

# Control Redesign

Process Book  
Interaction Design Studio I  
Section B

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# Original Control

For this project, I redesigned an ATM machine.

In using the ATM machine, I identified two main problem areas: **location** and **functionality** of the controls.

The location of each part of the machine I had to access in order to use it were confusingly located. The selection buttons, receipt, card reader, and cash dispenser do not make a smooth and continuous flow.

Functionally, the selection buttons and keypad were not being used effectively throughout the user process. There were several redundancies in the operation of this ATM.



ATM machine located on the second floor of Tepper Quadrangle, Carnegie Mellon University.

# Iteration One

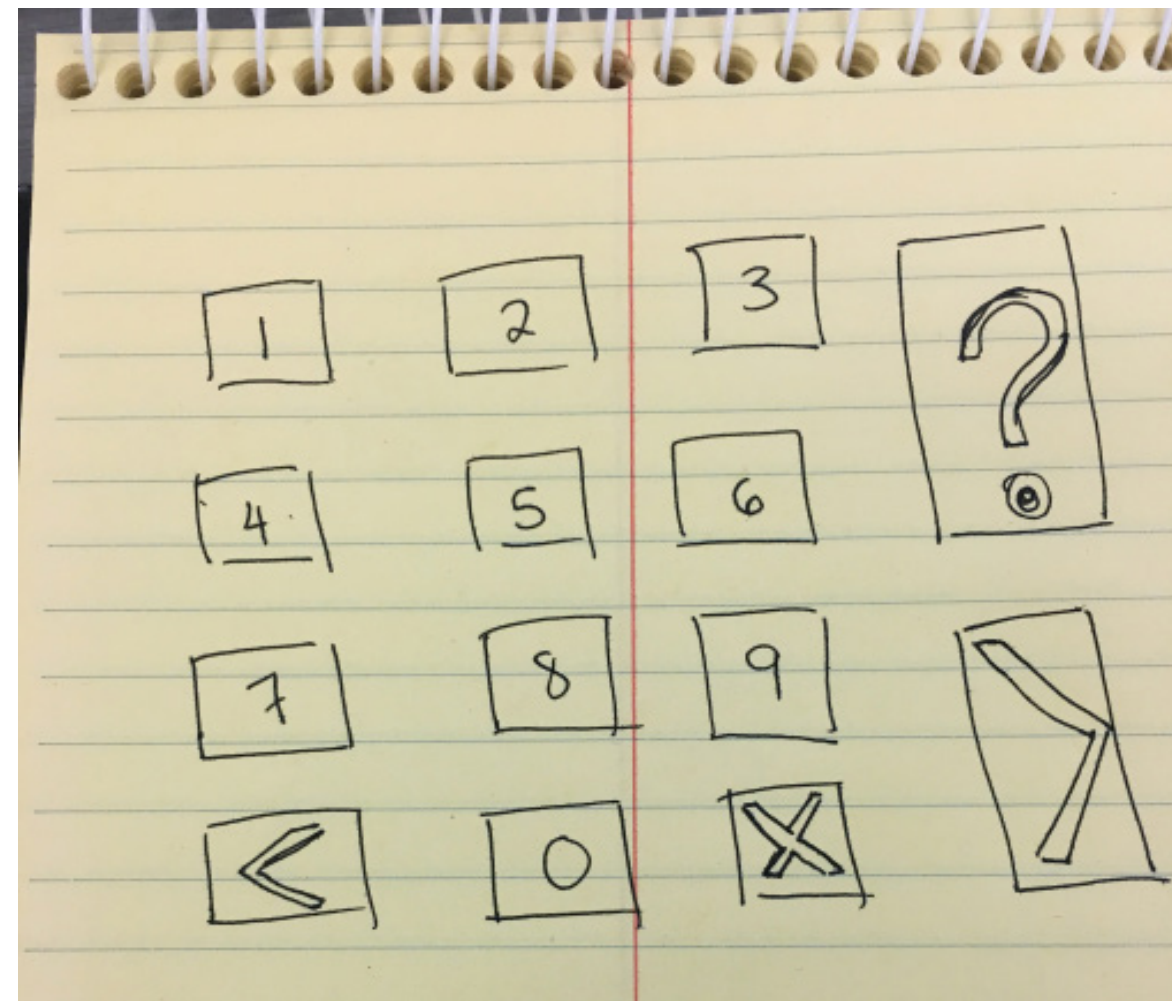
In my first redesign, I focused on the **keypad**.

The existing keypad had functionless dummy buttons in the last row and were hardly differentiated from the surrounding surface.

In my redesign of the keypad, I wanted to incorporate functionality into every button, instead of having empty placeholder buttons. I modified the size of buttons and sketched what non-numerical buttons indicating functionality would look like. I also sought to create a more apparent direct carrier of meaning through raised buttons that would be more inviting to touch and press.



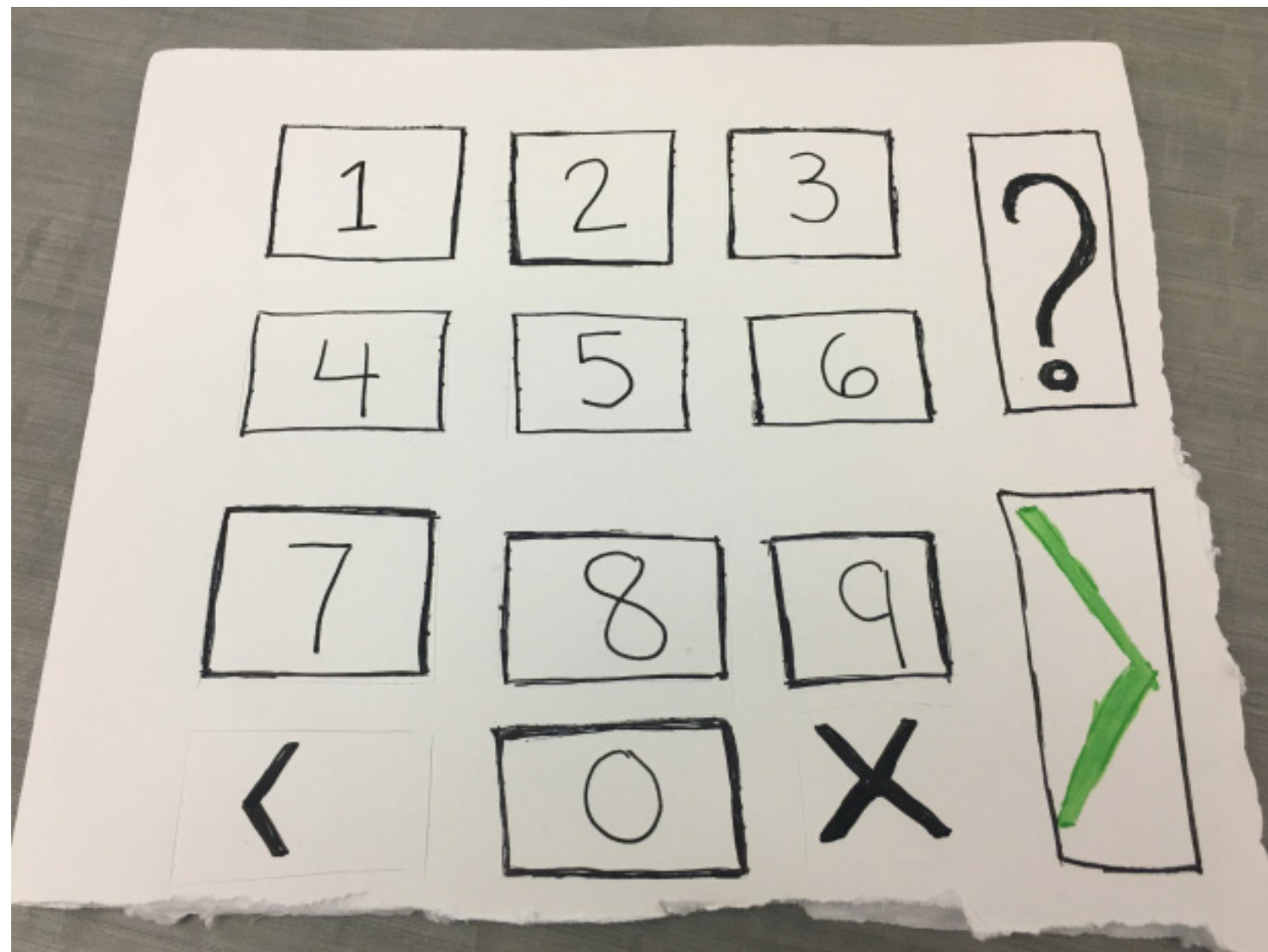
I made changes to the iconography and approachability of this keypad's buttons.



# Iteration One

One challenge I faced was using foam board as a material for my tangible prototype. I found myself limited in my ability to cut straight edges and achieve uniformity between cuts.

I closely followed the buttons in my sketch, adding a question mark button to indicate help or more information, and a back button in the shape of a left-pointing arrow. Each button has a function.



Comparing my model to those of my classmates, I recognized that my redesign was not, in its current state, identifiable as an ATM. It was just a keypad. In my second iteration, I added elements to make the design more recognizable as an ATM.

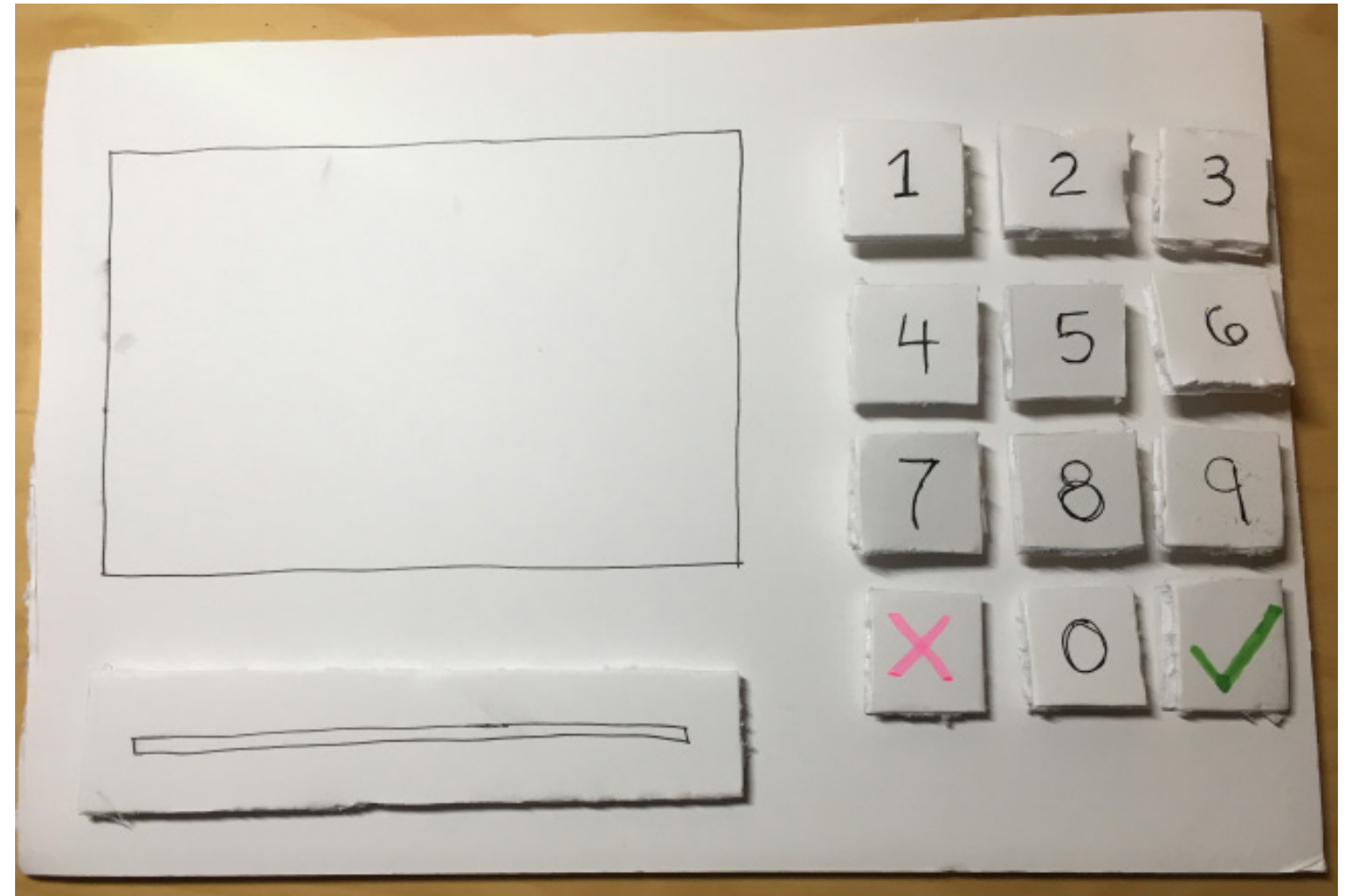


# Iteration Two

In my second redesign, I added elements to my model to make it more **recognizable** as an ATM. I also explored ways to make the controls more **realistic** and “touchable.”

I added an area on the model to represent a screen that would present options and instructions for operating the ATM. A cash dispenser slot at the bottom also helps the viewer understand that this model is an ATM machine.

To improve the keypad as a direct carrier of meaning, I cut individual squares from foam board for each key to attach to the larger board. This step gave my keys a three-dimensional look of being elevated from the surface, making it obvious that they were to be pressed down.



Instead of drawing keys onto the foam board, as I had done in Iteration One, I layered separate pieces of foam board onto the base layer. The keys on the keypad and cash dispenser are now more identifiable as independent controls.

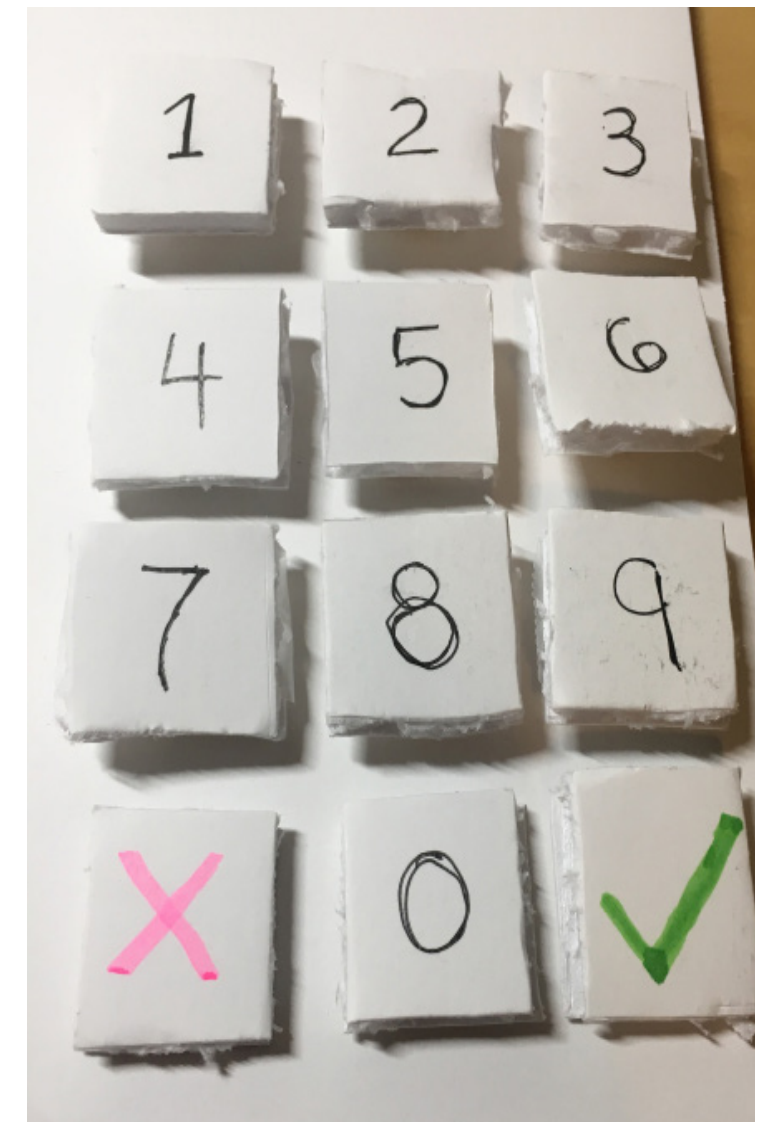
# Iteration Two

Instead of drawing squares as keys on the base board, I cut out individual squares of foam board as keys to attach to the base.



I used pieces of cereal underneath my foam keys to elevate the keys from the foam board. My instructor commented on my creativity in choosing materials, but recommended that I use something with some push or bounceback in my final version to better model the act of pushing down on a key.

While I improved the dimensionality of this keypad, I lost some functionality. This keypad is missing the back button and help icon. I also need to add a receipt dispenser and card reader next to the cash dispenser. This iteration is more recognizable as an ATM, but is missing some key functional elements of a working machine. I worked on addressing these issues in my final iteration.

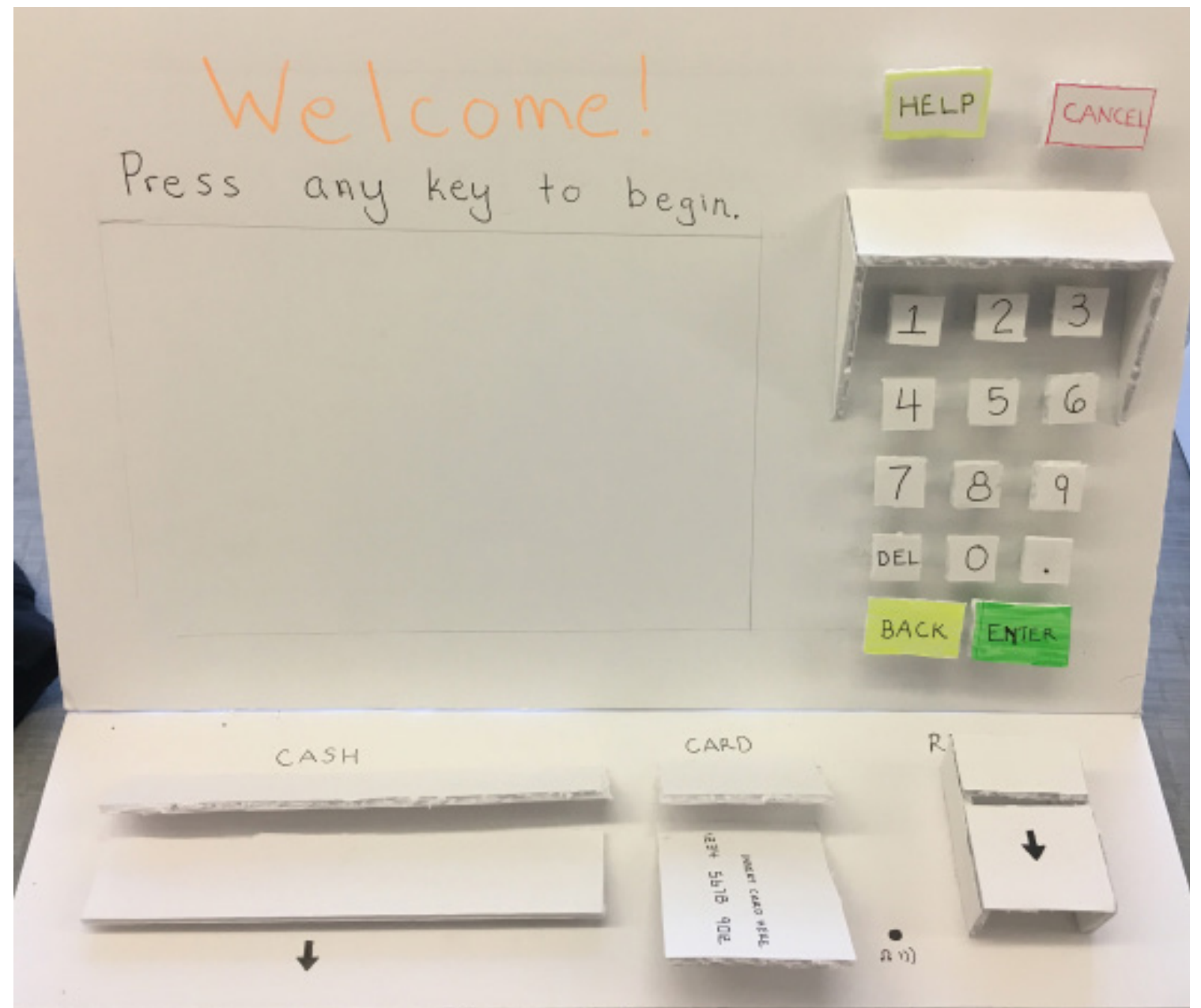


# Iteration Three

In my final iteration, the **multifunctionality** of my keypad control and **streamlined access** to other areas of the ATM came together.

The keypad can be used both to navigate through an options panel on the screen and to enter numerical values. Functionality is increased through the Help, Cancel, Back, and Enter buttons at the top and bottom of the keypad as well.

I combined the cash dispenser, card reader, and receipt printer into one centralized location to make it more efficient to access all of these controls. I aimed to increase their accessibility through simple linear organization and proximity to one another.





# Iteration Three

My goal for this redesign was to make it quicker and easier for users to get cash.

Along the bottom of my final redesign, the location of the cash dispenser, card reader, and receipt printer are all on the same area. Compared to the original ATM where each of these elements were located in seemingly non-correlated places, this redesign streamlines the user's process of withdrawing cash. Along with recognizable iconography and clear, concise labels, the new location of these elements reduces the expectation of the user to spend time looking for the next control, helping them to instead understand where to go at each step of the process.



The keypad can now be used in conjunction with the screen to navigate different options. I removed the buttons on the side of the screen that were in the original ATM, modifying the selection of options to the keypad itself. For example, a user could select "3. Withdraw Cash" by pushing 3 on the keypad. My updated keys are attached with clay, imitating the action of pressing down on a key. Using the keypad to both navigate panel options and enter numerical values removes the redundancy that existed in the original machine.