

MAD UX 612 **USER EXPERIENCE DESIGN II**



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Roll20 Project Process Book

INTRODUCTION

Roll20 is a website designed to enable gamers to unite across any distance via easy-to-use gaming tools. It supports over 100 different tabletop roleplaying game systems. Despite being spoiled for choice, over half of all Roll20 users primarily play Dungeons & Dragons 5th Edition. This is no surprise, as D&D has seen a significant rise in popularity in recent years.

I personally started playing D&D in 2008 during college with a group of close friends. Throughout the years, I've enjoyed countless hours of D&D with many different groups; it's become one of my primary social outlets. D&D is traditionally a "pen-and-paper" game that is played in person, preferably while enjoying snacks and the company of other players. However, in 2020, the quarantine resulting from the COVID-19 pandemic introduced the need to find another way to play. That's when I, and millions of other gamers, first learned about Roll20.

Roll20 is a browser-based application that includes a complete set of tools needed to facilitate playing D&D online. However, it is also riddled with glaring usability issues. Many of these issues are obvious to first-time users, including problems with discoverability, learnability, and visual polish. Other issues are a burden on veterans as well, including clunky workflows for common tasks.

As somebody who has personally felt the impact of Roll20's usability issues for nearly two years, I was inspired to make it the focus of my Mad UX Capstone project. Upon completion of this project, I plan to share my deliverables with the Roll20 team in hopes that my work may inspire innovations and improvements that can benefit all Roll20 players.

DESIGN BRIEF

The Vision

The goal of this project is to improve overall user satisfaction with Roll20 among D&D players, leading to increased user subscriptions and marketplace sales.

Problems

- User satisfaction is low.
- Interface feels clunky and unattractive.
- Users feel Roll20 is stagnant and becoming outdated.
- Users are phasing out Roll20 with alternative products.
- Users are reluctant to invest time and money on Roll20.

Goals

- User satisfaction is high.
- Interface feels intuitive and beautiful.
- Users have reinvigorated excitement about Roll20.
- Users are staying or returning and inviting their friends.
- Users are happy to invest in premium content.

Methods

User Interviews

I conducted five user interviews to understand how users interact with Roll20 during a typical session and to identify challenges and opportunities with Roll20's core tools. Participants were asked about the strengths and weaknesses of character sheets, map tools, dice rolling tools, the chat window, and visual appeal.

User Surveys

Following up on themes discovered during user interviews, I conducted a survey of 112 users to establish baseline satisfaction scores and to better understand which areas of Roll20 have the most room for improvement.

Personas

There are many types of D&D players, ranging from advanced veterans to first time players. I identified two primary personas that help capture this diversity and inform design requirements: Skylar the Storyteller and Bailey the Beginner.

User Journey Map

I created a User Journey Map to analyze one of the most common scenarios in D&D: player combat. I used Bailey the Beginner as the persona for this scenario to focus on the experience of a user who may feel confused or overwhelmed.

Key Findings and Recommendations

Dice Roller

Dice rolling is a key part of the D&D experience. It's a common task that should be easy and intuitive.

- For some players, rolling dice is one of the highlights of the game. We want players to be able to recreate that experience when using Roll20.
- Dice rolling is currently the tool within Roll20 with the lowest satisfaction rating, meaning there's a lot of room for improvement.
- Many users are unaware that Roll20 even has a Dice Roller. It's hidden in the general toolbar and disappears automatically.
- Users found the interface confusing and difficult to use. Users often resorted to using chat commands (e.g., `/roll 1d20`) or macros instead of using the Dice Roller.

Based on these findings, I recommend a complete redesign of the Dice Roller to make it discoverable, intuitive, convenient, and attractive.

Character Creation

Character creation is a central aspect of the D&D experience and is essential to user satisfaction.

- Players who build their characters within Roll20 can take advantage of its many integrated features, leading to a smooth gameplay experience.
- Character creation is also an important revenue stream, as groups must purchase licensed D&D content to use it.
- However, only 50% of users reported being satisfied with the character creation experience.
- Meanwhile, 51% of users reported using D&D Beyond, which is best known for its robust character creation tool.

Based on these findings, I believe additional research is needed to pinpoint and fix the issues that are causing users to choose non-integrated alternatives.

Visual Style

Users described the overall visual style of Roll20 as simple and barebones. Only 40% of users rated the user interface as visually appealing. Barebones aesthetics can create a negative impression among new users and can create a sense of stagnation among existing users.

Based on these findings, I recommend a complete redesign of Roll20's visual styles, including support for multiple themes.

Scope for Capstone Project

Based on my user research findings, I decided to focus on the following problem statement:

“When Roll20 users are playing Dungeons & Dragons online, they need to be able to roll dice and report the results.

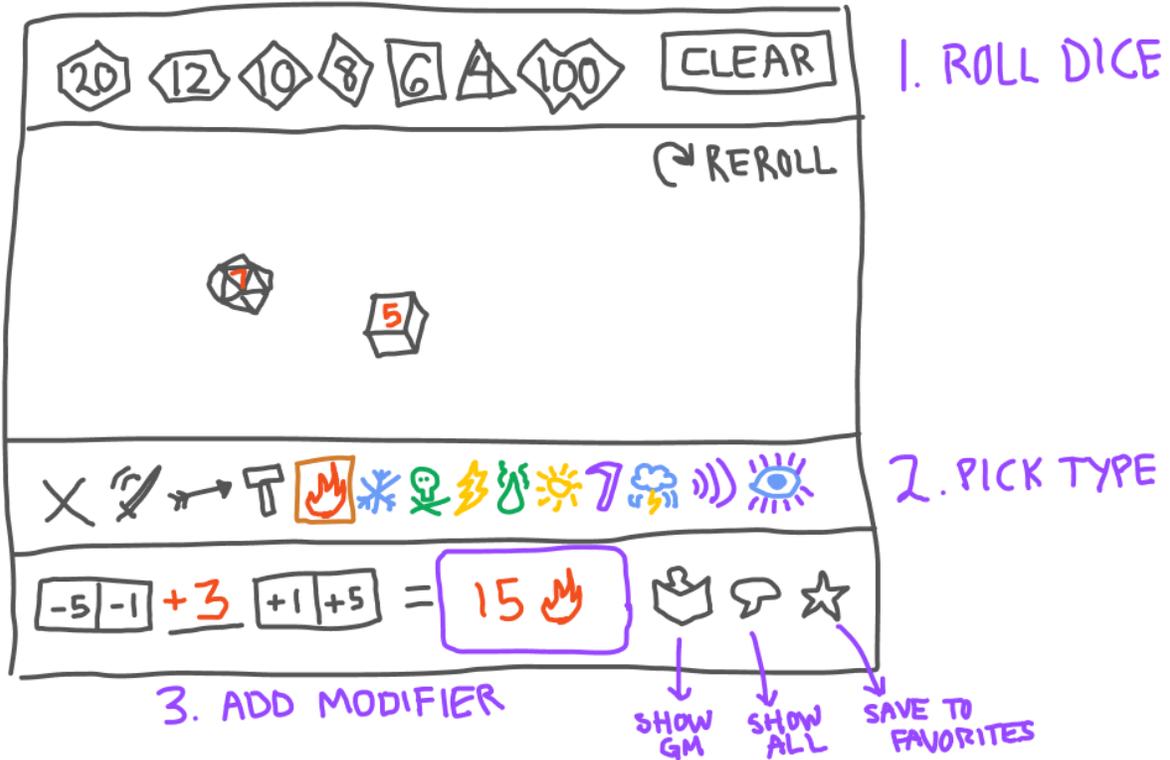
How might we improve the discoverability, usability, and fun of rolling dice?”

I felt this problem would be simple enough to allow complete solutions that could be clearly articulated to non-D&D players while still being complex enough to require meaningfully creative work.

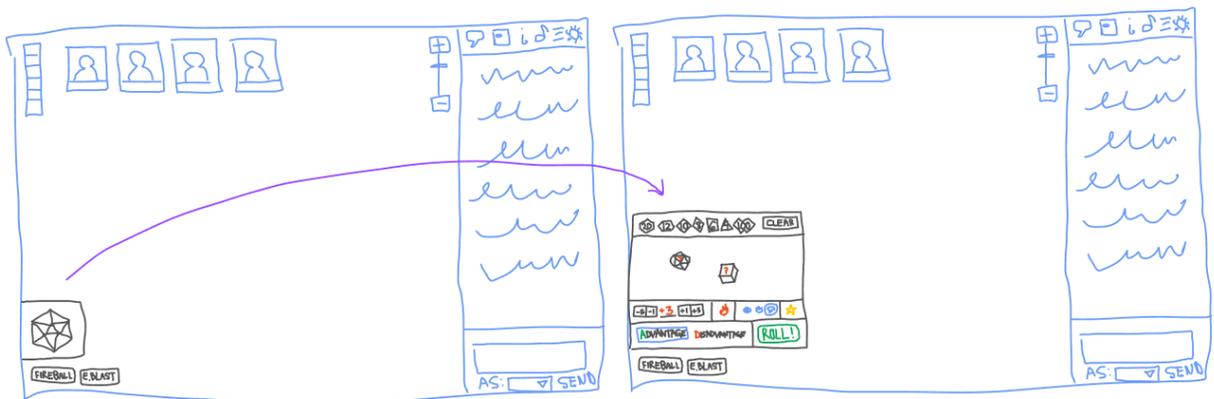
I initially focused on redesigning the Dice Roller tool to help address this problem, particularly during the ideation and sketching phases. However, during the prototyping phase I decided to expand the scope of my work to include a redesign of the Character Sheet tool as well. Both tools work together to help the user perform both common and uncommon dice rolls throughout a D&D session.

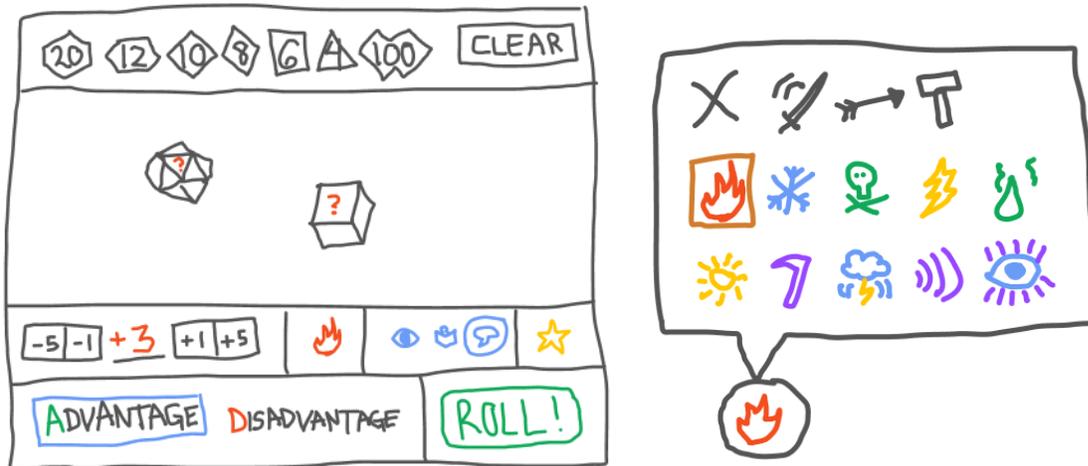
Concept #1: "Dice Box"

This concept is inspired by a real-world artifact known to many D&D players: the dice box. It provides a dedicated location for dice to be selected and rolled, much like the real-world analog.



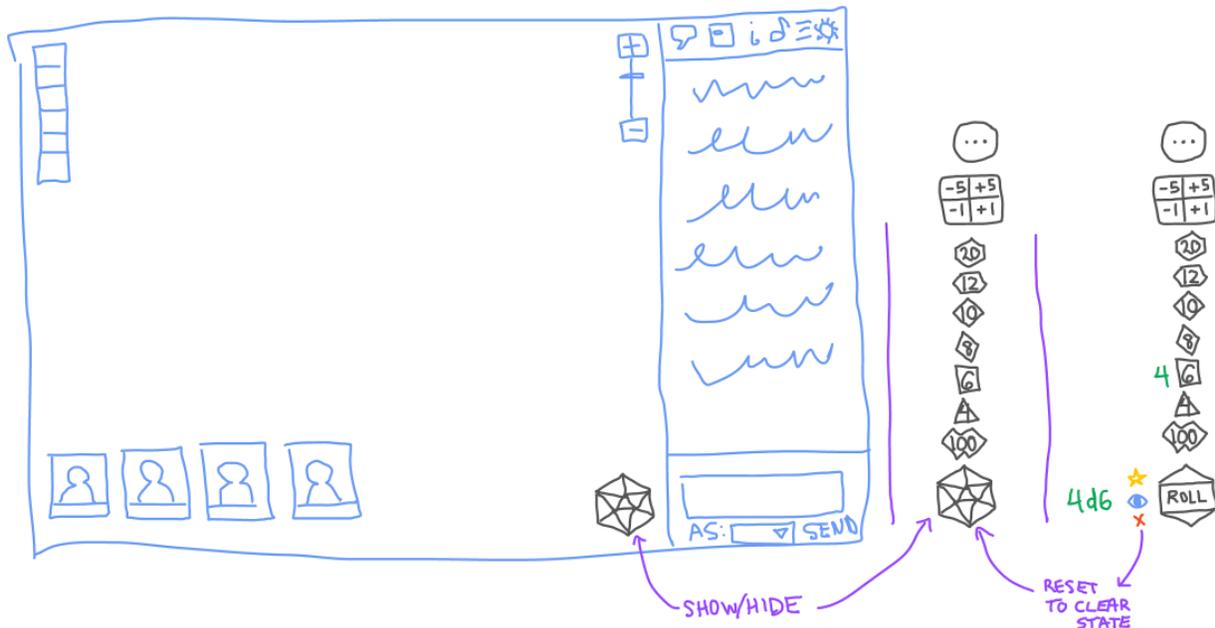
Incorporating peer review feedback, I anchored this control to the corner of the screen, allowed it to be collapsed out of the way, and simplified the damage type selector, and added a way to roll with Advantage or Disadvantage.



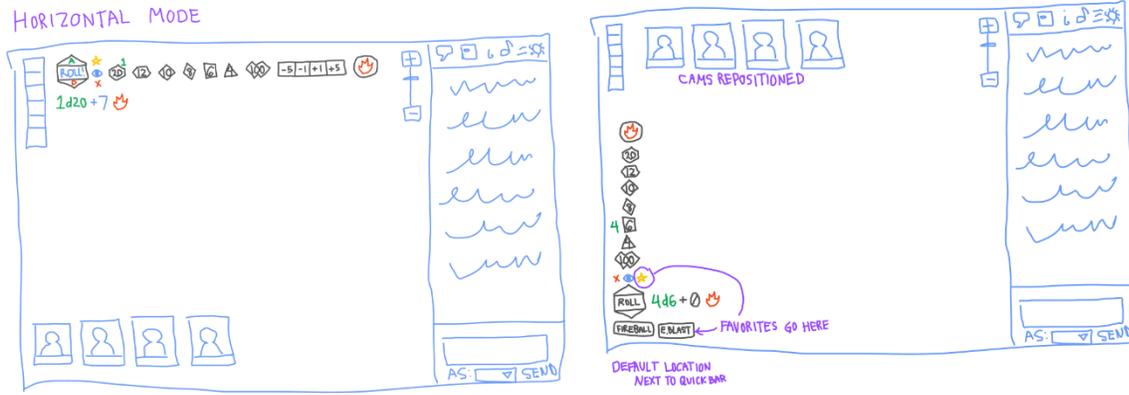


Concept #2: "Quick Roller"

This concept is inspired by tools found in competitor products (Fantasy Grounds and D&D Beyond). The tool is minimalist, compact, and simple to facilitate quick ad hoc rolls.



Following peer review feedback, I experimented with a horizontal layout and added a damage type selector. I also moved the default location to the lower left corner.

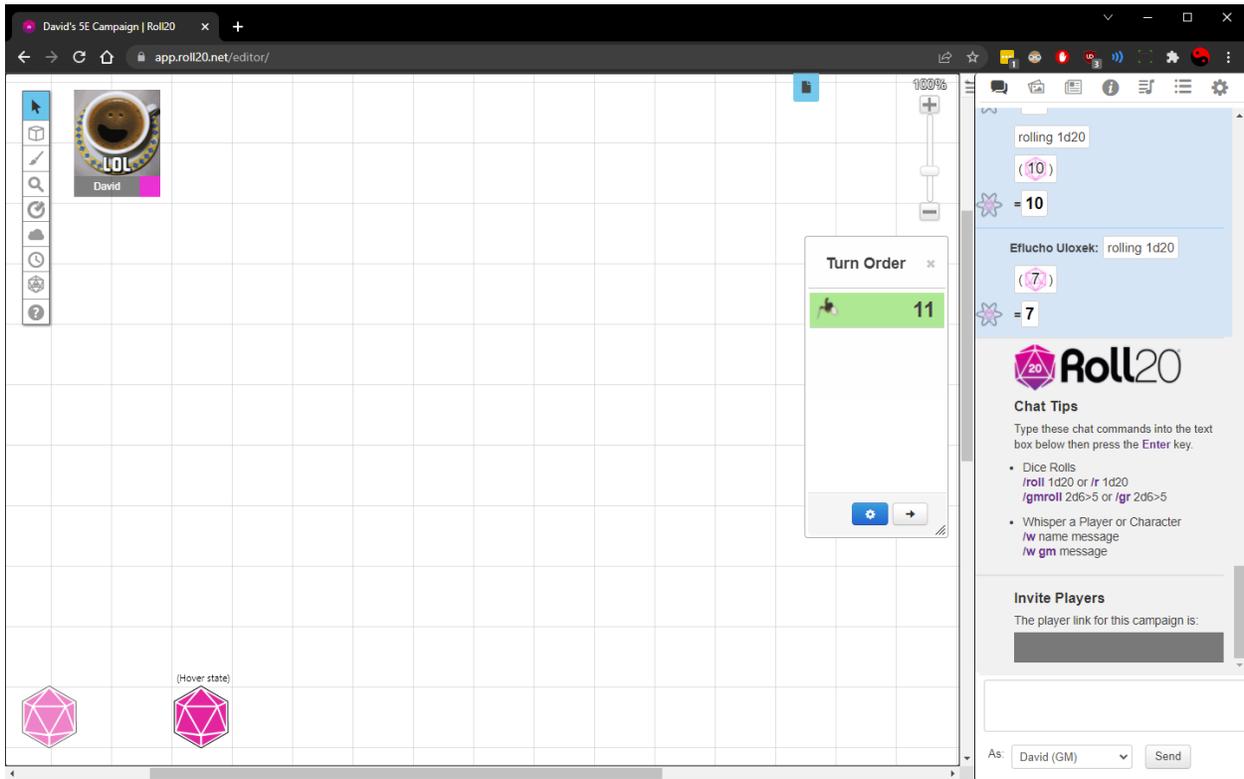


Overall, both my peer reviewer and I preferred the “quick roller” approach. I decided to focus on this approach for future iterations.

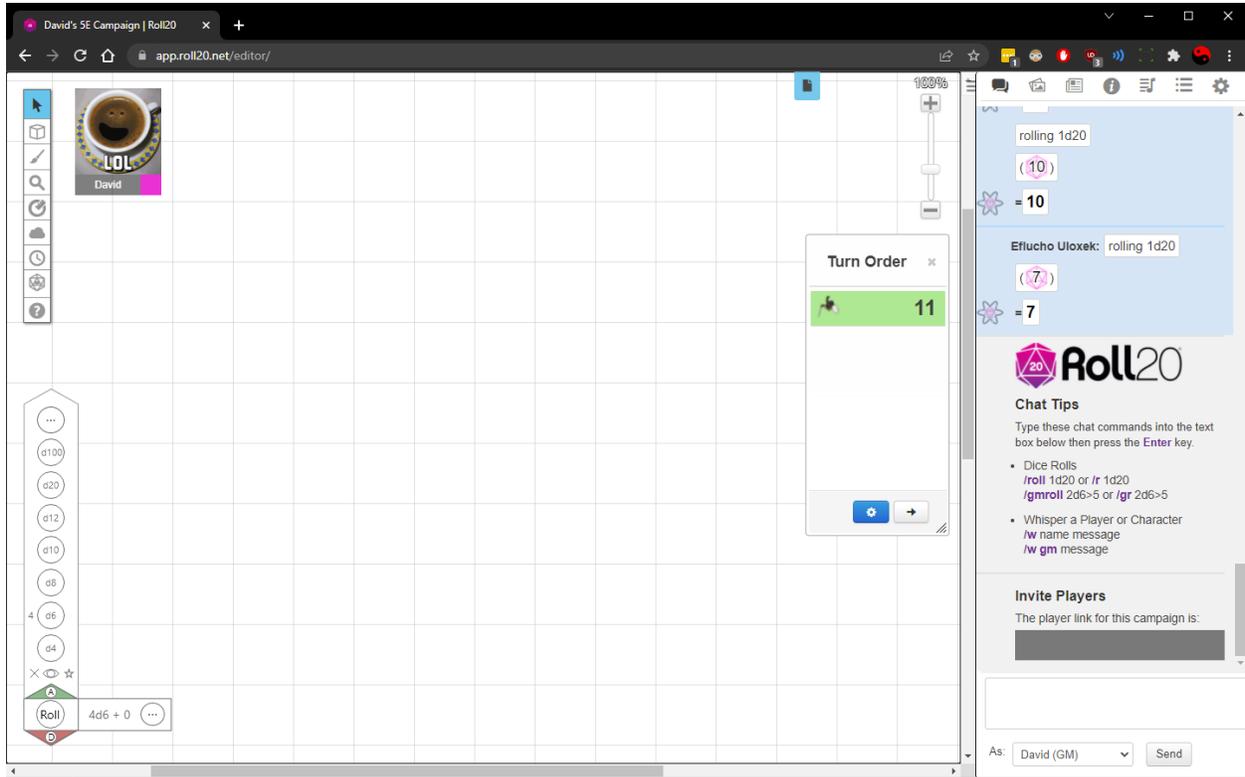
VISUAL AND INTERACTION DESIGN

Visual Design

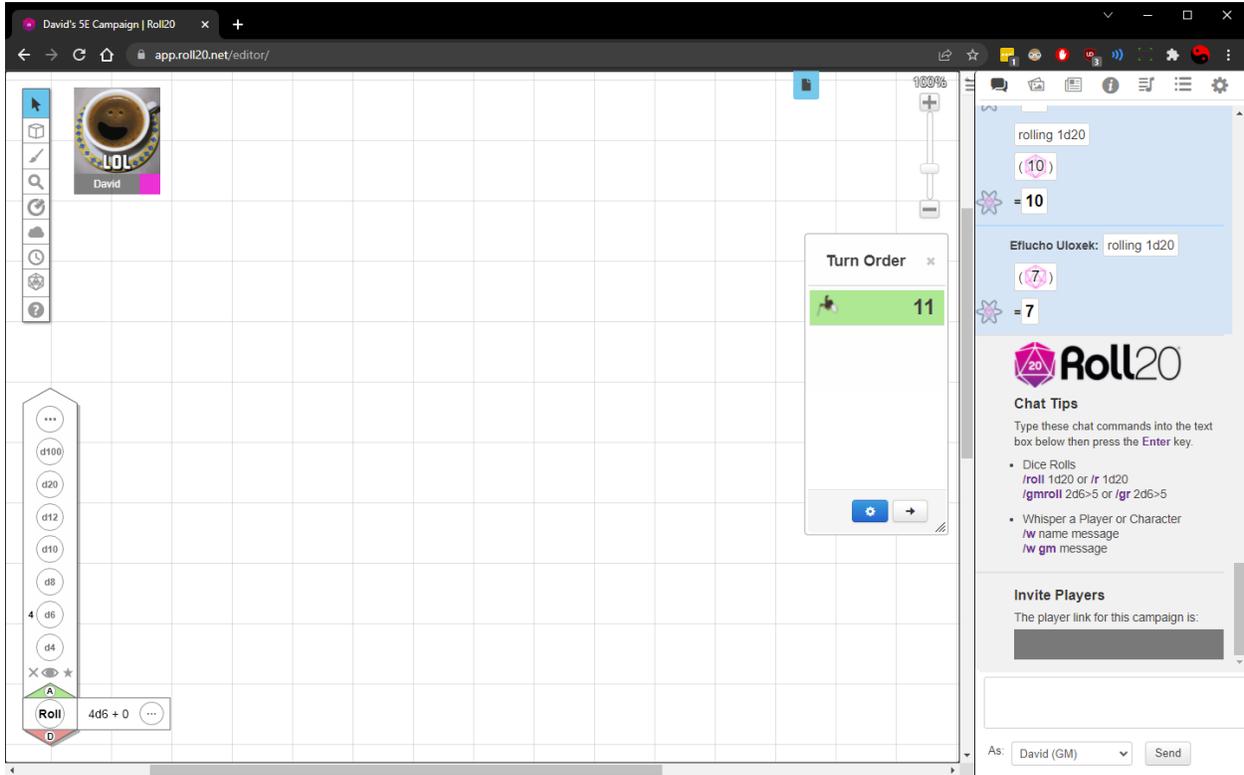
I wanted the new Dice Roller control to be highly discoverable. I used a large, vibrant “D20” icon featuring Roll20’s brand color to help draw the user’s attention. I positioned the control in the bottom left of the screen, giving it a prominent location that stands apart from other tools.



I wanted the new control to feel polished and user-friendly. I used liberal amounts of negative space to create a sense of serenity. I arranged buttons in a simple, symmetrical pattern to create a sense of balance and simplicity. Buttons are also arranged in a line and sorted in a logical order to help users scan quickly.



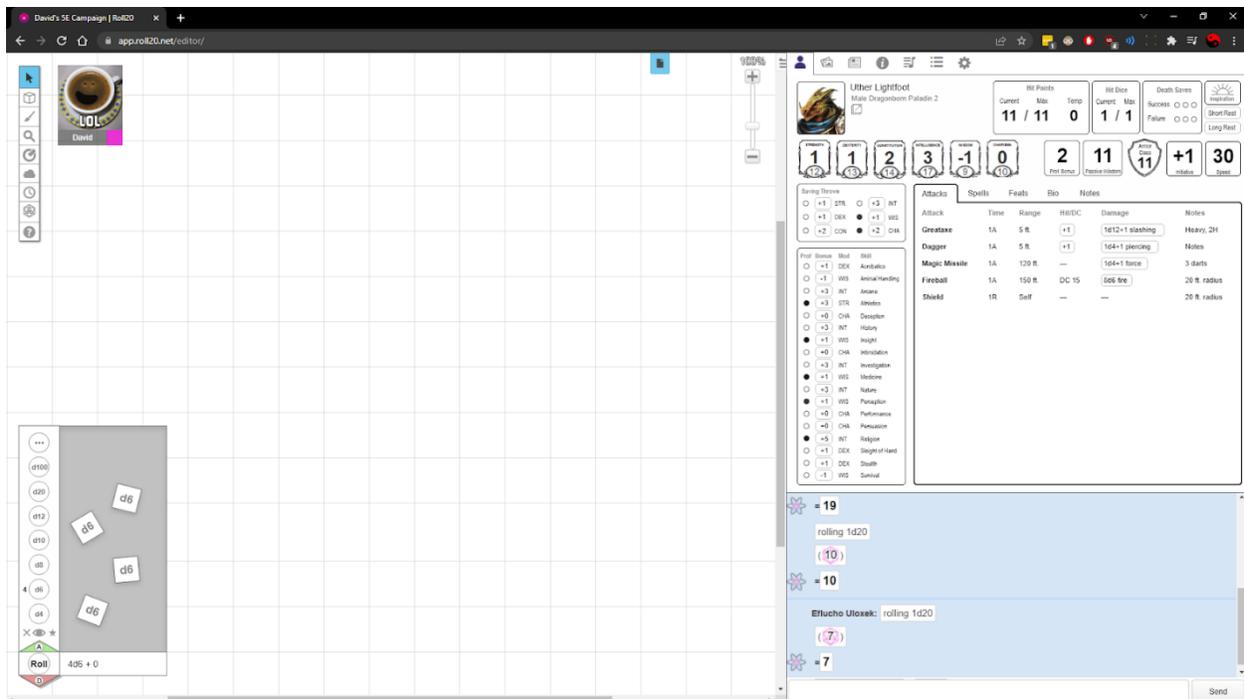
Finally, I wanted to create a sense of belonging and harmony between the new control and the existing UI. I applied colors, line thicknesses, and shadow effects from the existing UI to create a sense of unity and authenticity.



Interaction Design

At this point I expanded the scope of my project to include a new Character Sheet tool within the sidebar panel. Although the Dice Roller is useful for ad hoc rolls, I wanted the user to be able to perform common rolls more easily. Since a character's abilities and statistics are already found on the character sheet, allowing rolls to be performed directly from the sheet is a natural solution.

This design was inspired by the metaphor of the physical tabletop, which is the traditional setting for playing D&D in person. Players need to have quick access to both the map and the character sheet throughout a session. In a traditional setting this would be accomplished by putting the map and character sheet on the same table. For Roll20 I needed to find a way to fit all this information on a single screen.



This design leverages many common idioms, affordances, and design patterns to make it easy to learn.

- The top-level navigation for the sidebar uses a “tabbed panes” pattern, like modern web browsers. The nested information section within the character sheet uses the same “folder tab” metaphor.
- Rounded rectangles signify the presence of buttons.
- The “+” symbols within certain buttons are a D&D idiom signifying the button will cause a 20-sided dice to be rolled and added to the value shown.
- Grid layouts help users quickly process structured information. Columns are left-aligned for quick scanning.

Structure and Navigation

The new design uses a combination of flat and multi-level navigation models.

It is a single-page application that allows the user access to all the relevant tools without navigating away. We can therefore think of the overall model as flat, which is appropriate because it is essentially a simulation tool.

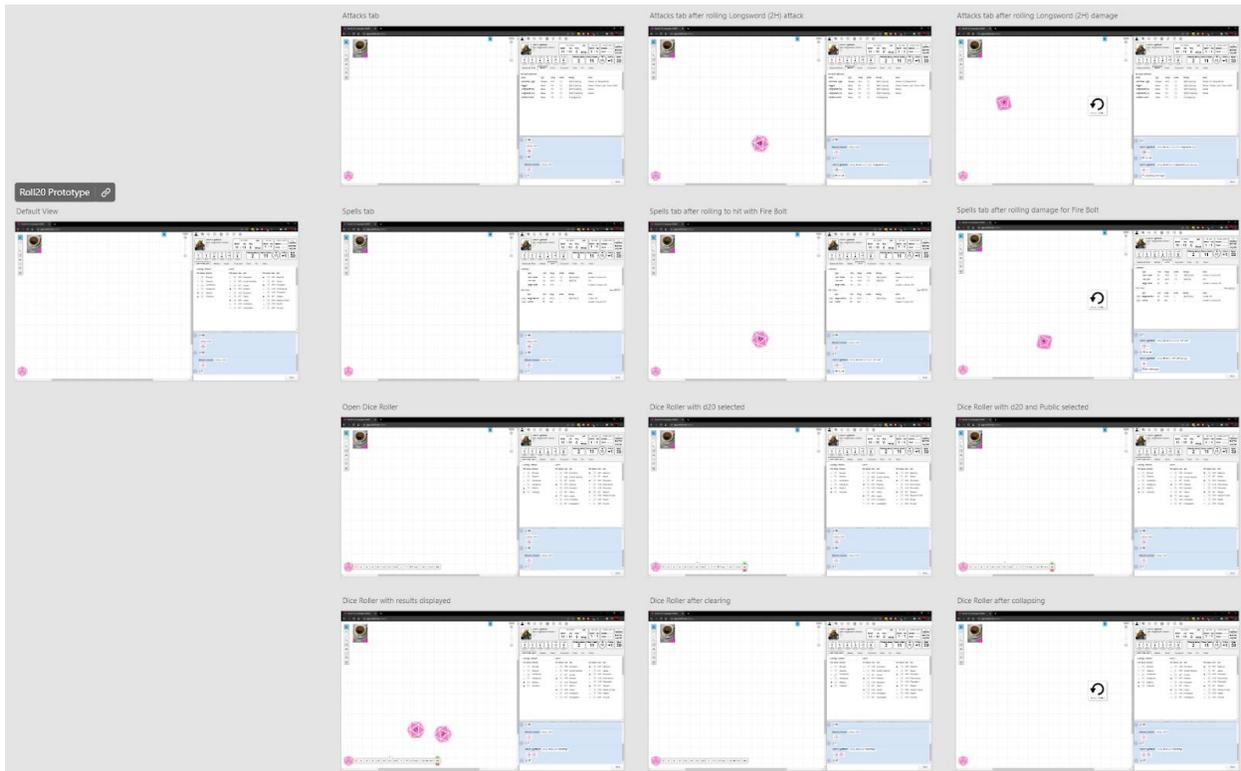
However, the sidebar uses module tabs to toggle between major areas of functionality, restricting the user to one sidebar view at a time. Within the character sheet sidebar there is a nested set of module tabs, further restricting the user to one subset of tools at a time. In this sense, we can think of the sidebar as following a multi-level model. This model works well because character sheets often contain multiple pages worth of information. Chunking the information into separate panels makes the information easier to navigate and reduces scrolling.

PROTOTYPING

Initial Prototype

Having arrived at a mockup of the Dice Roller and Character Sheet tools that I wanted to explore deeper, the next step was creating an interactive prototype. I used Adobe XD to generate a prototype that facilitates three user tasks:

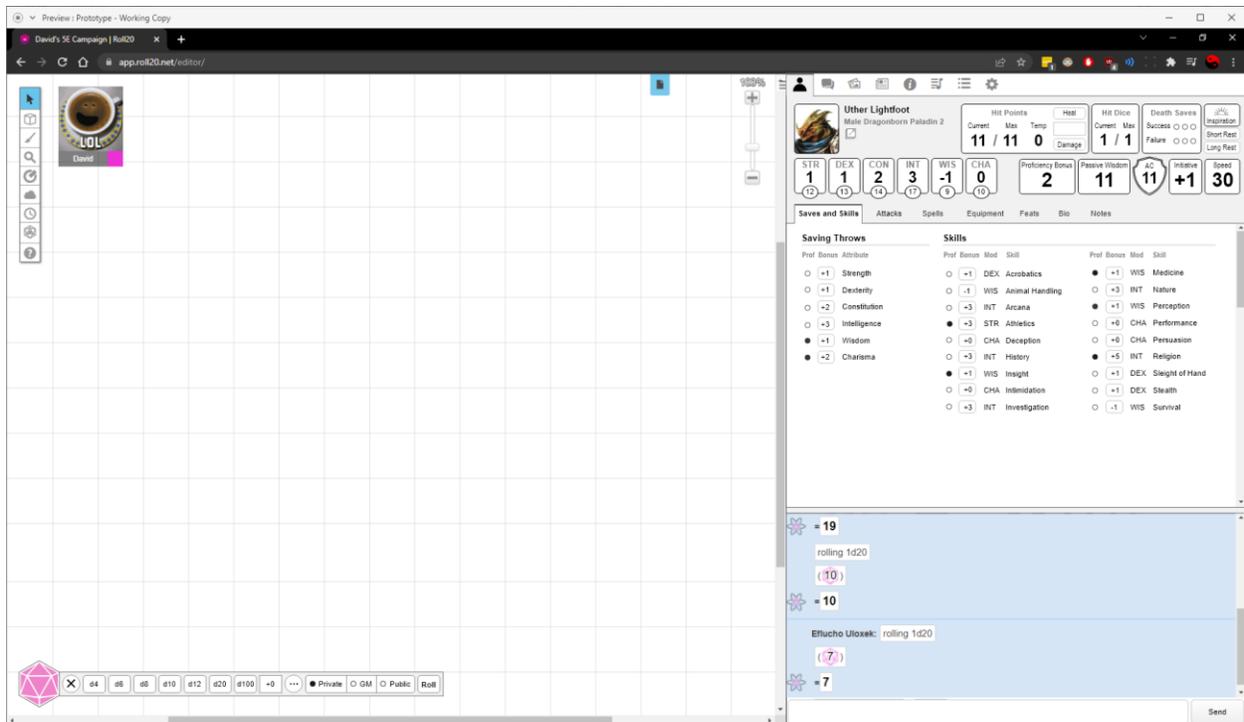
1. Attacking with a two-handed longsword
2. Casting the spell "Firebolt"
3. Making an ad hoc roll using the Dice Roller



Prototype Iterations

I also continued to iterate on the design while adding these interactions, making several revisions to both the Character Sheet and the Dice Roller.

- Font sizes were increased to improve legibility.
- In the Character Sheet, stats and saves were moved into a separate tab, allowing more horizontal space for the embedded module tab.
- A “type” column was added to the “attacks” tab.
- More details were added to the chat output when an action is performed.
- The “favorite” button was removed from the Dice Roller entirely.
- The 3-state privacy button in the Dice Roller was refactored to use radio buttons.
- Buttons in the Dice Roller were reordered to follow a left-to-right flow.
- Tab styles were updated to be more minimalist and modern.



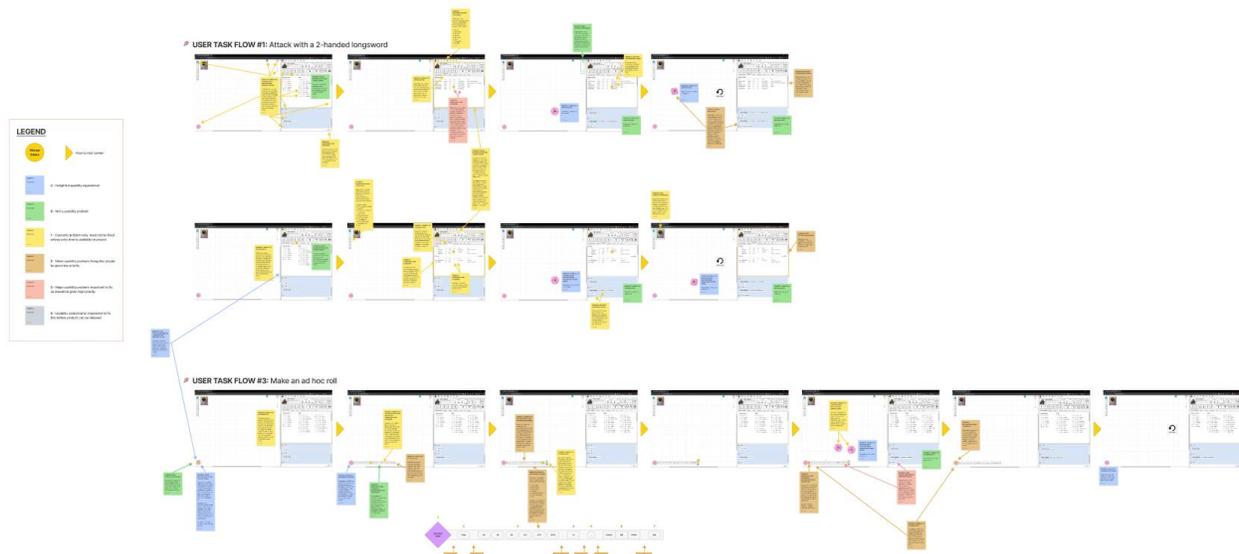
EVALUATION

To further improve the prototype, I conducted an expert evaluation session, a remote usability test, and a mini design review session.

Expert Evaluation

I teamed up with Eric Lynne, who performed a heuristic evaluation of my prototype. Eric is somewhat familiar with D&D and has used Roll20 before, but he does not consider himself an expert. I published a web version of my Adobe XD prototype and sent it to Eric along with the corresponding user tasks.

Eric reported that he was able to complete each of the user tasks with relative ease. He indicated that a strength of my design is discoverability. Upon performing a detailed heuristic evaluation, he identified a plethora of questions and suggestions. He documented these findings in a detailed FigJam file using screenshots and sticky notes.



Eric's primary findings were the following:

- Weak button affordances make it hard to discern what's clickable and what's not.
- The amount of space taken up by the Character Sheet may obstruct the map.
- Setting the Dice Roller's default privacy setting to private may be disruptive to gameplay.

Eric included many other suggestions in his FigJam notes, several of which influenced subsequent iterations:

- Adding space between groups of related buttons in the Dice Roller would make it easier to understand.
- The "Roll" button should only become active once one or more dice have been selected.

- The “X” button in the Dice Roller looks like it would close the panel, but it resets the state of the control instead.
- Roll20’s chat panel is unattractive and looks unpolished.

Remote Usability Test

I partnered with Kellan Hanrahan for a moderated remote usability test of my updated prototype. Kellan is an expert in both D&D and Roll20. This made him a valuable participant for this test, as he was able to make direct comparisons between the existing Roll20 interface and my new design.

We conducted and recorded the session using Zoom video chat, which allowed us to converse naturally and not be distracted by note-taking. I ran the Adobe XD prototype on my computer and used screen sharing so Kellan could view it. I then asked Kellan to describe what actions to take to complete the user tasks. This approach allowed me to pause and ask for Kellan’s expectations before proceeding with each step.

Kellan was highly successful in performing the user tasks without assistance. He immediately understood how to use both the Dice Roller and Character Sheet controls intuitively. He also noted that the prototype is “way better than Roll20 right now.”

Kellan also reported some issues and suggestions for the prototype:

- Kellan expected that clicking an action’s name would perform the action, as that’s how Roll20 currently works.
- With both weapons and skills, Kellan was disappointed that he couldn’t do everything in a single click.
- Kellan expected that casting a spell would insert a text description in chat.
- Kellan wasn’t sure if buttons were entry fields or buttons.
- Kellan expected the “X” button in the Dice Roller would close the control.

There was some clear overlap between Kellan’s feedback and Eric’s feedback, which helped me feel confident that those issues needed to be addressed. Kellan also introduced some new ideas that are unique to his perspective as an expert user.

Mini Design Review Session

Hoping to harness the collective wisdom of my fellow students, I conducted a 10-minute design review session using Zoom.

Prior to the design review session, I updated my prototype to incorporate the feedback I’d already collected from Eric and Kellan. While making changes, I encountered some significant limitations and frustrations with Adobe XD. I decided to recreate my prototype using Figma so I could learn the benefits and drawbacks of each application. While working with Figma, I made heavy use of Components and Auto Layout. While the initial learning curve did require some investment, it ultimately saved me a lot of time as I continued to iterate.

The new Figma version included some major changes:

- The new version targets a 1440x1024 screen size, whereas the XD version was based on a much larger 1920x1080 screen size. This ensures the solution will fit appropriately for laptops and other smaller screens.
- The sidebar is approximately half as wide. To compensate, the “Notes” columns were removed entirely from the Actions and Spells tabs.
- Button styles were completely revamped to improve their affordances.
- Font sizes were bumped up again to improve legibility. I also switched to a more modern font (Inter) instead of using Roll20’s current font (Arial).
- The chat panel was completely redesigned.
- Buttons now use icons for damage types instead of text descriptions.
- Background colors are much bolder, creating a cleaner look.
- Spells now have a “Cast” button which will perform all the rolls for that spell.
- Making any roll will now always be accompanied by a text description in chat.

I used the first half of my 10-minute session to explain the background of my project and demonstrate user tasks using my new Figma prototype. I then shared a FigJam file with screenshots for each user task and asked my fellow students to leave feedback using sticky notes during the remaining time.

Reviewers left a lot of helpful feedback during the session.

- Reviewers responded very positively to the new chat control, noting that it’s now easier to read, easier to scan for player names, and more visually appealing.
- Reviewers liked how dice are shown when a roll is made, but wished they were animated.
- Kellan liked the addition of damage type icons, but he indicated the metaphors I used didn’t quite hit the mark.
- A reviewer noted that Dice Roller buttons may now be too small.
- A reviewer suggested it may be helpful to add filter options for the chat window.

Overall, the feedback was very positive, but I also received some helpful ideas that I hope to incorporate in the future.

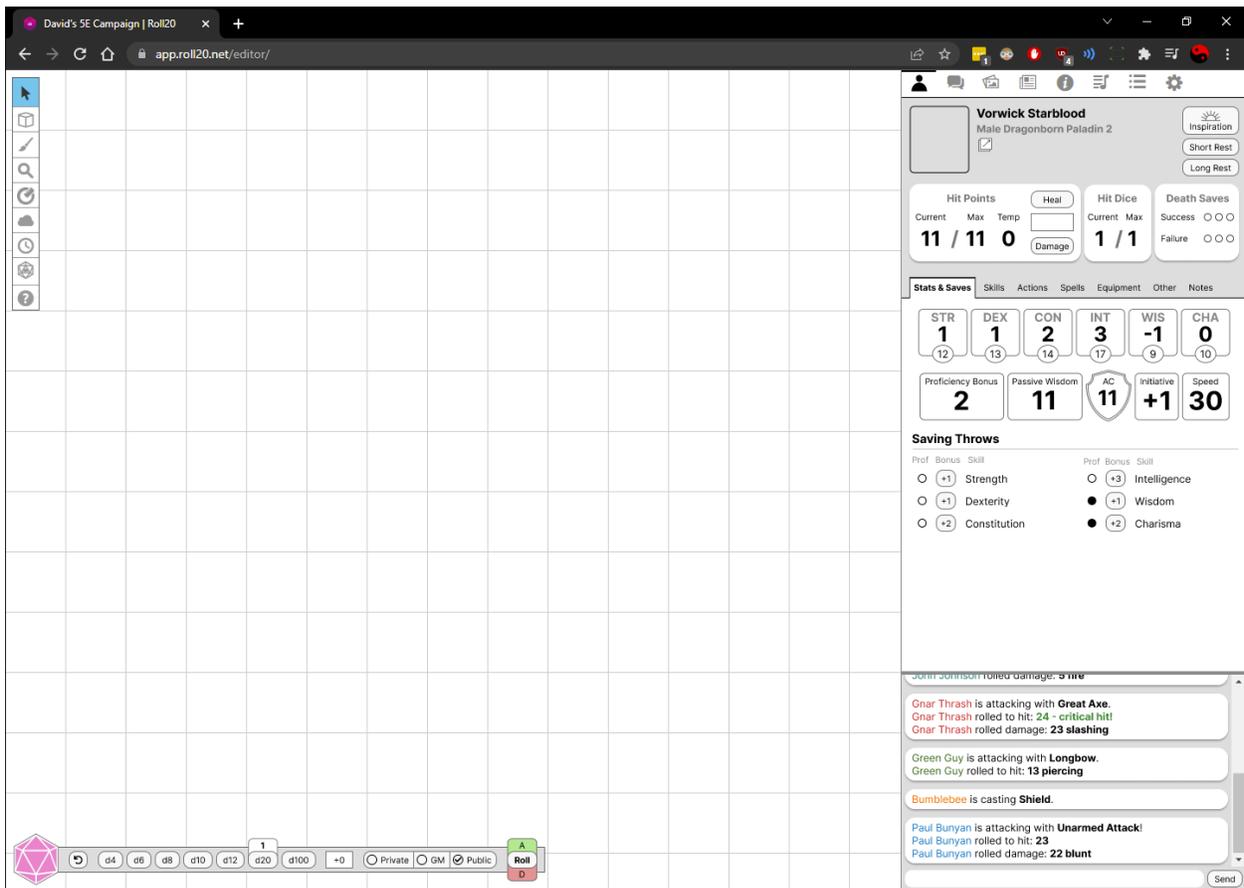
FINAL DESIGN APPROACH

Current State of the Design

Throughout the design process I was guided by the “How Might We” statement that I formulated at the beginning:

“How might we improve the discoverability, usability, and fun of rolling dice?”

I believe I have arrived at a design solution that successfully answers this question.



[Use this link to access the Figma prototype.](#)

Updated User Tasks

The prototype is properly rigged for three specific user task flows. The supported tasks are as follows:

- Attack using a two-handed longsword (using both hands).
- Cast “Chromatic Orb” (which is a spell).
- Roll 1d20+4 with advantage. (Roll a single 20-sided die. Add a modifier of +4 and roll “with advantage,” meaning two dice will be rolled and the higher value will be used.)

In case there are any issues performing these tasks, here are step-by-step instructions:

- Attack using a two-handed longsword (using both hands).
 - Click the “Actions” tab.
 - Find the “Longsword (2H)” row.
 - Click the corresponding “+3” button to see if the attack hits.
 - Click the corresponding “1d10+1” button to see how much damage is dealt.
- Cast “Chromatic Orb.”
 - Click the “Spells” tab.
 - Find the “Chromatic Orb” row.
 - Click the corresponding “Cast” button.
- Roll 1d20+4 with advantage.
 - Click the “Stats & Saves” tab (just to reset the prototype to the base state).
 - Click the magenta die in the lower left corner.
 - Click the “d20” button.
 - Click the text field that currently reads “+0” to change it to “+4”.
 - Click the green “A” button above the Roll button.

Reflection and Future Plans

I was happy to see that my expert evaluator and remote usability tester were both successful in completing their user tasks without any assistance. They were able to easily understand where to go and what to do for each of the tasks, which suggests that the functionality is discoverable and intuitive. I was also glad to see the mostly positive feedback from my peers during the design review meeting.

Although I'm happy with the current state of my design, there are certainly some areas I'd like to improve or expand upon in the future.

- The section at the top of the Character Sheet with Hit Points, Hit Dice, and Death Saves feels clunky. How can I better arrange this information in a way that is compact, attractive, and easy to understand?
- How would users edit their Character Sheet during a session? Would there be a separate "Edit" mode, or is it possible to allow inline editing?
- All bold text should be clickable so the user can see complete information in a non-modal popup, making it easier to look up details on-the-fly.
- How can I incorporate more of the "fantasy" theme in this design? Are there background graphics, border styles, or other visual flourishes that might help connect this interface to the D&D source material?

Request for Expert Feedback

I would very much appreciate additional feedback on my project. Critical and constructive feedback is particularly welcome, as I would like to identify opportunities for improvement so I can continue growing as a designer.

I've created an editable copy of my Figma file here, specifically for commenting:

[Roll20 Figma Prototype \(CS 612 Final Version\)](#)

I am looking forward to reading your comments. Please let me know if you have any questions or run into any technical issues. Thank you!