

Blind Control

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Interaction Design Studio 1, Studio A

Assignment 1: Control Redesign

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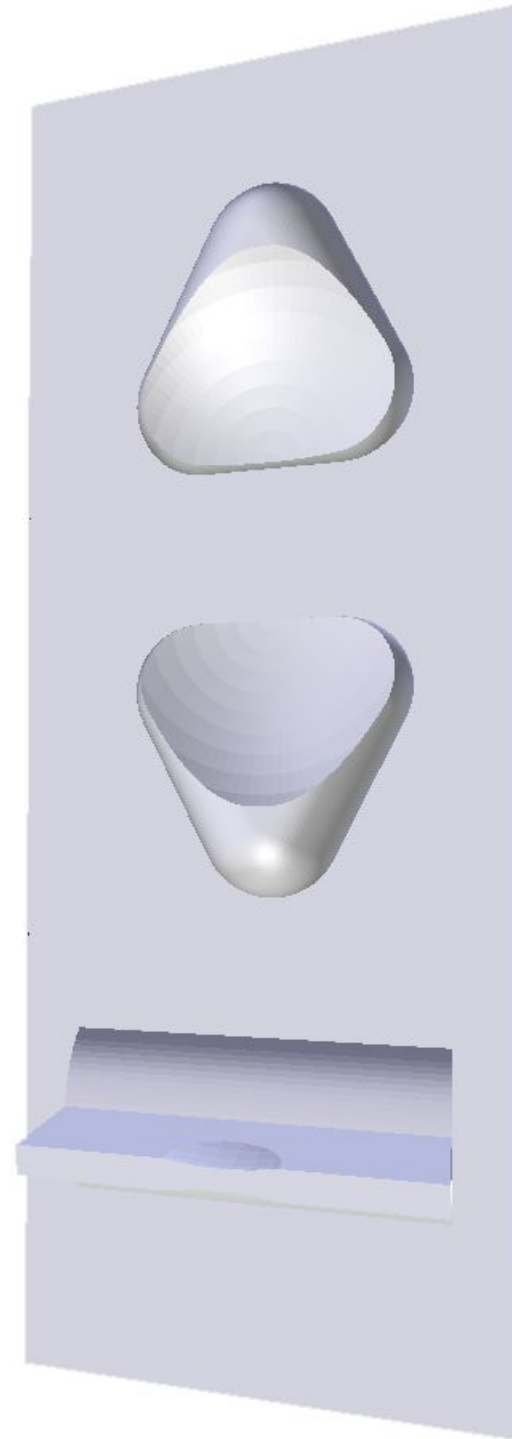


Table of Contents

Research

Picking a Project	3
Identifying Issues in Current Models	4
What Works in Current Models	6

Ideation

Initial Sketches	7
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Iteration

Version 1	8
Version 2	9
Version 3	10
Version 4	12

Research: Picking A Project

For my original three prototypes I redesigned a door handle, a phone volume slider, and window blind controls.

I wanted to redesign the door handle because this is a problem that I often see addressed and wanted to explore bad door design on my own.

I chose the volume slider because I am often frustrated with not being able to turn my volume lower or higher with more precision, and with not being able to tell if my volume is at the highest it can be, as songs sound louder depending on the headphones you are or are not wearing

Window blinds are something that I often come into contact with, and interacting with them is a more substantial task than adjusting volume

When I went forward with the process, I decided to spend this assignment redesigning the controls for window blinds, as their current state has more issues than the other two.

Research: Identifying Issues in Current Models



The model on the left¹ shows one of the more common models of controls for blinds

- Control Pulleys have feedforward, they are visually inviting you to pull on them, but lack context as to what pulling in different directions will do
- Pulling cords to change the tilt of the blinds doesn't have much of a relation between movements
- The pulley is unclear and does not provide information as to what each direction does
- Cords are loud when they hit the wall due to wind

Research: Identifying Issues in Current Models



This Model² uses a tilt wand to control the blind tilt and pulleys to control blind height

- The tilt wand is awkward to use and provides little feedforward, and without having seen it before, it is not obvious that it controls the tilt of the blinds.
- Cords are still loud, and easily tangled. There is no obvious labeling or correlation as to which moves the blinds up or which moves the blinds down. Pulling them down and left vs. down and right is part of the mechanism but is not conveyed visually through the control

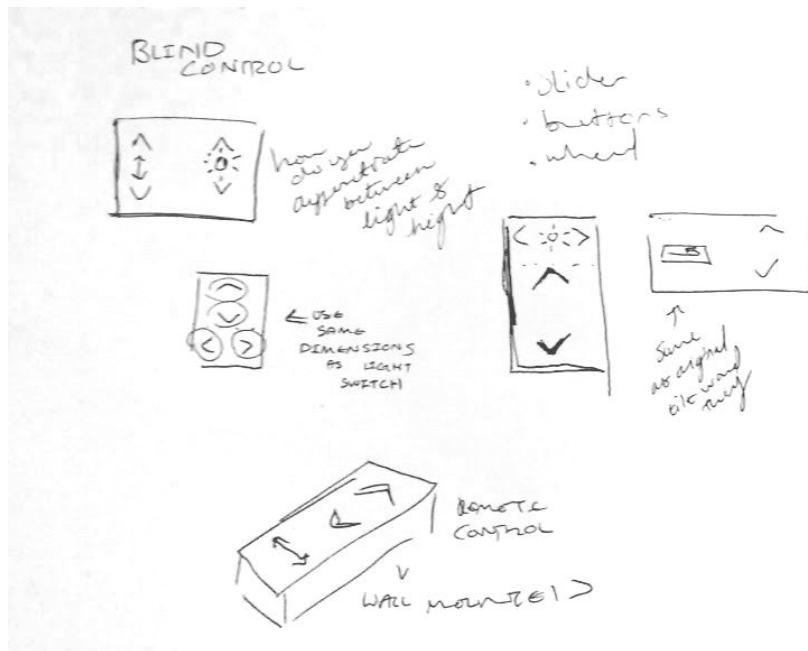
Research: What Works in Current Models

What these models do well is that they provide feedback. Since the controls are built in as part of the mechanism, and not connected wirelessly such as through remote control, the user can immediately figure out if their interaction with the control has had any consequences, and therefore it's easy to tell if the control is working or if it's broken.

The controls all provide at least minimal feedforward in that they are distinctly not part of the blinds themselves, and therefore must be there for a reason, which in this case is to control the blinds.

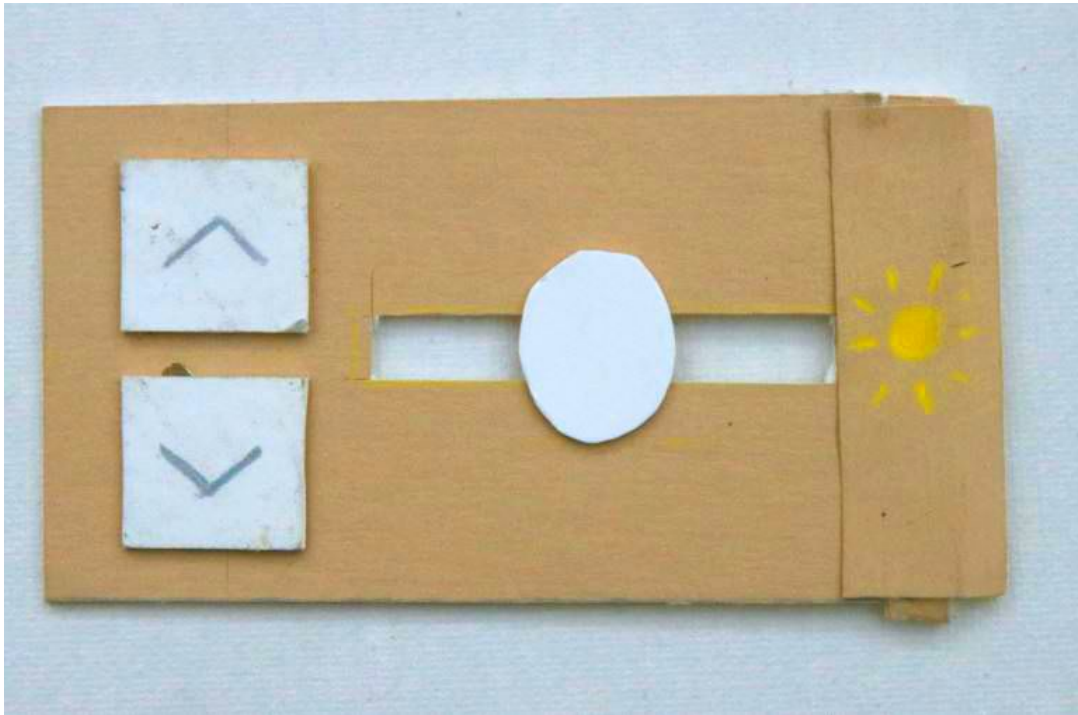
Ideation: Initial Sketches

After analysing the different models I realized what I wanted in my ideal control: an intuitive interface with a sleek design. I didn't want it to be obtrusive - I wanted it to blend in with its surroundings and give each part of the control more visual correlation with



Sketching Helped me to further my goals. I realized I wanted it to be wall mounted, like light switches, so it could look familiar. I did not want to make it a remote because this makes it easy to lose, and since the window is always in the same place, this means that the mechanisms can be connected and not rely on wireless technology, which helps avoid loose coupling.

Iteration: Version 1

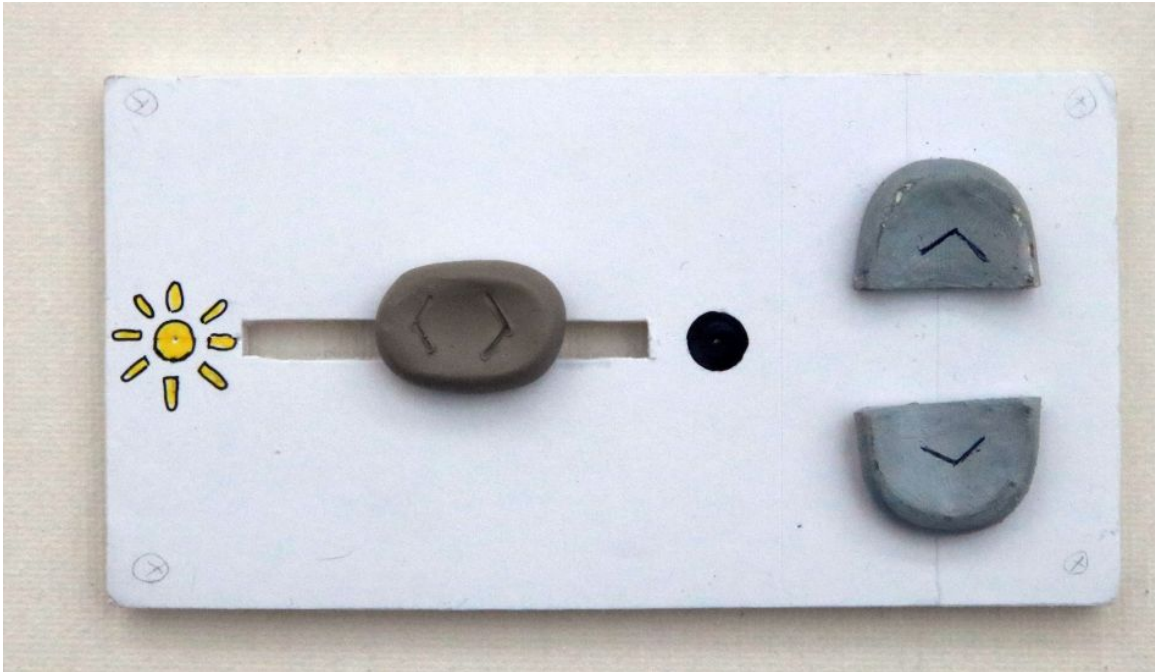


iterations, I realized that my buttons had a lot of room for improvement, and that my spacing could also be improved

My first iteration has a landscape orientation with flat buttons, arrows indicating up and down, and a sun icon to indicate brightness. The Buttons are meant to control the height of the blinds, and the slider was meant to control the tilt.

Though I did not receive class critique on the day we presented our first

Iteration: Version 2



I sculpted these buttons out of clay, I wanted them to have a more ergonomic feel. I changed them into a more intuitive shape, so that they relied less on iconography, and also made them into push buttons that slide as a way to provide feedback. The finger shaped indentation also provides feedforward

Another thing I did was change the color of the base to white, this makes the icons pop out more and increases readability. I also reshaped the slider button.

What I realized here was that having the blind tilt depend on a slider hinders the range of movement and blinds can darken the room either by tilting up or down, and that people have different preferences. This design would have only allowed about 90 degrees of rotation instead of the full amount which is near to 180 degrees.

Iteration: Version 3



My third iteration changed in a couple ways. I refined the buttons to look like arrows, which gets rid of the need to label them. I also changed the way they work to accommodate more control over how the blinds rise or lower. When you move the arrow up along the track, there is a resistance point about halfway through. Before you push past this resistance point, the blinds will only rise or lower while you are actively pressing them, but if you pass the resistance point, the button will stay there till the blinds are either completely opened or closed, or until you press the button in the opposite direction in order to stop it (if you want it to change directions in the middle of this automated movement, you would need to press the opposing button twice).

Iteration: Version 3

Another change I had made was to change the tilt adjuster from a slider into a wheel, which brings back the full range of motion that was present in pre-existing window designs.

Through iteration 3, I had decided to (but not implemented) my control dimensions as being the same as a standard light switch. The crit I received had me think a lot about object placement, and functionality. Going forward, I considered how this would be implemented. As my design is reliant on the user knowing that the controls go with the windows, I considered the confusion that might arise with having similar visuals to light switches, and decided to reposition my controls onto the side of the window frame.

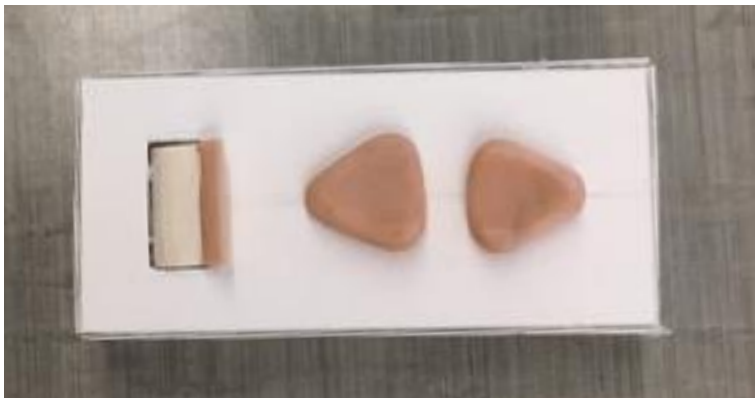


Iteration: Version 4

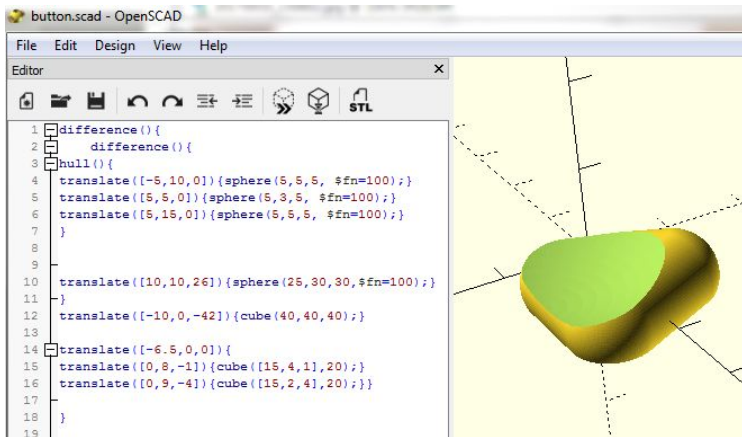


My final version had the edition of a dial on the tilt which directly represents the angle that the blinds are at, essentially it serves as a visualization of the blinds themselves. I also allows for easier control of the wheel.

I wanted the design to look simple, but not have it all the same color. I made the parts that the used directly interact with stand out by giving them a light pink tone, differentiating them from the static parts of the control. The texture of the clay i used in my final piece was a softer texture than plastic or the other clays, and was more inviting to the user

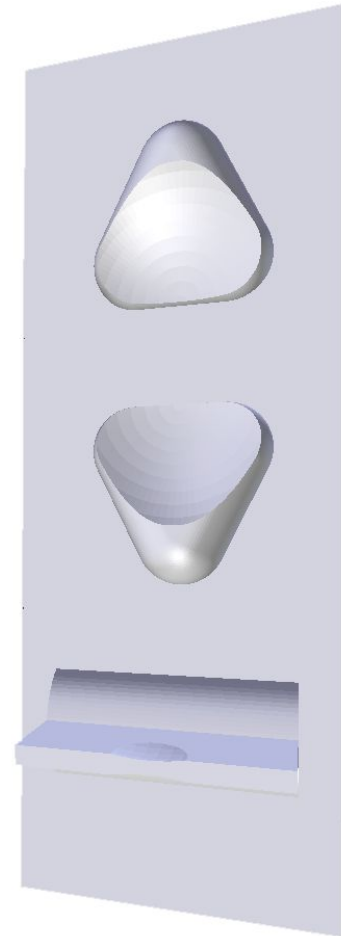


Iteration: Version 4



In order to perfect my model I experimented with CAD to help me design more geometrically shaped buttons. The 3D printer I had access was malfunctioning and I was unable to print the entirety of my model (digitally assembled on the right), but I was able to print a button, which I used as a mold (shown above) and casted in a pink colored clay.

The placing of this final version remains built into the window frame as seen in version 3's page 11.



Sources

1. Image from page 4: [How stuff works](http://home.howstuffworks.com/home-improvement/repair/how-to-repair-windows5.htm)

<http://home.howstuffworks.com/home-improvement/repair/how-to-repair-windows5.htm>

2. Image from page 5: [Home Depot](http://www.homedepot.com/p/Perfect-Lift-Window-Treatment-White-2-in-Textured-Faux-Wood-Blind-33-5-in-W-x-36-in-L-Actual-Size-33-5-in-W-x-36-in-L-QAWT334360/204955794)

<http://www.homedepot.com/p/Perfect-Lift-Window-Treatment-White-2-in-Textured-Faux-Wood-Blind-33-5-in-W-x-36-in-L-Actual-Size-33-5-in-W-x-36-in-L-QAWT334360/204955794>