# Remote control research journey: From paper prototypes to a fully functional remote

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# Remotes: Just Another Interface



➢ Information architecture

➢ buttons

➢ space constraints

➢ color

# Introduction & Context

In recent years, with the popularization of streaming services (e.g., Roku, Firestick, etc.), remote controls have been made shorter, with fewer and fewer buttons.

➢ A business requirement was put in place to follow this trend by redesigning our remote to be smaller and with fewer buttons. This went along with a redesigned TV UI.

➢ There was a push from global business partners for a long thin remote.

# Research Plan: Research Goal

Understand behaviors, perceptions, and needs around TV remote controls in order to design a better remote control.

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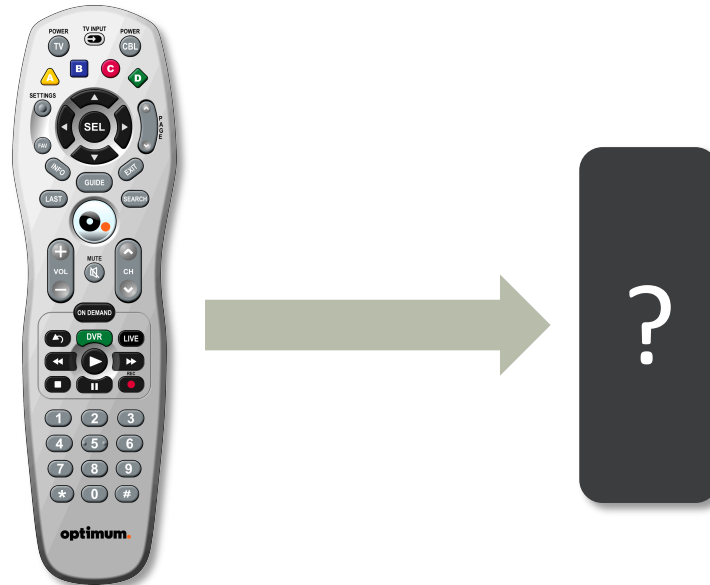
# Research Plan: Methodology

➢ Moderated, in-person, primarily qualitative, iterative individual interviews with employees

- ❖ Semi-structured format of interviews (task-based and think-aloud, when appropriate) including close observation
- ❖ Taking place in the UX research facility at company headquarters – includes participant & observer rooms
- ❖ Video record sessions

➢ Supplemental methods (e.g., surveys, heuristic evaluations, etc.) as necessary

**Recruitment/Participants**

➢ Criteria:

- ❖ Company employees who did not work in product development
- ❖ Mix of those with the company cable service, and those without.
- ❖ Must watch at least 5 hours of TV per week

➢ 8-10 participants per iteration
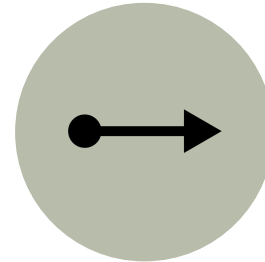
➢ Recruited via email

# Research Plan

**Role:** Sole UX Researcher
- Designed & executed all research
- Provided design recommendations
- Negotiated design changes with stakeholders

**Stakeholders**
- Product managers
- Product owner
- Indirect partnerships with:
  - Remote control design vendor
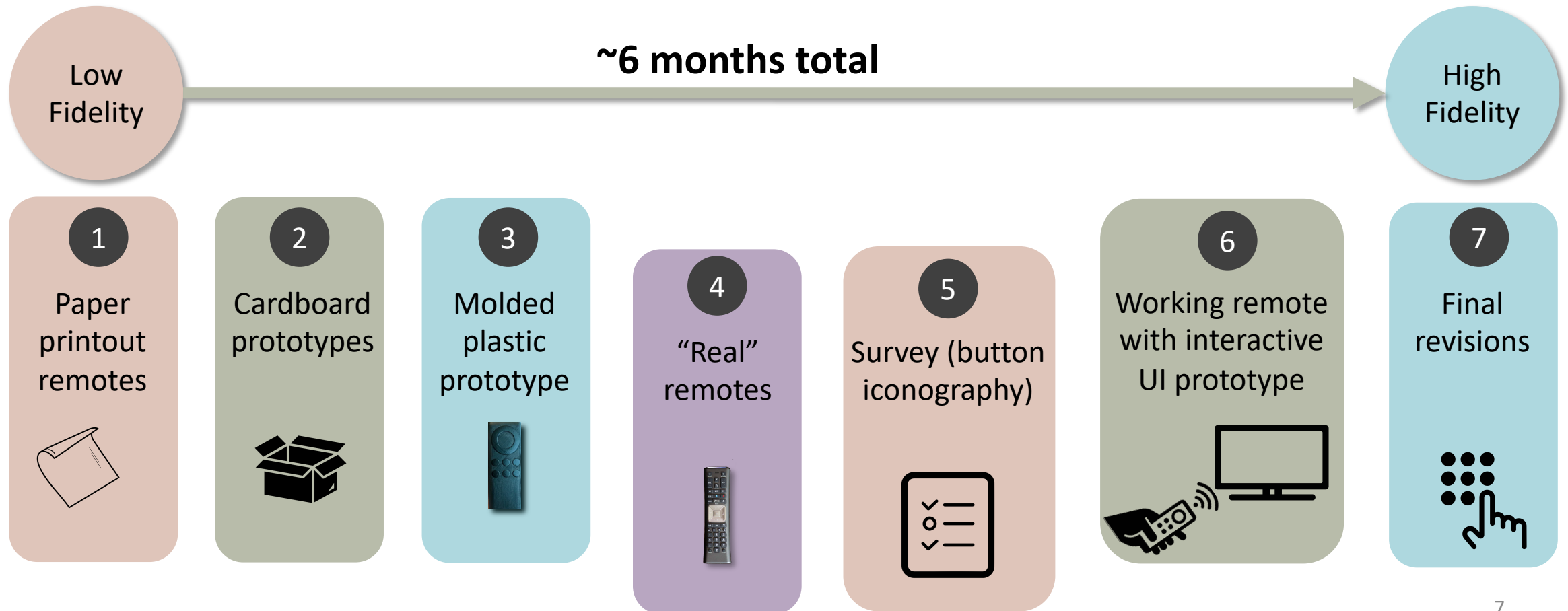  - Global design partners
  - Product executives

**Schedule**
- For each stage of research:

| Task | Days |
|---|---|
| Recruit & schedule participants | Days 1-5 |
| Write interview guide | Days 1-10 |
| Get signoff from stakeholders on interview guide | |
| Create prototypes | |
| Conduct interviews | Days 11-15 |
| Provide and discuss results with stakeholders | Day 18 |
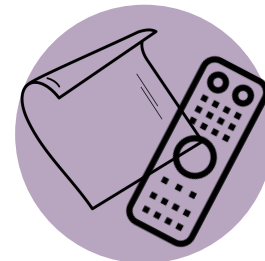
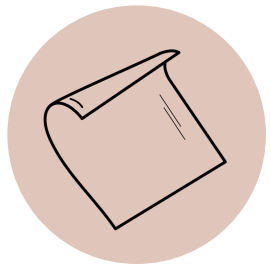**Physical artifacts:** Start with paper printouts and end with a fully functional remote, incrementally increasing in fidelity.

# Stages

**~6 months total**

Low Fidelity → High Fidelity

**1** Paper printout remotes

**2** Cardboard prototypes

**3** Molded plastic prototype

**4** "Real" remotes

**5** Survey (button iconography)

**6** Working remote with interactive UI prototype

**7** Final revisions

# Exploration & Alignment with Stakeholders

> Remote length

> Also, the sizing, visibility, color, and labeling of buttons.

> Basic information before we had access to the higher fidelity options

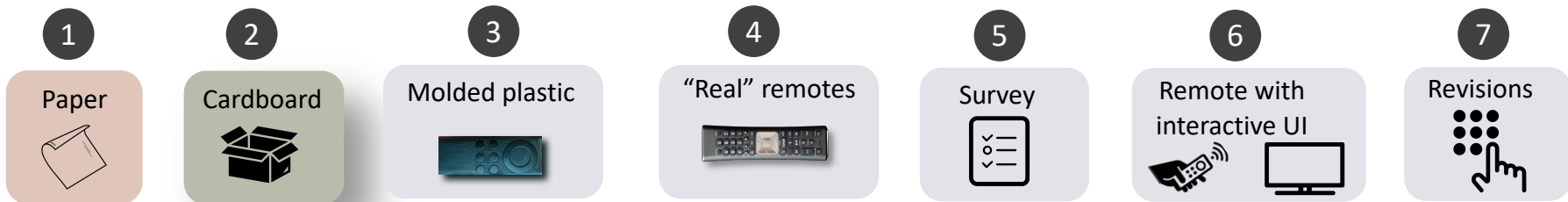| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Paper | Cardboard | Molded plastic | "Real" remotes | Survey | Remote with interactive UI | Revisions |

# Moving from 2 to 3 Dimensions

➢ Better idea of how the length of remote controls would feel in their hands, however
  • all remotes had the same thickness & similar look of material
  • they had no significant weight
  • the buttons couldn't be pressed, and
  • the remotes looked more similar to each other than they would in real life.
➢ Still required a significant amount of imagination from participants.

| 1 Paper | 2 Cardboard | 3 Molded plastic | 4 "Real" remotes | 5 Survey | 6 Remote with interactive UI | 7 Revisions |

# More Detailed 3 Dimensional Remote



A molded plastic prototype allowed me to gather information on :

➤ whether they could use it with one hand,

➤ how easily they could find specific buttons, and

➤ whether the thickness of the remote was suitable.

It also had some weight, which was lacking in the paper and cardboard versions.

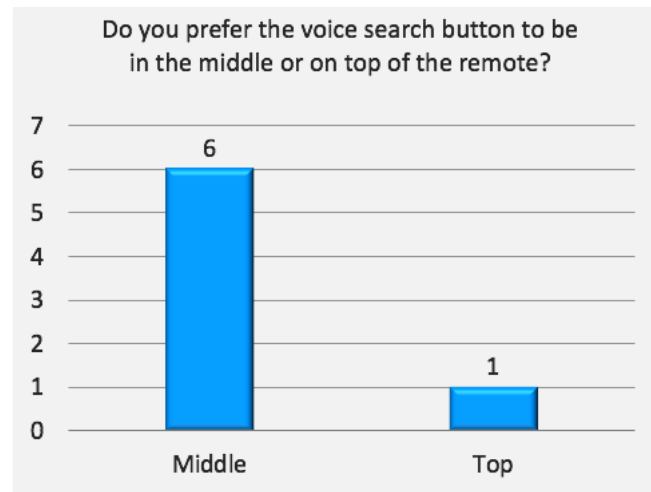| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Paper | Cardboard | Molded plastic | "Real" remotes | Survey | Remote with interactive UI | Revisions |

# More Detailed Feedback & Current Behavior

In addition to cardboard prototypes, we wanted to get feedback on remotes currently being used by the general population of TV viewers. So I collected a selection of real remote controls (e.g., Xfinity, Tivo, etc.), and got more accurate feedback on remote:

➢ length

➢ thickness
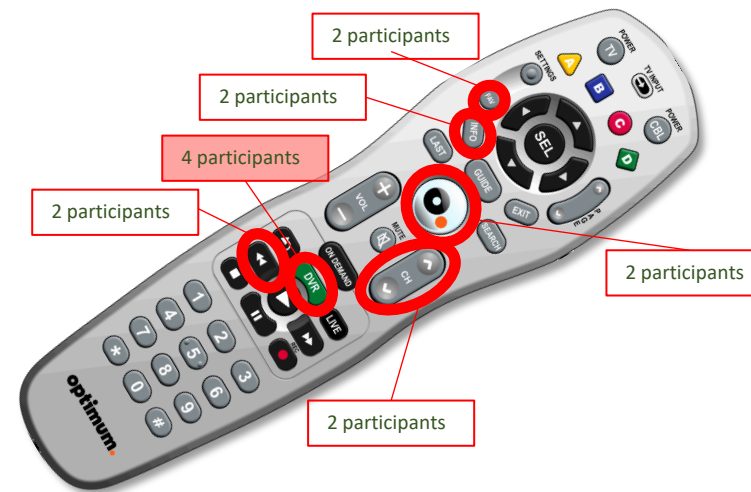
➢ material

➢ colors, and

➢ button placement.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
| Paper | Cardboard | Molded plastic | "Real" remotes | Survey | Remote with interactive UI | Revisions |

# More Detailed Feedback & Current Behavior

Do you prefer the voice search button to be in the middle or on top of the remote?

Middle because I have more support for my hand.

**3 Most-Used Buttons on Current Remote**

2 participants

2 participants

4 participants

2 participants

2 participants

2 participants

Each mentioned by 1 participant:
- Arrows
- Exit
- Fast Forward
- Guide
- Last
- Live
- Number Pad

# Iconography Understanding

Button iconography confusion

➤ Misunderstanding Functionality of one of the buttons.

2 design choices for a certain button icon

A survey with 100 respondents gave us clear data on which direction to recommend the design go.

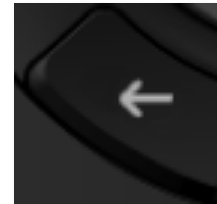| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
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# Iconography Understanding

 Enable the exit button to stop.

 Keep a version of the arrow as a back button, since a high percentage of those who chose exit to stop understood the back button correctly.

 The straight version of the arrow was more clearly understood as a back button and rewind/start over functionality was associated with it less frequently.

① Paper
② Cardboard
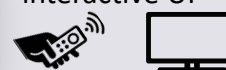③ Molded plastic
④ "Real" remotes
⑤ Survey
⑥ Remote with interactive UI
⑦ Revisions

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# Interactive Experience

Tactile & interactive experience the remote provided with the TV user interface.

➢ Functional remote control with interactive TV prototype.

➢ Simulated live video

➢ These emulated a realistic TV viewing experience.

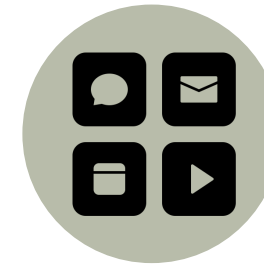| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|---|
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# Interactive Experience

Flirc USB so the remote control would work with the TV prototype.

Remote control that was much closer to the envisioned new remote than the current remote.

➢ It was a remote currently being used in South America, and I updated it with button labels that more closely suited our needs.

Button placement & iconography.

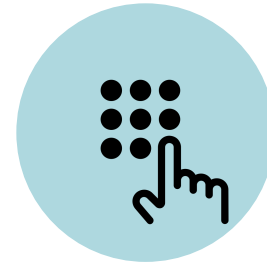| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
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# Final Usability Testing

Gauge ease of use in changing channels, a key component of any cable TV remote control.

Space between buttons and beveling of buttons.

1. Paper
2. Cardboard
3. Molded plastic
4. "Real" remotes
5. Survey
6. Remote with interactive UI
7. Revisions

# Outcomes

**Research influenced product decisions around:**

Placement of buttons: microphone, 10 key pad

Icon design: options, back arrow, exit, record, information

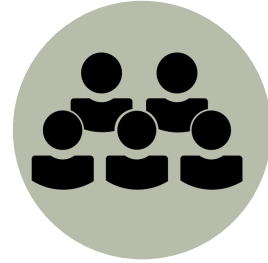Button labeling: select, DVR

Button press feel          Button spacing & beveling

Length & width of remote

# Expanded Research Design

Start with exploratory/ generative research, rather than evaluative research.

Interview customers and prospective customers rather than employees as proxies for these groups.

Use multiple 3D printed remote designs, potentially with ability to press buttons.

- Buy-in from stakeholders for expanded research design (e.g., product manager, product owners, etc.).
- More direct communication between designers & stakeholders of TV UI and remote control design.

# Thank you!