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
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)

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)

Hi Jasper, dress me up.

Good morning, Bob.

Today's sunny. You have one job interview. Here are the recommended outfits.

Nice, but I want a blue or white shirt with it.

Sure, here are all the available options I found. You can try them on.

Looks good. Lemme grab those...
Selecting an Outfit with Jasper (2 of 2)

ALRIGHT. HOW DO I LOOK?

SLIPPERS MIGHT NOT SUIT A JOB INTERVIEW. SEE ALTERNATIVES?

OH. RIGHT

HOW ABOUT NOW?

YOU LOOK GREAT, BOB. READY TO HEAD OFF?

GREAT. GOTTA GO.

HAVE A GOOD DAY!
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