

Assignment 2f: Design Check-In

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Task Descriptions

Cleaning out the closet

Jen cleans out her closet once a year in order to declutter and make more space. She first goes through every single item that's hung up because they are the most accessible. She examines each piece and tries to recall the last time she has worn it. Then, she takes into consideration the following factors: Is it still on trend? What kind of outfits can she style this piece with? How is the quality? If Jen has decided that she does not want to keep the item, she throws it in a pile behind her. As the pile grows by the end of her examination, Jen folds the discarded item and put it in a bag. The bag is stored in her garage until she finds time to donate them. As a result of this task, Jen has successfully created more space in her closet.

Separating laundry by color/type

Depending on the cloth, brand, and washing machine settings, bright colored clothes when washed for the first few times tend to give away color and can stain clothes with whites and other light shades. John tries to sort clothes out into different loads to be washed separately. Sometimes he attempts to go through his dirty laundry piece by piece and separate them by color, but he can't always tell whether certain items need to be separated from others. Oftentimes he just gives up trying to sort the clothing because the process is so cumbersome, and seems to just result in wasted water and money.

Deciding when you have a full load of laundry

Sometimes John goes too long without doing laundry, or has to wash sheets in addition to his other clothes. When this happens he needs to decide if he should do more than one load of laundry. He could just cram everything in the washer and hope for the best, but if he tries to overfill it, it might not clean as well. Plus, the dryer will take much longer, and his fitted sheets tend to get wrapped up with the other clothes and prevent them from drying out at all. On the other hand, doing two loads of laundry is twice as expensive and adds at least an hour to the task.

Determining if you have enough money in the correct type to do laundry

With shared laundry, sometimes machines only accept quarters, or other specific types of change. Before beginning to do laundry, Mary needs to make sure that she has enough money, in the correct denominations, to finish washing and drying her clothes. If she has particularly thick clothing, she may need to add time to the dryer, which also costs more money. Or, if she needs to do more than one load, that will also cost her extra, and she doesn't necessarily have enough change because she rarely pays for other things with cash.

Deciding when to wash and dry your laundry in a shared apartment complex

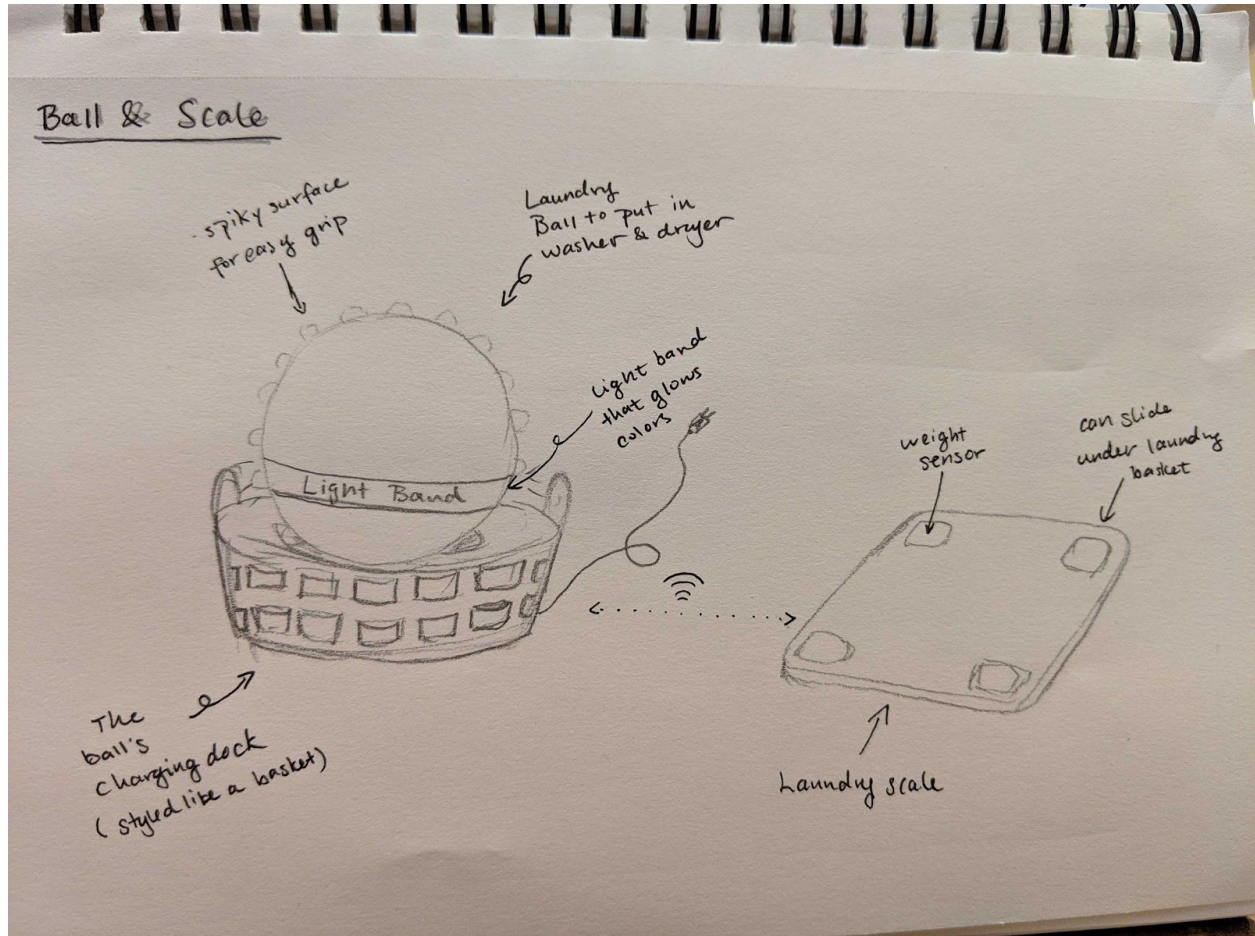
Seymour lives in an apartment building with one shared washer and dryer per floor. To do laundry, he first needs to walk across the hall to the machines to check if the washer is free. If the washer is free but the dryer is not, he needs to think about how long he'd have to wait between the washer finishing and the dryer finishing with the other person's clothing, also taking into account that the person using the dryer might not immediately come get their clothing. He also must consider how much free time he has before he needs to leave for school or work, because he doesn't want to leave his clothing sitting wet in the washer for too long. Once his clothes are washed, he needs to periodically check on the dryer to see whether it's free yet.

Determining when clothing is dry

Most shared dryers don't have a way to actually determine when clothing is dry -- they just run for a set time and turn off when the time runs out. Depending on the weight and type of the clothing in the dryer, this means that it might not be dry when the cycle finishes, or it might be dry earlier. When the cycle finishes, Seymour has to go try and figure out if his clothing is actually dry, which is difficult to determine when it's also warm from the dryer, and if it's not, he needs to add more time to the cycle.

Sketches and Description

Laundry Ball & Basket Scale



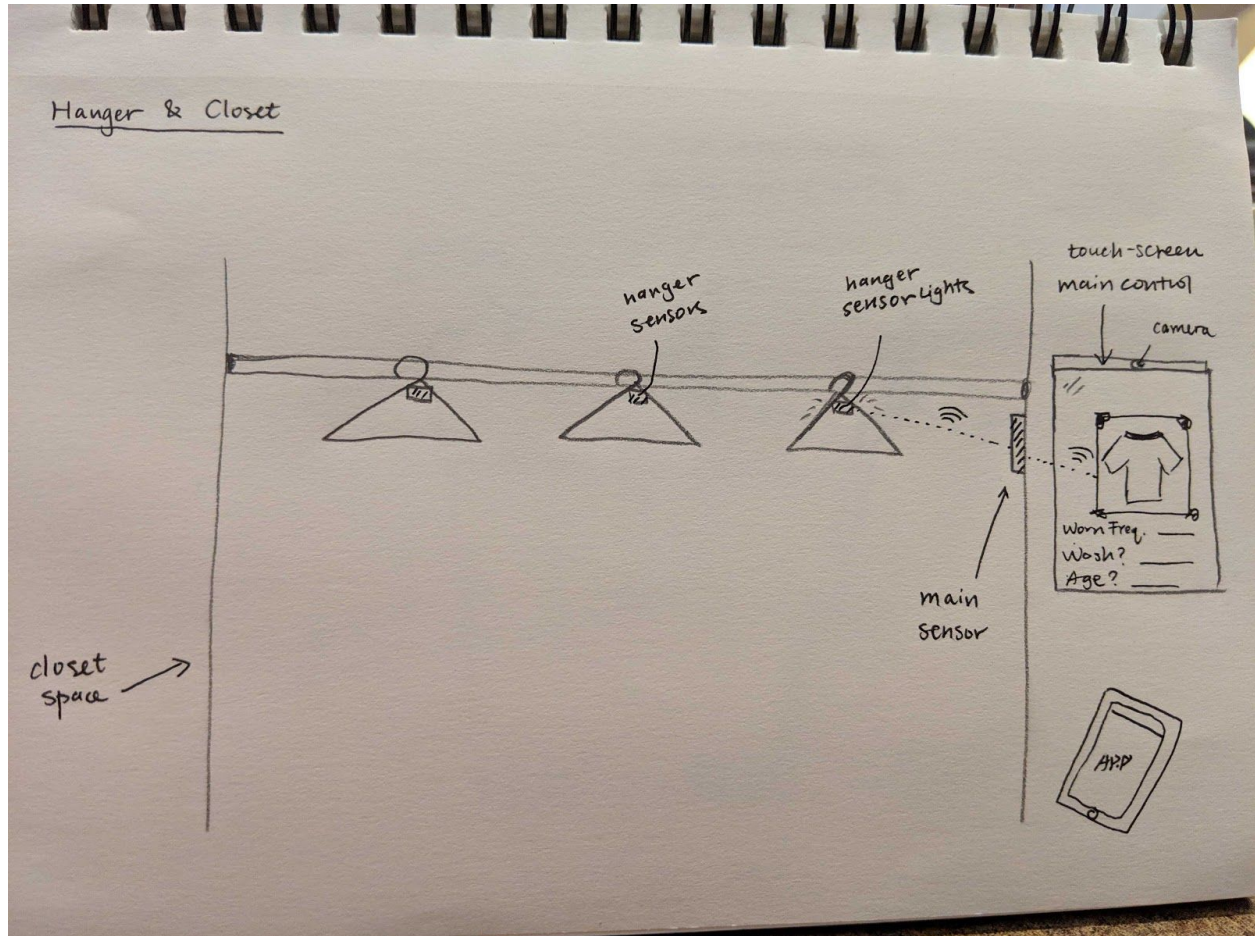
This design includes a small ball that sits on your desk in a charging cradle and communicates both with a scale that your laundry basket sits on, and other laundry balls. When the basket becomes full, the ball glows to notify you that it's time to do laundry. When you start your laundry, you throw the ball into the washer and dryer with your clothing, and it sends you a notification when the washer is done, and the clothing is dry, for the washer and dryer respectively. The ball can also communicate with other balls in the vicinity to know when the washer and dryer are in use.

Tasks

1. Determine when a load is full: the scale alerts the ball sitting on your desk when a load is ready. The ball lights up to let you know.
2. Determining when clothing is dry: the ball has a sensor in it that can sense when the clothing in the dryer is dry, and sends a notification to your phone.

3. Deciding when to do laundry: the design can synchronize with your calendar to figure out when you're home for an sufficiently long period of time to finish your laundry.
4. Coordinating laundry between different machines in a shared complex: the ball can sense other laundry balls in its vicinity and notifies the owner when a machine is free.

Smart Hanger System



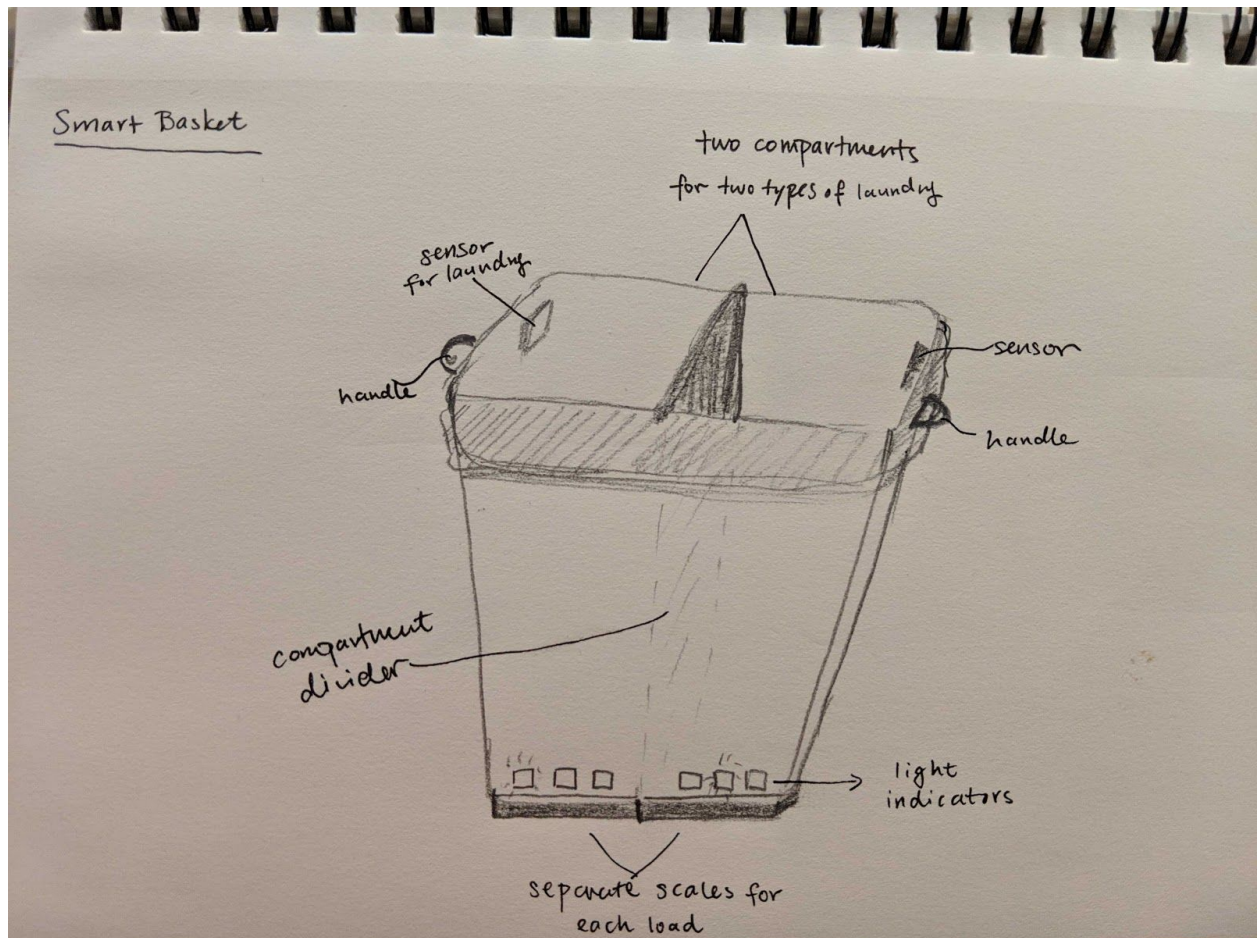
This design consists of mini sensors that you attach to your hanger. The sensors all link to a main control unit display that sits in your closet. The sensors keep track of how many times an item is worn. Every time someone takes an item off the hanger, the main control unit would display the item and related statistics such as last time the item was worn and last time it was washed. When the user wants to hang an item up again, he or she can hold the item up to a camera and the corresponding sensor will light up to tell you where to put it back. This acts as a way to link each sensor to its unique item to keep track of.

Tasks

1. Cleaning out the closet: since the hangers can sense how often you wear each article of clothing, they can keep track of items that you seldom use and suggest donating them.

2. Separating clothing by type: the hangers can tell you how each item of hung clothing is supposed to be washed, and suggest that you wash like items together after a certain number of uses.
3. Deciding when to wash an item after a certain amount of wear: when the user takes an item off the hanger for a prolonged period of time, the controller tracks how many times its been worn. When the user tries to hang it up again, the sensor will light up red to let him or her know that the item should be washed instead.
4. Keep your closet organized: the sensor system makes sure that you always hang your clothes back on the hanger that it was originally on, preserving a constant state of your closet.

Smart Laundry Basket



This basket contains multiple compartments for clothes that need to be washed in different ways (e.g., lights, colors, dry-clean, etc). These can be chosen by the user when they set up the basket. The basket has a separate scale for each compartment that tells you when each compartment is full and ready to be washed, and can be paired with a smartphone app with instructions for how to wash each type of clothing.

Tasks

1. Separating laundry by color/type: the baskets have physical compartments that can separate the different colors/types of laundry so they will not get mixed up in the machine, and you can do separate laundry
2. Deciding when to wash and dry your laundry: the light indicators at the bottom of the basket shows whether you should dry or wash or fold your laundry
3. Determining when a load is full: the baskets have sensors that will let you know when a certain type of clothing is ready to be washed, so that you can generally wash the most full compartments first and maximize efficiency.
4. Determining when clothing is dry: the basket can “learn” how long each type of clothing typically takes to dry, so it can suggest lengths of time in the dryer through the app (i.e., heavy cotton clothes typically take longer than light shirts). This does require some initial setup for the basket (the customer needs to tell it how long the dryer has taken in the past).