

Jasper

Intelligent Wardrobe Assistant

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Problem Space

- Outfits are a key component of interpersonal assessments
- Outfit selection can be time-consuming and difficult
- Large wardrobes can result in individuals not taking advantage of their attire
- Individuals do not harness the full potential of their clothing
- A disorganized wardrobe can result in items not being worn—how can individuals properly manage their wardrobe?



Design Research

In order to understand how “fashion-conscious” individuals...

- select an outfit for the **present** day
- manage and interact with their wardrobe on a daily basis

....We developed a three-part research method:

- **Observational study:** visiting participant's home and observing clothing storage, organization and management
- **Contextual Inquiry:** participant performed outfit selection process
- **Interview:** participant answered a series of follow-up questions



Design Research—Gavin Belson



Observe participant's wardrobe setup

- Closet and dresser present
- 60-70 items visible



Participants walks through outfit selection

- T-shirt and socks first
- Weather determines jacket
- Paradox of thrift with pants



Inquire about decisions

- Can you easily find all items?
- How do you dispose of unworn items?
- Why is your closet organized the way it is?

What factors influence outfit selection?

1. Weather Rain, Humidity, Snow
2. Activity Work, School, Gym
3. Occasion Formal, Smart Casual, Street Casual
4. Quality & Consistency Color, Frequency, Style

Tasks (1 of 2)

Difficulty Level:



Selecting an outfit to wear for the day

Find ideal outfit based upon activity, weather, occasion, and quality



Maintaining a clean, organized, and accessible wardrobe

Ensure items can be easily located and accounted for



Properly dispensing one's wardrobe of unworn items

Donate or sell unworn clothing items

Tasks (2 of 2)

Difficulty Level:



Visualization and evaluation of the outfit selection

View how different combinations of existing outfits look on you without trying them on



Exploring and evolving an individual's fashion options

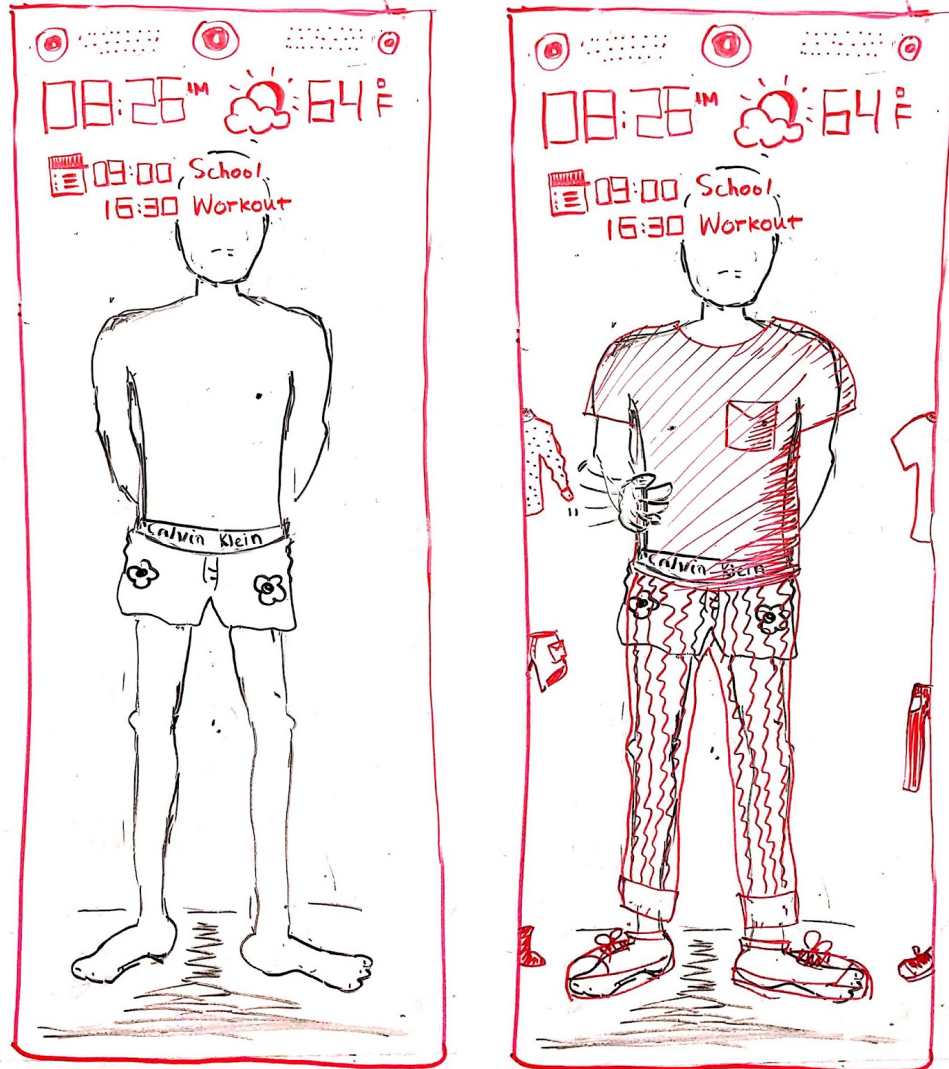
Explore new fashion styles and experiment with new clothing items



Maintaining a detailed catalog of one's wardrobe

View and query clothing items by color, size, occasion, use, etc.

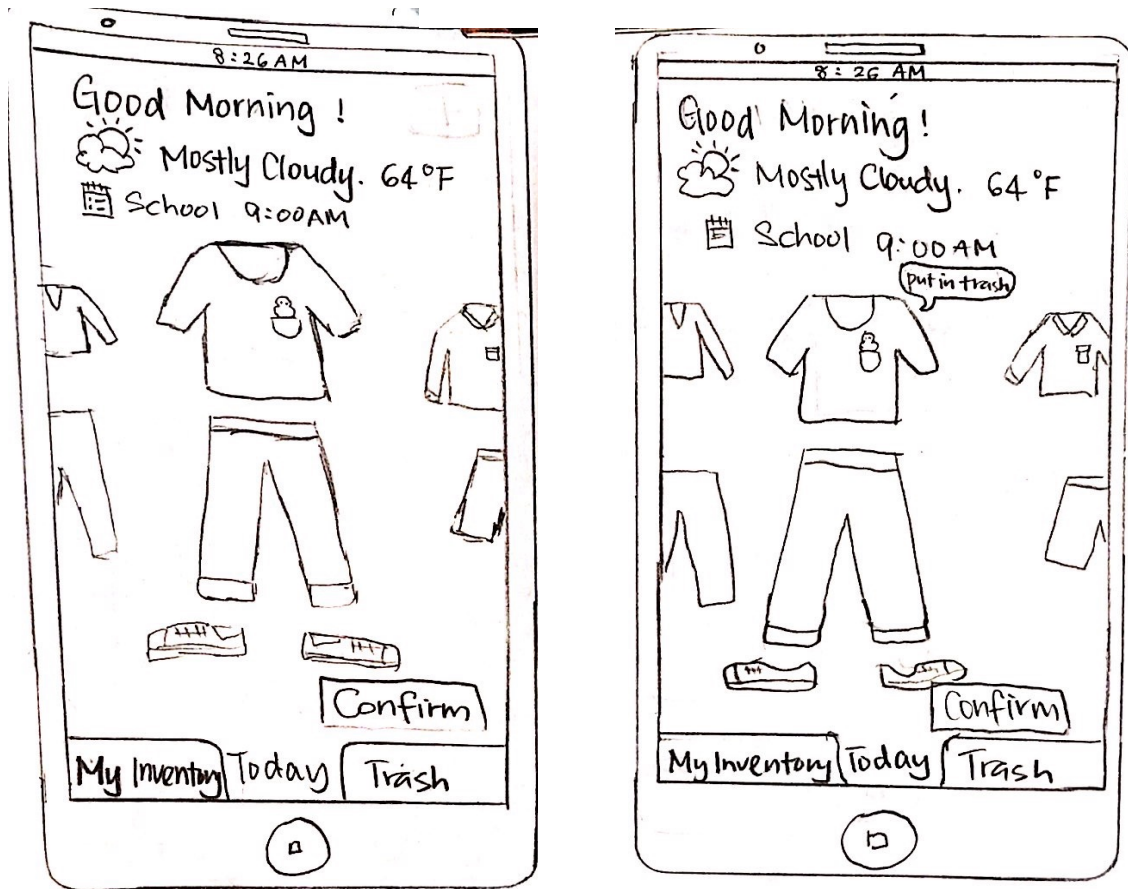
Design 1: Smart Mirror



- Mirror with display, camera, microphone and speaker
- Visualize combinations of clothing without physically putting them on
- Located near wardrobe
- Hands free voice and gesture control

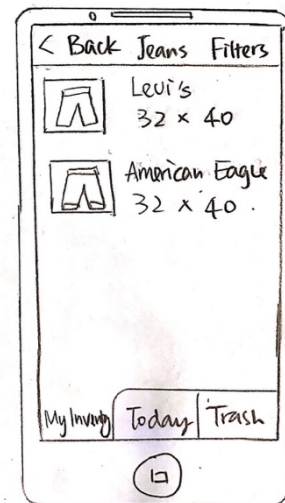
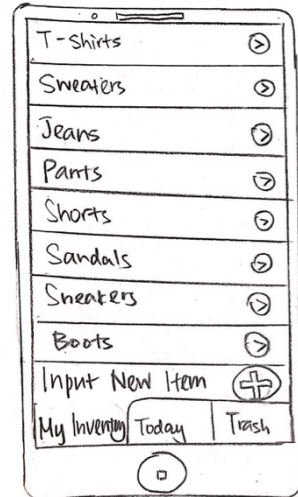
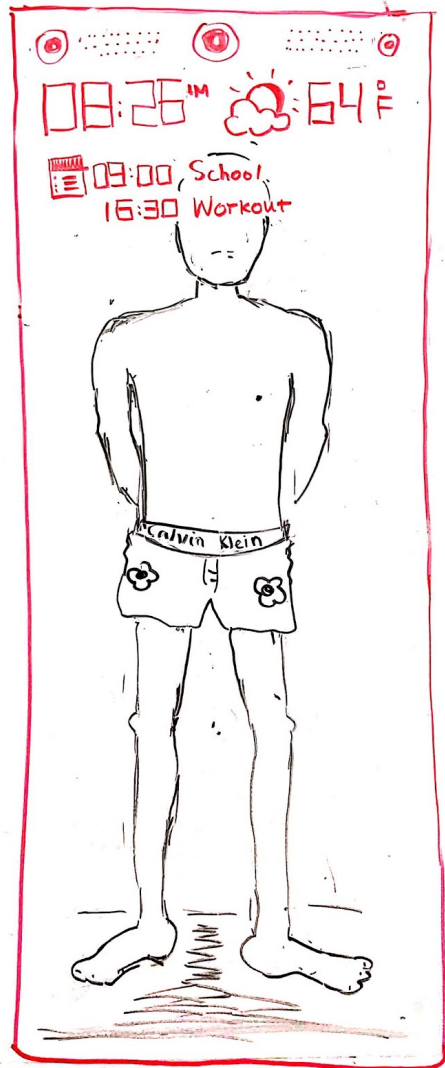
“Jasper, I’m feeling like wearing a blue shirt today”

Design 2: Stand-alone Mobile Application



- Visualization of clothes with an avatar
- Scan in new items with camera
- Inventory management
- Apps are accessible to a large population
- Selfies are difficult and awkward to take

Design 3: Hybrid Mobile Application & Mirror



- Mirror with companion app for on-the-go outfit browsing
- App provides clothing inventory view
- Too many components and potential feature overload

Selected Design: Smart Mirror

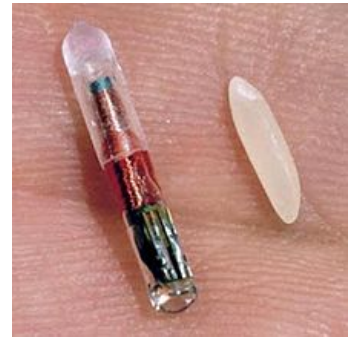
- People are already familiar with mirrors
- Natural, hands-free interaction
- Large full-body 1 to 1 visualization

+ Individual Clothing Attire Tags

What? Small RFID tags with speaker attached to each clothing item

Why? Easily find items in messy wardrobe & accounts for laundry

How? Jasper sounds alarm to help individual find lost clothing or to determine clean/dirty items



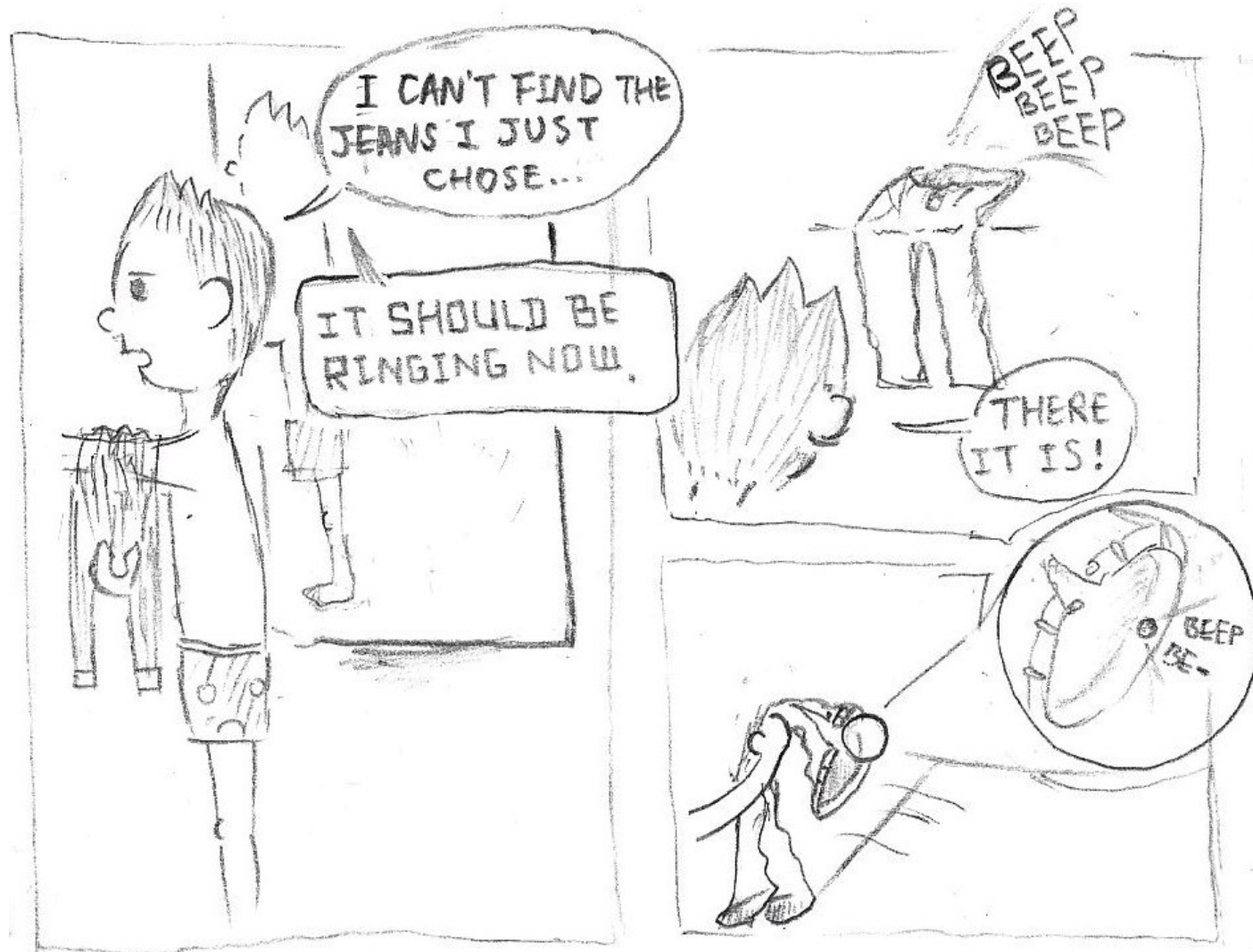
Selecting an Outfit with Jasper (1 of 2)



Selecting an Outfit with Jasper (2 of 2)



Locating an Item with Jasper



In Summary...

- People want a solution to help them select clothes without effort in a timely manner
- Interaction should be natural, hands-free, and enjoyable
- Discussion, arguments, and frequent meetings are key
- Design for both genders and all demographics
- Think big and stupid

