

Card Mage

Computer Science and Engineering

University of Nevada, Reno

Team 13

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Abstract

This paper describes Team 13's Card Mage game and aspects of its legality, as well as what is being focused on for the project and what the members are responsible for. The Card Mage game has the player ascend through levels by defeating enemies using a deck of rotating cards that provide abilities. At present time core systems are in place with continued work necessary on the deckbuilding, AI pathing, HUD, and level design features being the tasks at hand. This paper hopes to tackle an apt description of these plans and the current state of the project as well as its impact legally and in relation to those who play our game.

Project Description

The game aims to provide an easily navigable 2D environment through randomly generated levels for the user to traverse, where they will be able to defeat oncoming enemies using a set of rotating cards that provide powers and buffs. Defeating enemies will allow the player to progress through levels to new rooms with more difficult enemies to beat.

Card Mage will be targeted towards the large demographic of users who both enjoy deck building games and roguelike games. Normally the user base for these games is split up but we hope to target this new market and combine the genres. We also hope to target casual players of video games as we aim to make the game easy to get a hold of and fun at the very start.

The game will be created using mainly Unity as a base using the default language C#, with art being created using pixelart.com and taken from the free Unity Assets Store. The challenge of the game relies primarily on the creative use of card mechanics, player movement and resource management in order to best clear levels. The player also has to balance quick gameplay with solid decision making skills. In order to have the best results in this game, the player should combine the two. The speed and ease of clearing relies heavily on each of these factors and we hope to provide a balance of importance between these mechanics to provide a stimulating challenge to both new and experienced players.

The game, while being a single player experience, needs to uphold a few security and integrity protocols. The game, if being sold commercially on a hosting site, should be able to detect tampering with core game files and save data. Achievements that may be built should also not be able to be gained if one were to modify the game in some way. And needless to say, the game should never crash theoretically.

Significance

The game is unique in its playstyle of having cards to fight enemies within an open to navigate 2D environment in real time. Since the market for this genre of game is not currently flooded with many options or perhaps even any, the building of this game will already have a solid stance within the game market and platforms such as Steam.

This project will help members of our team interested in a game design oriented career path significantly and will hopefully provide a stronger foundation for object oriented programming to other members. And while this may be a game industry focused project, it combines aspects of UI building, backend data control and AI work that certainly can be used to build up a portfolio.

Innovation comes in the form of real time combat utilizing a card and deck system as our primary niche. The potential of further development beyond CS 426 exists with a strong key concept and design trends designed for long term iteration with ultimate sale of the game if it is strong enough as a listing on the Steam marketplace. Also if this game is successful enough, we might consider even monetizing our game further with DLC expansions or game updates if the player base seems to be bored of the current game. With this being a proprietary property, this game also has no prospects in becoming an open source software anytime soon, but can be built upon by other games and game developers if our first jump into the market proves to be successful.

Other similar projects combine aspects of card battling and procedural generation such as Slay the Spire or Hades, but our combat and level generation tends to follow the likes of Binding of Isaac. Combining these two types of game formulas should lead to a unique and creative gameflow.

Legal and Ethical Aspects

The potential legal issues or challenges that may affect our project would include software restrictions with Unity, since we are not using the pro or premium version, we can not make more than \$100,000 a year in revenue from the game. We must be aware of trademark or copyright infringement from the code and assets we have not created ourselves. We must make sure to have the licensing for assets that are not created by us. If we plan to sell the game on a gaming marketplace, like steam, we may want to have people test the game, this is where having a Non-disclosure Agreement (NDA) would be necessary. NDAs are used to protect sensitive information from the public and would ensure our game wouldn't be leaked to the public before we are ready.

Considering the ACM code of ethics PRODUCT clause we will adhere to industry standards during our development lifecycle. Thorough testing of our game will create a product with little to no bugs and solid interactive gameplay for our users. If we continue to develop our game we should have transparency in our development process for our users and stakeholders. We should seek feedback and constructive criticism for our game to improve all aspects. As software engineers, we should seek continuous improvement on the projects we create and improve.

Changes and Progress since the Initial Project Concept

In regards to progress, the team thus far has one functional level. The player can adjust settings, move an avatar around rooms that are generated at the beginning of each testing phase with defeatable enemies which can be combated and drop currency upon defeat. Currently we also have deck building and smart AI in the works of development too. The game is in a constant flow of change with gameplay elements having appeared and disappeared rapidly as playtesting continues and we attempt to refine the gameplay loop.

Project Responsibilities

UI - Abida

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

Level Generation - Robert

Procedural Rooms, Room Layouts, Enemy Spawning, Shop Spawning, Lighting & environmental graphics.

Card Spells and Deck - Dan

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

Enemy AI - Grant

Enemy Detection, Enemy Pathing, Enemy attacks, Enemy design

Project Monitoring and Risks

To make sure that the project is being completed on time, the team has set up a Trello with tasks listed, which were split among team members. In each meeting, the team will discuss how the tasks are coming along to ensure that all will be completed as needed.

Risk Register											
		Current Risk							Residual Risk		
Risk ID	Risks	Likelihood	Impact	Severity	Status	Owner	Raised	Mitigation Strategies	Likelihood	Impact	Severity
1	Putting too much on the table	10	5	50	Open		03-Feb	Advisor Meetings and Team Meetings	6	4	24
2	Continued User Engagement	10	5	50	Open		03-Feb	Balance testing, Developing New Expansions	10	10	100
3	Market Potential	4	10	40	Open		03-Feb	Unique Mechanics and Design	7	3	21
4	Monetization	2	6	12	Open		03-Feb	DLC or Microtransactions	10	7	70
5	Bugs	10	10	100	Open		03-Feb	Unit Testing and Player Feedback	10	10	100
6	Player Tests	2	3	6	Open		03-Feb	Open Communication	0	0	0
7	Unfeasible Design	2	10	20	Open		03-Feb	Advisor Meetings, Developer Feedback	2	10	20
8	Unfun Gameplay	6	10	60	Open		03-Feb	Player Tests	6	5	30
9	Hosting Site Issues	1	10	10	Open		03-Feb	Uncontrollable	10	10	10

Accessibility

We don't have too many accessibility risks, though we do have options we can run through. For starters, we need to address the fact our game uses many bright colors for game information that colorblind people may not be able to see. We also need to import ways to rebind essential keys into the game for anyone struggling with a set keyboard flow.

Our strategies for these will be to have a colorblind mode that can be used to change the gamma and swap colors in the game. We also will log keybinds in the menu so that the player can change any controls to their heart's content.

Team Contributions

Robert Bothne: Project Responsibilities, Significance, Project Description, Abstract, Changes and Progress since the Initial Project Concept - 2 hr

Grant Davis: Legal and Ethical Aspects, Accessibility, Team Contributions, References, Project Monitoring and Risks, and Editing - 2 hr

Dan Huynhvo: Editing, Abstract, Project Description. Significance, Changes, Accessibility - 2 hr

Abida Mim: Abstract, Project Description, Significance, Changes and Progress since the Initial Project Concept, Project Monitoring and Risks, Project Responsibilities - 2 hr

References

"WIZARD101." Wizard101, Wizard101, <https://www.wizard101.com/>.

"Slay the spire" https://store.steampowered.com/app/646570/Slay_the_Spire/

"Binding of Isaac" https://store.steampowered.com/app/113200/The_Binding_of_Isaac/

"Hades" <https://store.steampowered.com/app/1145360/Hades/>