

Card Mage

Computer Science and Engineering

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Team 13

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Abstract

This paper examines Team 13's project prototype development of Card Mage. Our game Card Mage is designed to be fun and immersive for those who enjoy the fantasy genre, card games, or roguelike video games. Card Mage currently has a playable prototype with multiple systems for smooth gameplay interactions. Currently included are the systems for UI, Level Generation, the deck, the player, and the enemies. The UI system consists of various menus and the in-game HUD. The level generation system currently consists of a procedural generation of rooms and layouts, with spawns for enemies, shops, and the boss. The deck system includes the mechanics for the spell system, where players draw cards and use them to cast a spell. The player system includes all the attributes of the player like movement, health, spells, and currency. The enemy system includes detection, chasing, and attacking of the player.

Introduction

The project is a 2D combat card game with interactive AI and procedural level generation with each level having a path from a start point to an end boss room, in which when a boss is killed the player is transported to the next level. The core defining feature of our project is the unique and engaging card system which allows for deck building and user choice with a constantly rotating hand of abilities. From our last iterations we have made major strides in graphical fidelity, AI, as well as backend changes to level generation in order to facilitate these traits. Before this the game was a skeleton of backend player mechanics without any indication of how to play the game. We have also further enhanced the cooldown system to balance out the combat in our game and our UI now reflects crucial information the player needs to know at any given point in time. For example, before implementing the cooldown and the UI of the player hand, the optimal strategy was to press all the buttons at once which didn't facilitate fun gameplay. Over this last stretch of time, the game mechanics were fully fleshed out and the player experience was given the light of day.

Prototype Objectives & Functionality

The main components we decided to focus on were UI, level generation, card spells/decks, player, and enemy AI. We deemed these to be the most crucial to initial playability.

UI

Main Menu, Brightness, Deck Swapping, Volume, Health Bar, Pause

Level Generation

Procedural Rooms, Layouts, Enemies, Shops, Active Shadows, Boss

Card Spells and Deck

Card Draw From Deck, Grave, Cooldown System, Card Drops, Premade Decks

Player Attributes

Movement System, Dash Ability, Player Hand, Deck, Casting, Spell Spawn, Currency System

Enemy AI

Detect Player, Chase Player, Attack Player, Enemy Defeat

User interface was deemed crucial to allow for choice and ease of presentation, Level generation was implemented to show the general style of game and as a course to create a playing field to showcase our implementations of other features. The card system being integral to the feeling of the game was decided to be a core implementation to describe the feeling and style of the game. Player mechanics serve as the backbone for card mechanics and is a core feature of feeling and style as well. Enemy AI was crucial as its implementation would best showcase the concept of combat in our game.

Develop Prototype



Fig. 1: Opening menu page

More on figure 1: This is the initial page the user will happen upon, with the button options of going on to play the game, changing settings, and closing the game.

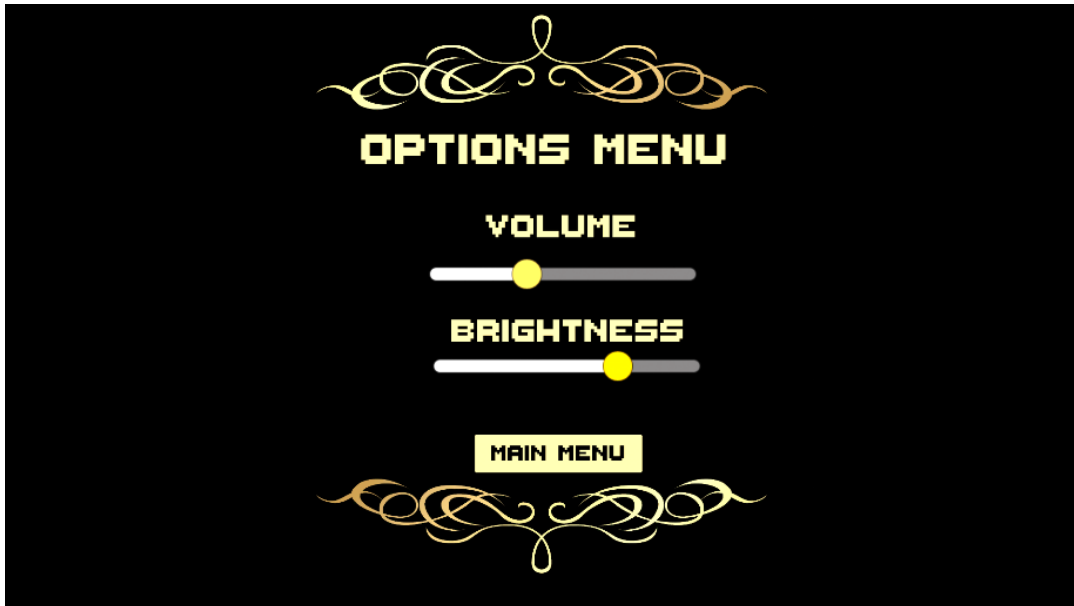


Fig. 2: Options Menu

More about figure 2: This page allows the user to adjust the volume and brightness with a slider. Once they're done, they can go back to the main menu.

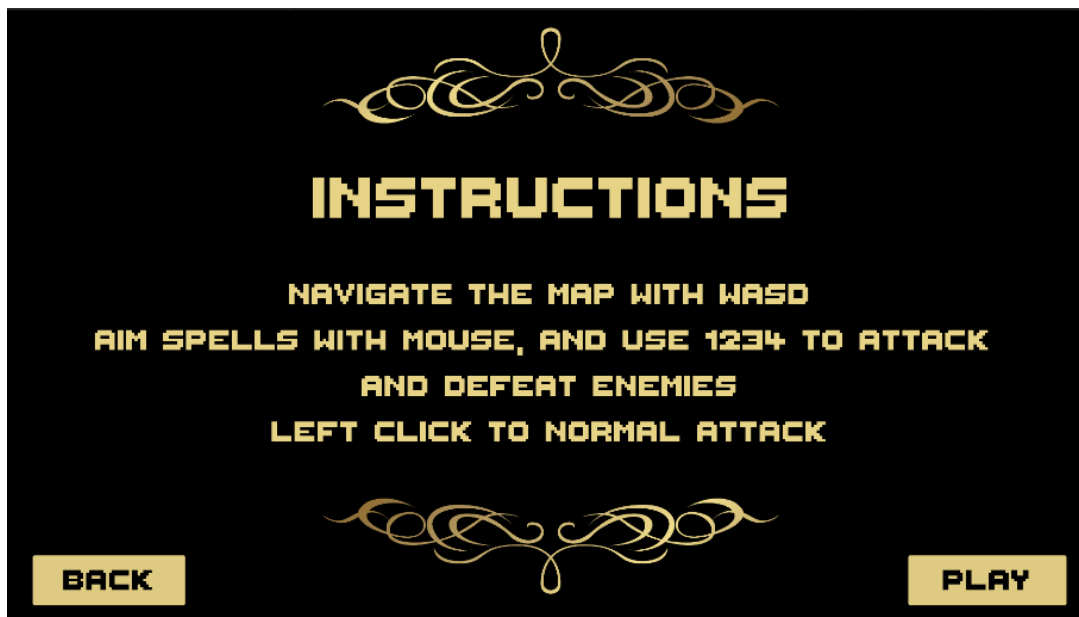


Fig. 3: Instructions Page

More about figure 3: When the user chooses the play game option, this screen will show them the main instructions in order to play the game.

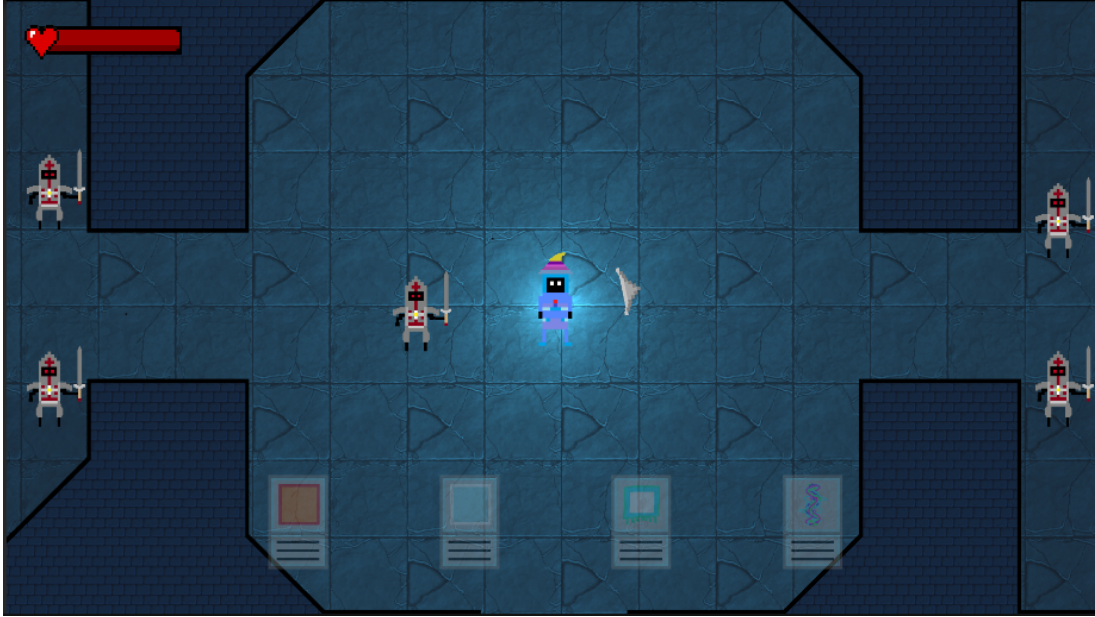


Fig. 4: Basic game stage

More about figure 4: This is what the game looks like, with the purple character in the middle being the main character, who can move around with WASD. The characters with the sword are the enemies, which can be defeated with two types of attacks. Firstly, there is the basic attack, which can be done with left clicking. There is also a spell attack, which can be done by pressing any value from 1-4. Both of these can be aimed by moving the mouse around and aiming the arrow right of the player. The bottom of the screen displays the different spell attacks available in the screen. There is also a health bar at the top left that displays the user's fluctuating health from attacks.

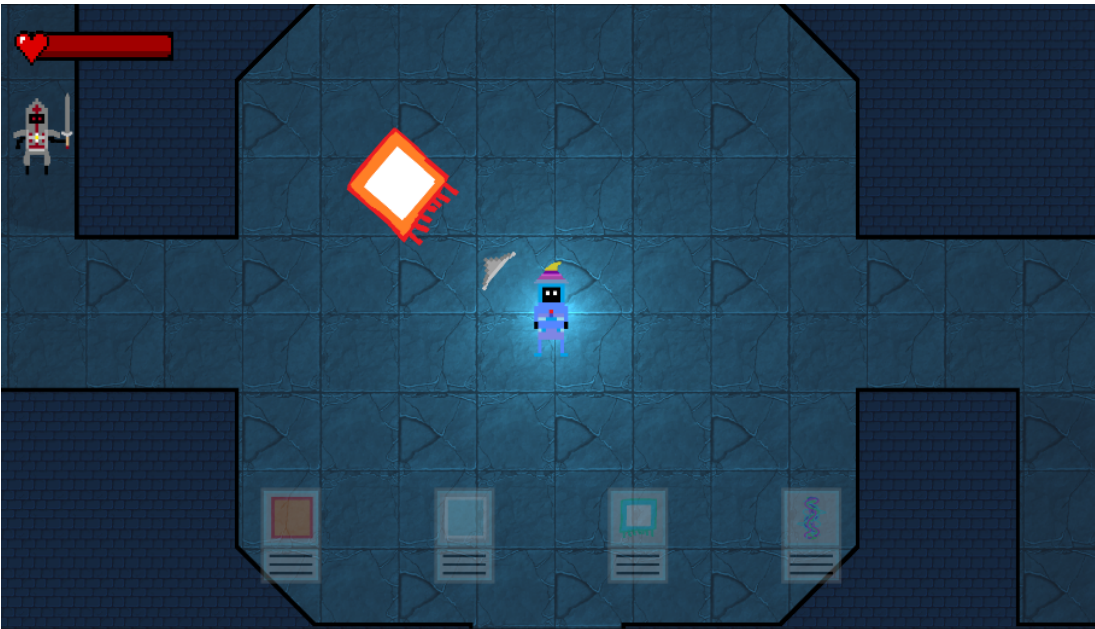


Fig. 5: Using a spell

More about figure 5: This screen shows the user using a spell. The orange and white square is the spell, which will damage enemies upon contact. There are 4 types of spells currently, with varying damage and speed.



Fig. 6: Pause screen

More about figure 6: This page is the pause screen that appears when the user presses escape amidst gameplay. This can allow the user to go back to the main menu or options menu, change their spell deck element type, resume the game, or close the game.



Fig. 7: Changing deck

More about figure 7: This screen allows the user to change amongst different elements of decks. The fire and water decks make the deck of spells only fire or water. The mixed option allows a combination of the four types of spells.

Demo Prototype

In person CS425 project demo took place on Monday, December 12 at 9:30 AM to 10:00 AM. During our meeting we discussed recommendations and what we look to change and add to our game for next semester. We have an initial plan to improve upon multiple systems in Card Mage. Such as, an improved pathfinding system to utilize NavMesh, adding multiple enemy types, new spells, developed background lore, assets artwork, UI for the boss health bar, and a level completion mechanic.

Team Contributions

Robert Bothne: Demo Prototype, introduction, Demo Prototype 9h

Grant Davis: Abstract, Demo Prototype, Demo Prototype 8h

Dan Huynhvo: Introduction, Demo Prototype, Prototype Objectives & Functionality 10h

Abida Mim: Prototype Objectives & Functionality, Develop Prototype, Demo Prototype 8h