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Designing and Creating a Prototype Board Game

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By

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Abstract

The goal of this project was to create a fantasy style board game prototype that is playable and enjoyable for people new to fantasy tabletop gaming. I assembled a group of 4-5 regular tabletop board game players to play test the game as well as a second group of 4-5 family

members and friends to play test who aren't regular board game players. We began with a general base game that evolved with each playtest from feedback given by the playtesters. After about 18-20 play tests, I settled on game mechanics and moved on to creating the assets of the game which include a 21 by 21 inch board, four player character miniatures, four chest miniatures, four tokens, and a basic enemy miniature. The game, became a four player free-for-all with the goal of leaving the dungeon with the dungeon's treasure. After creating the assets using Photoshop and ZBrush, we used 2D and 3D printing to make the assets physical. Afterwards, we had a final playtest where each of our players expressed excitement and enjoyment. While the board game isn't perfect, I accomplished creating a fun board game prototype that can be pitched to board game creating business or self started with slight refinements. All final Images can be found on my portfolio at https://kurt_creates.artstation.com

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Step 1: Designing the Game Mechanics

The Concept, Development, and initial problems

Initially, I wished to make a four player game in which a dungeon party sought to defeat an evil necromancer. The four players would work together collecting treasures across the map in order to defeat him whilst also avoiding traps.

This was a great start, however, we quickly realized that there were a few critical flaws. Firstly, the necromancer was controlled by a fifth player who had to take on the other players. The idea behind this was to have a Dungeons and Dragons like experience where there is one very powerful bag guy for the four weaker party members to overcome. While this doesn't sound bad on paper, after several playtests, we realized that the nature of the game led to one player

being left out and not having fun even when they were winning. The four team players got to team up and do cool tricks to accomplish their goals while the necromancer didn't get to have the same amount of fun.

Secondly, a lot of the players expressed disinterest in the idea that the game was only a killing match between two forces. Since the setting of the game takes place in a dungeon, there was no way to tie the characters into the setting and explain why they're there just to kill.

This influenced us to change how our game functioned from a major level. After a few more playtests with different objectives, we found a way to solve both the necromancer problem and the game objective problem. Firstly, we changed the format of the game. Instead of it being four players versus one player, we made it a four player free for all. This solved the fun problem because now all the players were open to forming alliances in a political style format while also getting to duke it out amongst each other. Also, if the player formed alliances, they were able to still work together and achieve the fun combos in order to advance the game. However, this came at the cost of the necromancer being removed from the game, which made us lose our main mission for the game. The players could kill each other all day long but for what purpose?

To solve this issue, we created a new main goal for the dungeon and for fighting the other players. We introduced the four chests in our game. On four different corners of the map include four color coordinated chests that each match one of the four players. The players would now win the game by retrieving the treasure from one of the chests and returning it to their starting square. However, players can only open the chest that corresponds with their main color. In addition, there is only one chest with treasure and the other three chests are mimics, creatures that disguise themselves as treasure chests so that they may devour unsuspecting adventurers.

This makes it a much more interesting game of trying to capture the treasure and returning to the starting position to escape the dungeon with the treasure. Players can fight, make alliances, and try to survive the dungeon all while trying to escape with the treasure. After several playtests, we refined the mechanics to better suit a fourway free-for-all race to escape the treasure. However, this came with its own set of problems. Most notably, the repeatability of the game was very limited and often led to players having very similar games with little to no variation. We needed a way for the game to produce a random factor that can influence the state of the board game and could change up the strategies from game to game.

After some feedback and a lot of brainstorming, we had our eureka moment. We decided to reintroduce the necromancer in a more unsuspecting way. Instead of one main character who would raise the dead, we could have an artificial intelligence game mechanic that allowed for undead zombies to chase the players without any one player playing as the necromancer/zombies. This change of the game was suggested by one of the play test players who drew inspiration from the board game Zombicide, a cooperative board game where 1-6 players fight against non-player zombie enemies and complete mission objectives to win the game. In Zombicide, the zombies move and make decisions based on a systemized list of rules that they must follow. We took this idea and tried to make it a part of our own game.

We create a zombie spawning area for each room in the dungeon where zombies can spawn at the end of each round and begin chasing down and fighting the player closest to them. With that change, the game could now be played multiple times with significant variation between games. The random spawning of a random number of zombies in each room made each game unique and more exciting. The game was almost done but there was still one more issue

that we kept encountering. How do we make it more fun for the people who die early in the game? With the average game time coming out to be about an hour, if a player died early on the bad luck, they would lose interest in the game and not want to play again. The challenge was to keep them engaged with the game even after death.

The answer was simple. We introduced a respawn mechanic. The player was now allowed to respawn into the game after losing one turn (as to punish them for dying). We had the players respawn into a new 7th room that stood in the middle of the board. This allowed the characters to get right back into the action relatively fast and kept the game alive. The things we wished for the mechanics were where we wanted them to be. We had a free-for-all game that allowed for alliances, truths, replayability, and most importantly, fun.

Research and inspiration

I was very fortunate to have a professor who knows alot about modeling and 3d printing as my main thesis mentor. However, I was made aware that another faculty member named Marty Henley, who is a toy sculptor by trade, had experience in creating and kick-starting his own board game. He invited my test players and I to play their game, Lord of the Motleyverse, and said they would answer any questions I would have.

This was a very helpful experience and resource for my game because it allowed me to better understand the process of making a game. Everything from creating the models so that they would be ready for manufacturing to how to approach designing the mechanics. This both inspired many mechanics in the game as well as helped us better grasp what it takes to make a board game.

How the game works

Before the game begins, take all four tokens and place each of them under one of the four chest models. One is the treasure token while the other will have mimic tokens. Each player starts the game by spawning on their corresponding color tile. Each player will roll a six sided dice. Whoever rolls the highest will go first and the turn order will go clockwise around the board from there. The player going first may then start his turn, which includes a move step and an action step. These can be played in any order. Each player is provided with a card that corresponds to the specific character miniature that they choose.

Each card defines the player's life total, movement speed, and three actions to choose from. You may move any number of tiles less than or equal to your movement speed; and, you may choose from one of the three actions to choose from to use as your action for your turn. The cards also have special movement abilities that are unique to each character. Usually these movement abilities replace one's movement action for a more favorable ability at a cost. After all movements and actions are completed, the turn will pass to the player next in the turn order until all players have made their turn. Players may choose to skip their movement or action. However, once a player stops moving their move is over. This means you can not move 2 tiles, do your action, then move the rest of your movement.

After all players' turns have ended and if there are zombies on the board, all zombies will move towards the closest player (if distance is equal then roll off) and attack the closest player if able to. If a zombie is already within attacking distance of a player, it will not move. After the zombies have moved and attacked, the players will roll a six sided dice to determine what room that next wave of zombies will spawn in and a four sided dice for the amount of zombies in that

wave. The zombie hands in the spawn tiles indicate which room number they are. There may only be 15 zombies on the board at any one time. Do not spawn any zombies if the board already hosts 15 zombies. If the amount of zombies spawned on any given turn would create more than 15, spawn only the amount of zombies that will equal 15 and place them on spawn tiles in that room. Zombies will spawn in the center-most spawn tile if capable. If not, they will spawn on the outermost spawn tile that is the closest to the nearest player. Zombies who have spawned this round can't move or use their action due to "summoning sickness".

After all zombies have moved, attacked, and spawned, if any mimics have been revealed since the previous round, those mimics will move in the direction of the closest player. Only the mimic can land on tiles with a player or a zombie already on them. If a mimic does this, the player or Zombie on that tile will instantly die.

Players and Zombies die once their life total equals zero. A Zombies life total will return to full at the end of each player's turn. The player's life total will never return to full unless they have been respawned; otherise, they're lifetotal remains the same across turns and rounds. A player's life total can not exceed the maximum life total stated on the card. Once a player's life total has reached zero or less, that player's character dies and is placed on the corresponding tile in the center room. That player loses their next turn but may return the game by leaving the respawn room. Once a player leaves the respawn room, they can not return to it unless they were to die and respawn there again. This is represented by the portal tiles. The green portals are portals you may pass through while purple portals can not be passed through.

Player's and non-player enemies can not move on or over any player spawn tiles or chest tiles. Player's and non-player enemies can move onto zombie spawn tiles; however, if a zombie

were to spawn on that tile while a character or mimic were there, the zombie will spawn and the player would die. Mimics would be sent back to their starting tiles. If two or more mimics were to land on the same tile at the same time, any players or zombies on that tile would die and the mimics would be sent back to their starting tiles.

Players win by obtaining the treasure and making it back to their starting tile. To open a chest, a player may use their only action to open the chest and must be within 1 tile radius from that chest.. If the treasure is in that chest, the player will have picked up the treasure. If not, then the chest will be revealed as a mimic and will start to move/attack at the end of the next round. A player may obtain the treasure token from other players by killing that player. If a player kills another player with the treasure token, that token now belongs to them and they may start moving towards their own starting tile. Players are encouraged to make alliances, break truths, and do whatever it takes to obtain the treasure token and leave!

Step 2: Making the Board

After creating the mechanics of the game, it was time to create a real board. I had made several versions of the board that we printed out and played on throughout the game. Our very first board was played on cardboard with marks that resemble tiles. However, once we settled on our very basic mechanics such as movement and game play, I got to work on mark 1 of the board as shown below in figure 1.

This board worked for a few weeks but the players desperately wanted something with more visual interest and direction to help guide what they should be doing. That was when I decided to get to work on mark 2 of the board as shown below in figure 2. This did help make visual interest but it still lacked visual clarity and direction.

Originally the zombies would spawn around the purple tile in the middle room but once we refined our zombie spawning system, we made it so that there are tiles in each room the zombies could spawn in. Therefore, we marked the tiles where they would spawn in with a sharpie as well as the room number as replicated in figure 3. Once a respawn mechanic was introduced, we also marked it with tiles for them to respawn in the middle room.

After so many markups, it was time to create the final version. Mark 3 of the board came with a big visual upgrade. I painted each tile using photoshop and art studio pro. I also relocated the zombie spawning tiles to the corners of the room. This allowed for a more open player experience and kept the zombies away from spawning too close to the respawn room.

I wanted to make the board more visually appealing. This meant I needed to come up with a way to display the room number (so that the players know which room the zombies will spawn) while identifying which tiles the zombies could spawn on. After some brainstorming, I fell in love with the idea that the zombie spawners could be dirt tiles with zombie hands poking out of them. This allowed for the spawners to blend seamlessly into the room. The fingers of the zombies indicate the room number. This solution solved two problems at once. With fewer symbols on the board, the map began feeling more alive. This is shown below in figure 4. Mark 3 of the board also introduced perspective.

On all the previous versions, perspective wasn't needed. Since this version of the board was to be the final, I hand drew the walls to give a better sense of depth. Other than that, mark 3 was basically done. I went on to paint the tiles, portals, chest symbols, and other parts of the board in a higher quality than in previous versions. Once it was done, I printed the board out and used adhesive spray to attach it to a poster board. Now there was a real life board prototype. I

Figure 1

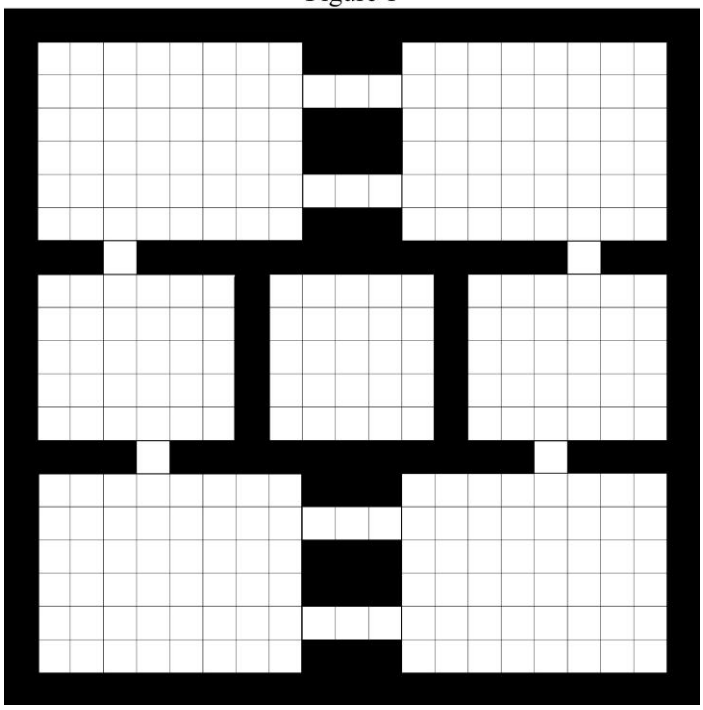
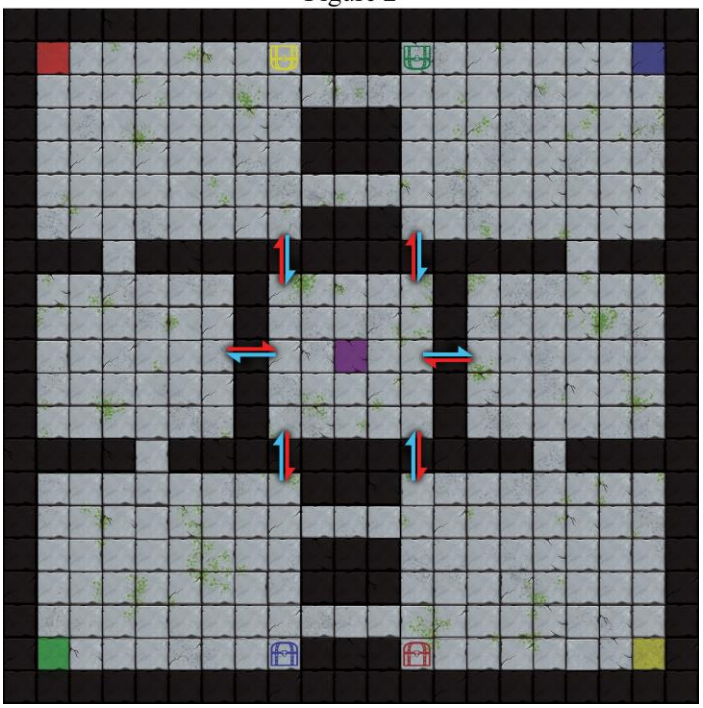


Figure 2



also went on to order a board from a custom board game making website. Once approved by my thesis professor and from my game testers, it was time to move on to making the models!

Figure 3

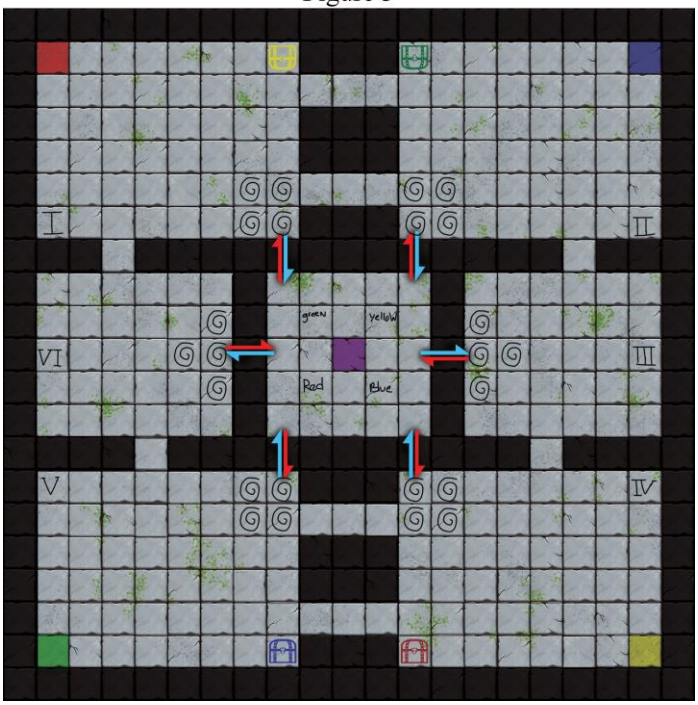
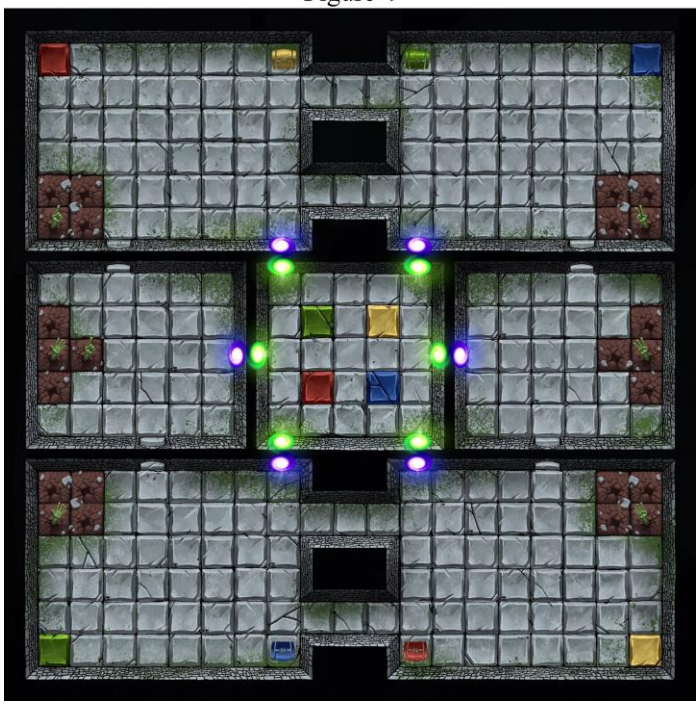


Figure 4



Step 3: Creating the Assets

Modeling

The next step in the progress was creating the models for the players to use. This includes four tokens, four player characters, four chests, and a zombie. The first thing I created were the four chests as shown in figure 5. I used zbrush to create all models and my Elegoo Mars Pro 2 to 3d print all the models. The chest needed to be cost efficient in terms of resin when I print it. It also needed to hold a token. This led me to hollow out the bottom of the chest and remove the bottom. Since the chests only had to vary in color, I only needed to model 1one chest and paint the outside.

Up next was modeling the tokens for the game. I started by making drawings of what I wanted on my tokens. I then took those drawings and used them as guides to sculpt out of dime shaped tokens as shown in figure 6. Because of the size, it took several prints to find the right size for the token detail to be visible and paintable.

Figure 5

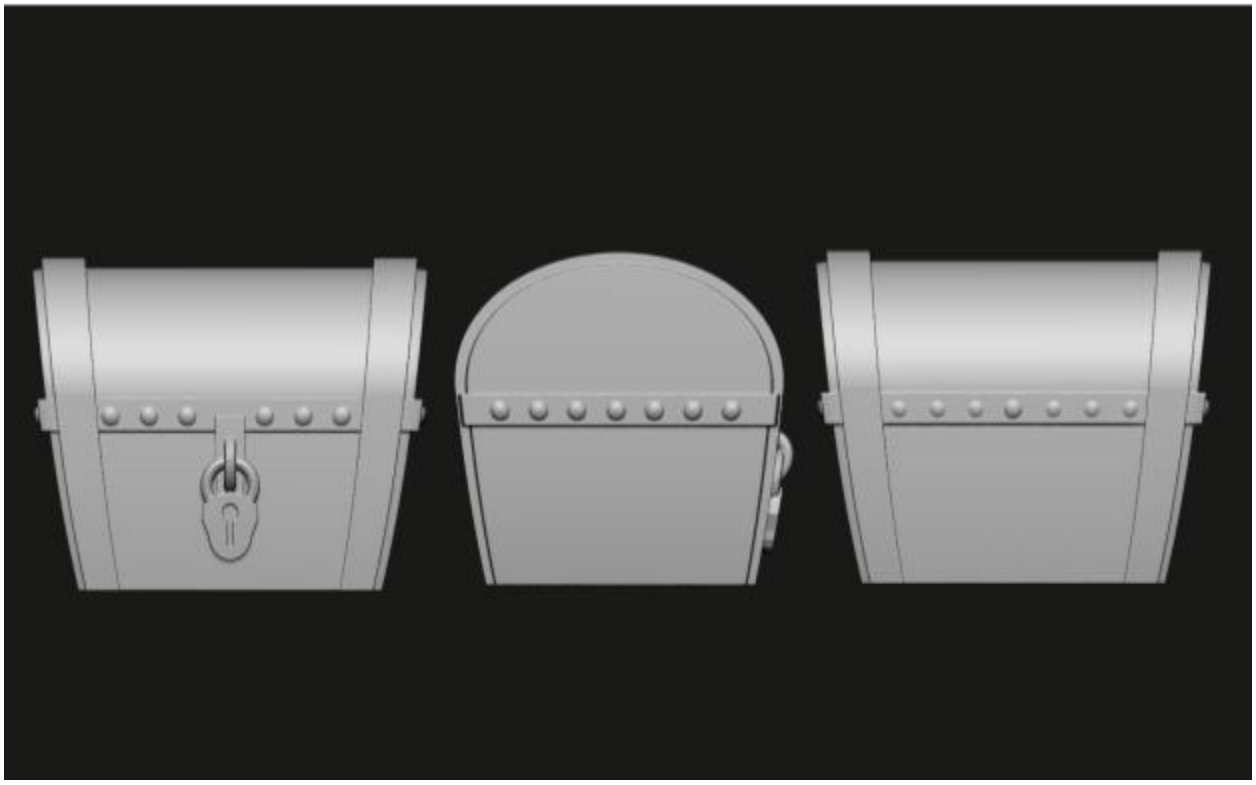


Figure 6

Then there were the characters to sculpt and model. Just like the other models, I used zbrush and 3d printing to bring these characters to life. I started off by creating a base mesh of a fit athletic male with very exaggerated proportions. I then used that model and sketched over it to help design the characters. Once I had an idea of what I wanted them to look like, I began

modeling them. I used the male model as a base for all the other models. A problem I had to over come was the scale of the models. I knew I wanted to 3D print these models so they needed to have no small parts. This led me to design the models with more stylized proportions. After several test prints of these models, I was able to find a balance between style and functionality. The exaggerated hands and feet size allows them to be easily printed and painted. The base of these models need to be 1 inch in diameter so that they can fit nicely on each 1x1 tile on the board. If the proportions were too realistic, they wouldn't have been able to print with proper support and durability. Together they took several weeks of work and refinement but the end result was something I was really proud of. Figure 7 shows a basic color coordinated render of each model in different views. After the models were 3d printed, I hand painted each model with more complexity and detail. I continued the same process for the zombie as seen in figure 8.

Figure 7

Figure 8

Stat cards

The last step was creating stat cards that were easy to understand and could be read. I created four color coordinated cards that show the stats and abilities of each playable character. I used photoshop to create the cards. I used old paper textures to give a fantasy feeling and text to display each player's stats as shown in figure 13. This was perhaps the most simple part of the project but one that was necessary in order to play the game.

Figure 9

Conclusion

This project taught me a lot about what it means to be a board game designer and a sculptor for 3D printing/ manufacturing. The nature of the project forced me to become an attentive game designer. I learned to take player feedback and apply it to create a more fun and enjoyable gaming experience. I was able to combine my knowledge of sculpting and 2D art to create a visually appealing board. I also learned to apply the limitations of 3D printing in such a way that I could create durable and stylistic models. After everything was complete, I sat down for one last game with my play testers so that they could experience the board game with actual models, boards, and cards. They all expressed excitement, joy, and fun, which is ultimately the purpose I had when creating this game. While the board game could always go with more refinements, I learned how to create a fun and enjoyable board game that I am very proud of.

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