figure out why it wouldn't toast the slice of bread she put in it. The TV, DVD player and VCR are all plugged into a single power strip, so she leaves the power strip turned off as well. This means that anyone who wants to watch TV must turn the power strip on manually, which involves some interesting physical contortion since the power strip is located in the corner behind the TV. In addition to unplugging devices, Kerry also likes to turn the heat down every night before everyone goes to bed, but she mentioned that she doesn't always remember to do this. And sometimes she turns the heat down too far and then wakes up in the middle of the night because she gets cold. She would like to be able to have everything turn off or on automatically. Finally, one of Kerry's biggest pet peeves is when her husband leaves a room without turning the lights or the TV off. If she notices that he's been gone for several minutes, she will stop whatever she's doing to go turn the lights off after him. A system like Mayhem would solve this problem, because she could set the lights and TV to turn off automatically whenever the room is empty.

Gordon was interested in entertainment, and enjoying his entertainment fully. He multitasks a lot: while we were observing him, he was simultaneously watching a TV show online on his laptop and playing a video game on his Xbox, which was plugged into his TV. Sometimes he would pause the game if the show interested him, and he paused the TV show at the end of the game because he wanted to concentrate. He said

that he also watches movies and TV on his TV, either on cable, on his DVR, or by using his Xbox as a DVD player. He also has a Kinect, but said that he doesn't use it very much. He was interested in other things that a Kinect could be used for besides gaming, but said that it was too much work to figure out what else he could use it for, and how to set it up. Gordon was also interested in finding new ways to enhance his entertainment. He has a lot of speakers, but is considering buying a surround sound system for his living room because he doesn't know how to connect all of the speakers and set it up himself. When we asked him what he thought could be automated to make things easier, he mentioned connecting his devices so they could interact with each other. For example, if he is missing his favorite show because he forgot to record it on the DVR and he's in the middle of a game on his Xbox with a friend, he would like a way to tell the DVR to record without actually having to go to the DVR. Perhaps he could pause his game and do it quickly from his Xbox, or possibly do it from his phone instead. Gordon could use Mayhem for many things, which would help him to enjoy his entertainment more.

We shadowed Bret around his office examining how he interfaced with technology and preformed daily tasks. After checking morning emails we went to a meeting at which he was making a PowerPoint presentation to a team closely related to his. The video connection for the projector was near the back of the room and Bret had to rely on a laser pointer to draw attention to specific pieces. Three times in the meeting he got up to draw things on the whiteboard and had to ask another colleague to move to the next slide for him. We found it odd that even at a high tech company, computer remotes were not readily available in the conference rooms. It was noted that a phone connection to move inbetween slides would have been useful to make the meeting more fluent. After the meeting Bret returned to his desk to check his email again. He had received a message saying that a shared Excel sheet had been updated and he should have a look at it. He reviewed the document and then moved to make some changes in one of his reports. This happened several times throughout the day and each time a personal email had to be sent notifying Bret that the document had been updated. Bret himself commented that he would like some system that could automatically notify him whenever the file was updated or send out an email every time he updated the file. Later in the day Bret had to run over and chat with one of his colleagues, but the first three times he checked his colleague wasn't there. There is an internal chat system, but Bret kept missing when his colleague became available and she was gone by the time he went to check. It would have been nice if Bret had some way of being notified when his colleagues changed their status. This would have saved him time and helped him get unblocked nearly two hours faster.

A common theme among all three participants was the desire for convenience and the

need to save time. For Gordon and Kerry, the benefits were mainly personal, but in Bret's case, the time a system like Mayhem could save him would benefit his employer as well by making him a more productive worker. Though each participant had a different level of familiarity with technology, all agreed that the product should be highly intuitive and easy to use. They did not want to have to invest a large amount of time trying to decipher a system with a large learning curve.

## **Task Analysis**

### Easy Task – Pause your movie when you leave your laptop

Tim is currently watching his favorite movie on his laptop, but since he has seen the movie before, he is multitasking by cooking a hot pocket in his microwave which is in the next room, and working on a workbook assignment for a language course while the movie plays. Since he may need other resources for his assignment, he gets up frequently to find his textbook or different notecards he has made in the past. He will also have to get up when his hot pocket is done, and this will take more time than finding a textbook. Since hot pockets are his favorite food, he usually forgets to pause his movie when he hears the microwave beep, because he is so excited about eating. Additionally, once he is eating his hot pocket, he will likely have greasy hands and not want to touch his laptop the next time he has to get up.

Tim is a good candidate for using our first task, because if he pairs the event of leaving his laptop with the reaction of pausing his media player, he will not miss parts of the movie when he has to get up to grab his hot pocket. He also will not have to find the spot in the movie he was at before he left the screen to go wash his hands.

### Moderate task- Send a notification to a laptop when a specific bus is 10 minutes away

Michael is a college student in his sophomore year who is currently living with his parents to save some money. His parents live a 30-minute bus ride away from his school, and it takes him roughly 10 minutes to walk to his bus stop. Since he lives in a pretty remote location, there is only one bus that stops within walking distance that can take him to school, and this bus only comes every 30 minutes. If he misses the bus, he will miss half of his first class. Michael is a user of the One Bus Away system, but since he always does his homework on his laptop before leaving for school, sometimes he loses track of time and misses his bus. When he has something important due in his first class, he will set an alarm on his phone which goes off 10 minutes before the bus is scheduled to arrive. Then he will check One Bus Away to see how far away the bus is, and wait if the bus is late. Since this is a lot of work, Michael only does this when he has something important to do on that day; otherwise he risks missing the bus if he loses track of time.

In this situation, Michael could benefit greatly from Mayhem. He could connect the event of One Bus Away saying the bus is 10 minutes or less away to the reaction of an audible notification popping up on his laptop screen. This reminder would not take any

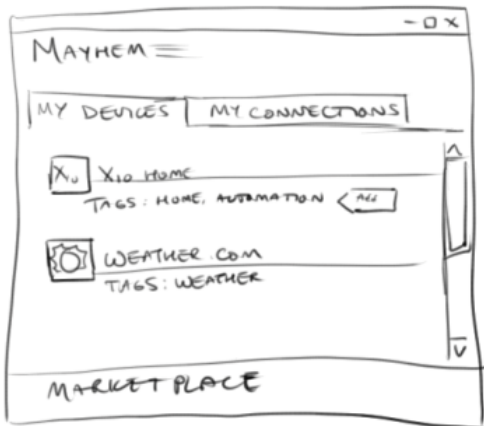
extra effort from Michael, but would ensure that he never misses the bus, and always arrives to class on time, not just when something important is going on that day.

### Difficult task- using your phone to operate a PowerPoint presentation

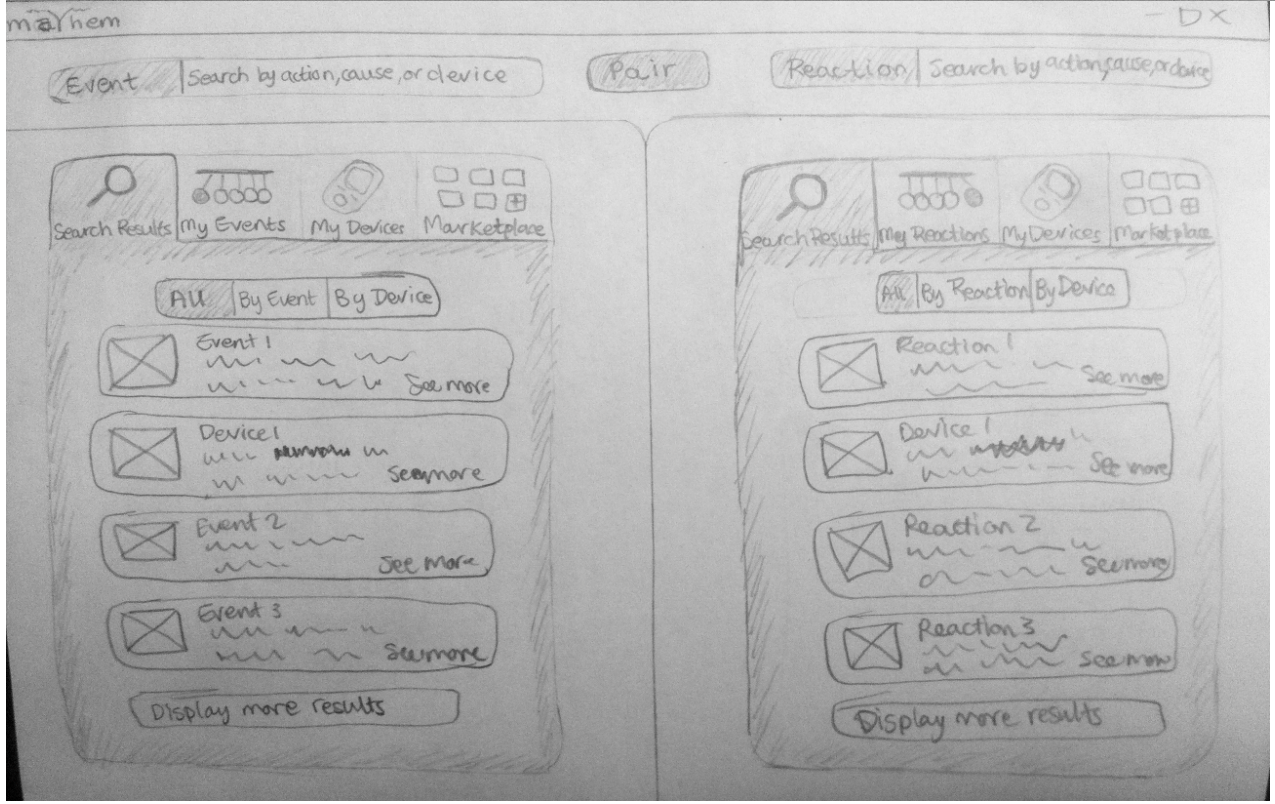
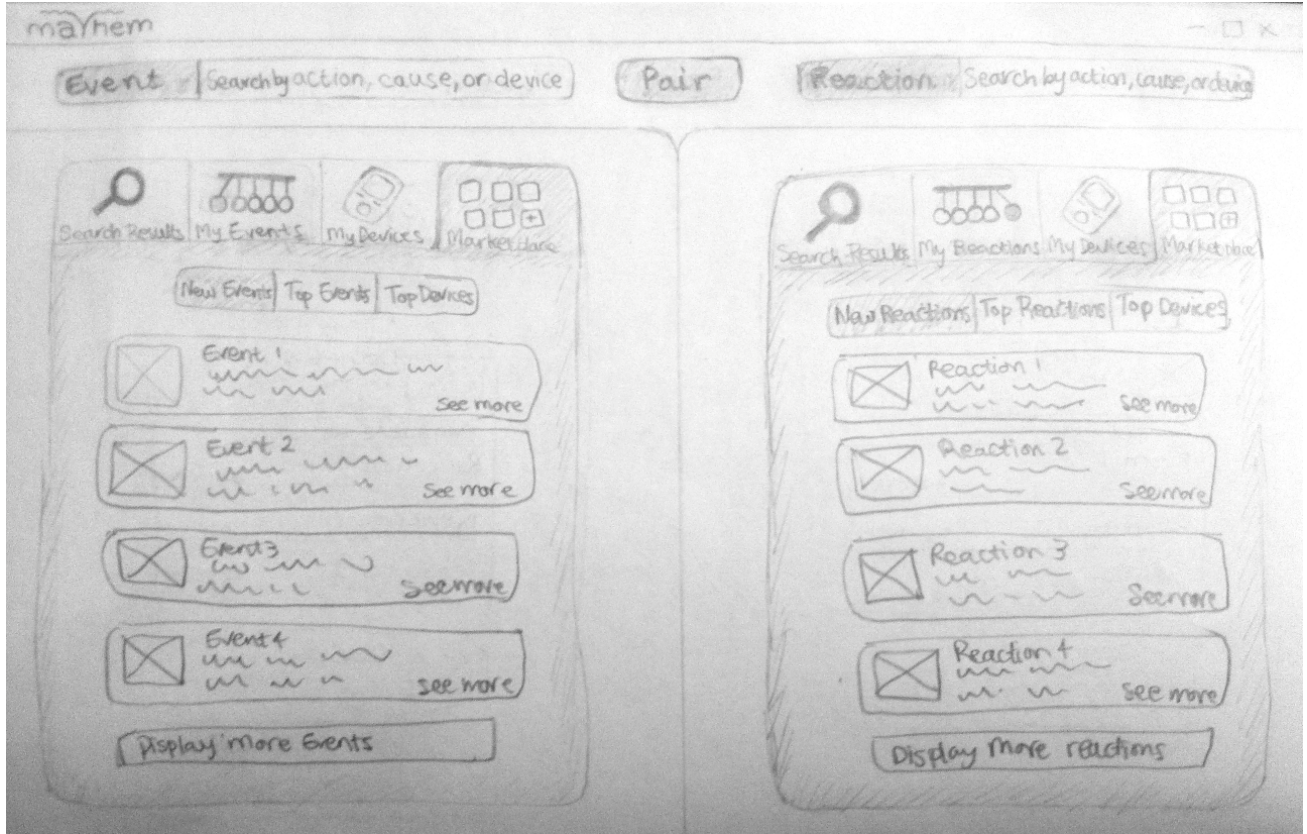
Jill is a campus recruiter for Amazon, and regularly has to put together PowerPoint presentations for her potential recruits, her bosses, and engineers that interview recruits. Since she is a recruiter, she often has to do presentations in different locations where she is unfamiliar with the equipment. She always has the presentations run from her laptop, but doesn't always want to have to be at her laptop to click through the slides, and since people often ask questions, she cannot have the slides run on a timer. Smoothness of the presentation and ease of setup are very important to Jill, because having good presentations is an integral part of her job. Sometimes she is able to use a special clicker if the facility she is in has such a thing, but these are not always easy to find. Additionally, their design can vary so greatly that she doesn't always know how they work right away. She doesn't usually like to use these clickers, because her job is very on the go and she often doesn't have much time to set up the presentation. Jill needs a very specialized way to run a presentation from something she can carry with her, and that she will be able to have with her all the time. Since she is a recruiter, she has a smartphone, because communication is very important to her job.

In this scenario, Mayhem would be directly useful to Jill, but may take some time to configure initially. Once she configures her phone and laptop with Mayhem, she will be able to set up a connection between her phone and her PowerPoint presentation that will work regardless of location, which will keep her from having to learn a new system at each facility she presents at. It will make her presentations go more smoothly, and she will be able to move around the room during the presentation and still click through slides with ease.

### **Conceptual Design Sketches**



- tagging or  
iPhone-style  
folders  
↓  
Group modules  
according to user-  
entered keyword



Event Search by action, cause, or device

Pair

Reaction Search by action, cause, or device

Search Results My Events My Devices Market Place

Device 1

Available Events:

Event 1 See more

Event 2 See more

Event 3 See more

Device 2

Search Results My Reactions My Devices Market Place

Device 1

Available Reactions:

Reaction 1 See more

Reaction 2 See more

Reaction 3 See more

Device 2

Event Search by action, cause, or device

Pair

Reaction Search by action, cause, or device

Search Results My Events My Devices Market Place

Event 1

Paired with:

Reaction 1 More Edit On/Off

Reaction 2 More Edit On/Off

Event 2

Event 3

Search Results My Reactions My Devices Market Place

Reaction 1

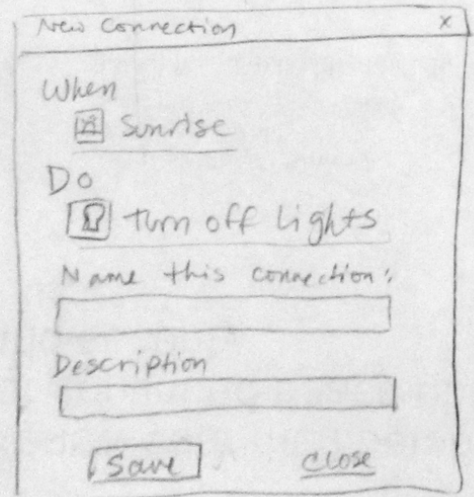
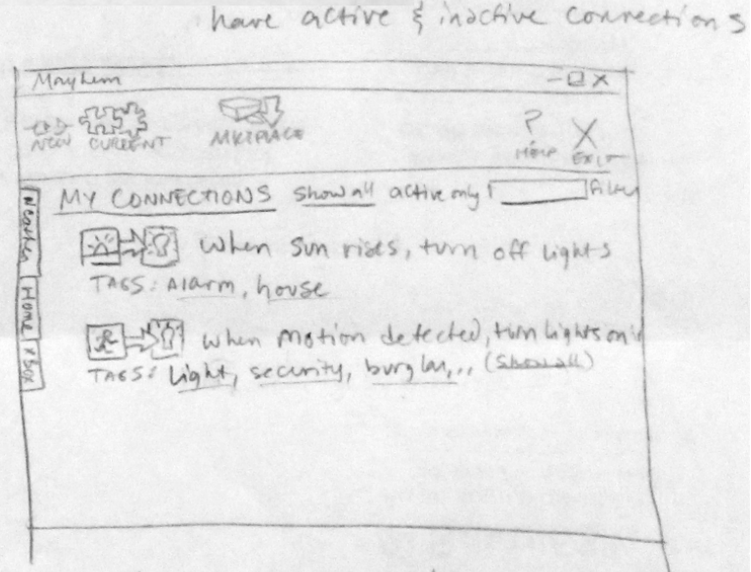
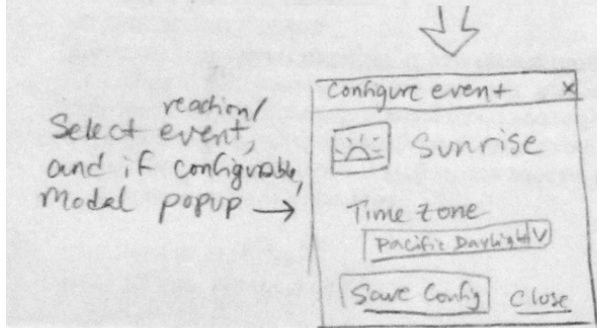
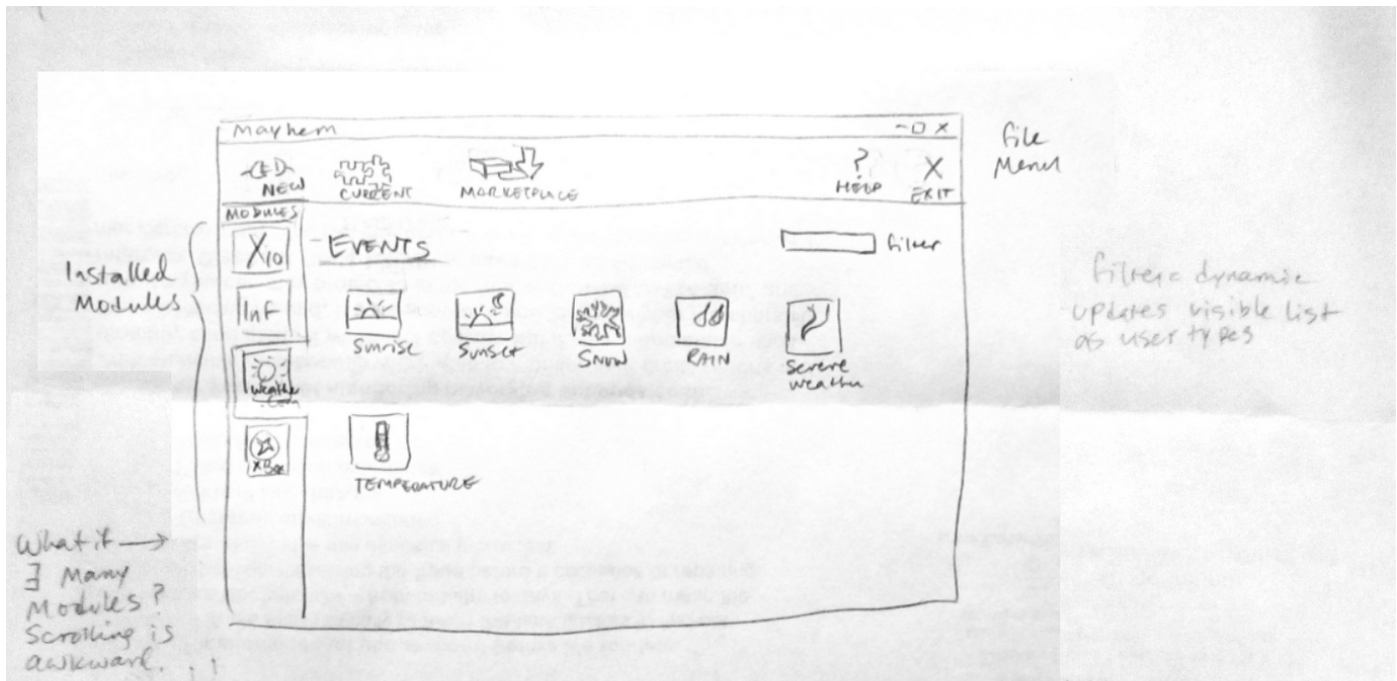
Paired with:

Event 1 More Edit On/Off

Event 2 More Edit On/Off

Reaction 2

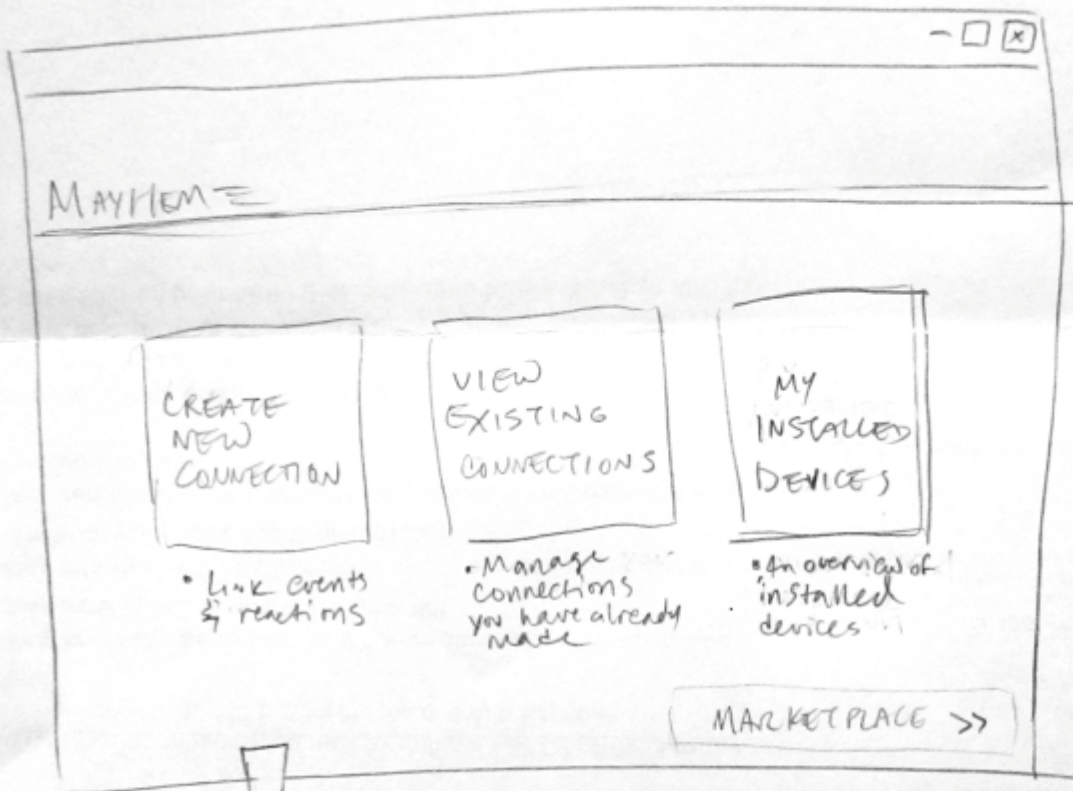
Reaction 3



- should also be able to clone connection, for cases when it's the same task, but only one param changes (ex: turn off multiple separate lights/outlets w/ same event)



Connections:  
- active  
- inactive



Connection  
- Name } both filterable  
- Description }

