

Pokémon Card Game

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Abstract-Our primary objective was to create a Pokémon Card game applying three.js and GSAP. We used HTML and CSS to create the game's primary theme. We used GSAP to make the game more engaging and visually appealing. GSAP was utilised to create animations and smooth transitions. Additionally, we added camera-view to enhance the experience.

I. INTRODUCTION

Pokémon's charming creatures and thrilling battles have captivated millions. Imagine turning Pokémon into a gorgeous 3D card game. Three.js and GSAP (GreenSock Animation Platform) can create a captivating Pokémon Card Game.

Three.js creates browser-based 3D visuals using WebGL. It offers several 3D modeling, lighting, graphics, and animation features. However, GSAP is a sophisticated animation library that makes smooth, accurate, speedy movements. Three.js lets us create realistic cards, detailed models, and exciting battle venues. The library's API makes card flipping, dragging, and dropping seamless and engaging.

The GSAP library adds animation to material. We can smooth out transitions, effects, and movements. GSAP's timeline lets us choreograph complicated animations, synchronize events, and build dynamic sequences that improve game play.

Card games are widely played. Over the years, numerous varieties of card games have been developed for PC, mobile phones, consoles, etc. Many developers have used three.js to develop one of the most popular game titles, "Solitaire." Those are thrilling, but despite the popularity of Pokémon Card in the cartoons, no such Pokémon card game was built using three.js. Collecting Pokémon cards will not only be enjoyable, but will also be thrilling. So we are attempting to create a Pokémon Card-based game.

We used Three.js and GSAP to construct a fascinating Pokémon Card Game to launch this project. Battles will be thrilling and strategic. There will be three different kinds of cards in the game. Each card has a distinctive feature. At the beginning of the game, there will be a total of 10 cards. Two participants will take part. Each player is given five shuffled cards at the beginning. The first card is played by each player. Players have to beat each other using the card's attributes and shortcomings. For example, fire beats electricity, water beats fire, and electricity beats water. After three rounds, each participant will switch between fire and water. The player who wins the most rounds is declared the winner. Using Three.js

and GSAP, we intend to create a Pokemon card game in this manner.

II. GAME DESCRIPTION

At the beginning of the game there will be intro of the game. The introduction page will contain two interactive buttons. Start Game and Show Rule. Start Game button will lead to the main gameplay and Show Rule button will lead to the game rules page.

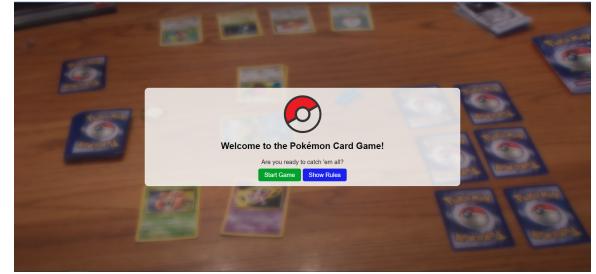


Fig. 1. Starting Page

From the introduction page, the Show Rule button will lead to instruction or game rules page which describes how to play the game strategically. Players will be able to participate in thrilling battles and strategically plan their moves to advance through the rounds and succeed. If players need to know the game rules or instructions from the gameplay page, they can watch the rules from that page too. There is a Game Rule button in the main gameplay page which will lead us to Game Rules page.



Fig. 2. Instructions

Three Pokémon cards will be available: Pikachu, Squirtle, and Charmander. Each card will have distinctive characteristics or specialities. This specialities will help players to outrank each other to gain the victory.



Fig. 3. Pokémon Cards

- Pikachu Card contains electricity.
- Charmander Card contains fire.
- Squirtle Card contains water.

The game will be played between two individuals. At the beginning of the game, each participant will receive five randomly shuffled cards.



Fig. 4. Gameplay

Each player will begin by playing their first card. Each participant must defeat their opponents using the strength of their card in order to win rounds. Similar to how Fire predominates over Electricity, Water predominates over Fire, and Electricity predominates over Water. A player wins a round if they hold a card that outranks their opponent's card. But if the players cannot outrank each others card then the players will play their next card. After three rounds, two players will switch the Fire card and the Water card. There will be six rounds in the entire game. At the end of the game the winner will be announced.

III. RELATED/EXISTING WORK

We got inspiration for our work from a card game name "War", that was developed using Three.js[1]. In this game, there will be a deck of cards, and there will be two players. There will be 26 cards distributed to each player. The importance of the card's ranking determines how the game is played from start to finish. In addition, a higher priority card helps to earn the point, and the number of cards increases from one player to another while the number of cards declines. When all of the cards are retrieved in one direction, the game is over.

IV. PROPOSED METHODOLOGY

The following diagram is providing our workflow to built the project. The whole game will be for six rounds. At the starting of the game, there will be two players. Each player

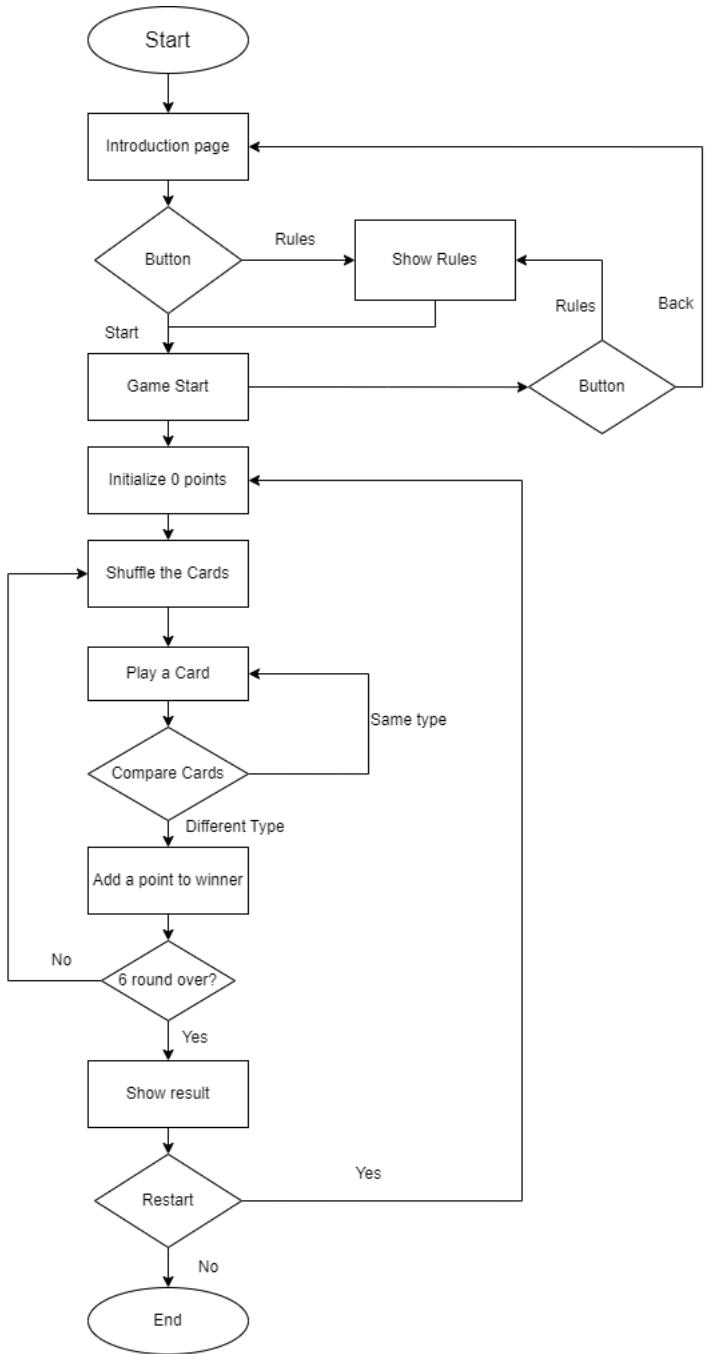


Fig. 5. Proposed Methodology

will be handed 5 cards. The cards will be randomly shuffled at the beginning of the game. After that each player will play a card. Each player needs to outrank each others cards by the help of cards speciality. If both players unable to outrank each others card then the round will continue and players will play their next cards. After three rounds players will switch their Fire and Water card with each other. The whole game will go for six rounds. Winner will be announced in the basis of victory rounds. If the players want to restart the game then the game will begin from the first otherwise the game will end.

V. LIMITATIONS AND FUTURE WORK

During this process of developing the Pokémon Card Game, we will be exploring the fundamentals of three.js. These will include the basics of scene construction, camera orientation, lighting, and the attributes of various types of materials. To improve the environment of the game, we will add different backgrounds, add more camera views also add varieties in Pokémon cards. In addition to this, we will explore the animation techniques that GSAP has to offer, such as easing functions, timeline management, and twining.

VI. CONCLUSION

In conclusion, the Pokémon Card Game has proved to be an enjoyable pastime enjoyed by players of all ages. Since its inception, its unique combination of strategy, nostalgia, and collectibility has captivated players. The game's evolution with new expansions and mechanics over the years continues to attract both seasoned players and newcomers. Whether you're a dedicated collector, a seasoned player, or someone exploring the Pokémon universe for the first time, the Pokémon Card Game provides a fun and accessible connection for exploration, creativity, and friendship. As long as the spirit of adventure and friendship endures, the Pokémon Card Game will continue to bring pleasure to the hearts of Pokémon trainers everywhere. To make this joy a reality and to play the game in a 3D environment, we are utilizing three.js and GSAP, which will help us acquire the knowledge and skills necessary to create our own immersive 3D card game experiences, ready to enchant players with interactive Pokémon game-play. Let's get started and bring the Pokémon Card Game to reality!

REFERENCES

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