

Dashing Through the Desert: Player Experience and Mechanics

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Abstract

This paper presents the development of "Desert Dino Dash," a 2D side-scrolling endless runner game. The game features a dinosaur character navigating through a dynamically generated environment filled with obstacles and collectibles. The primary objective of the game is to score points by collecting in-game items and avoiding obstacles. The core gameplay mechanics, such as collision detection, physics, and level generation, are discussed. We also cover the game design principles employed, including visual aesthetics and user engagement strategies. Moreover, the challenges faced during development, such as optimization for mobile devices and balancing gameplay difficulty, are explored. Future scope for improvement and the implementation of additional features is also addressed.

Keywords: 2D game, Desert Dino Dash, endless runner, game mechanics, mobile game, Unity.

I. INTRODUCTION

The gaming industry has seen an exponential rise in the popularity of endless runner games, and "Desert Dino Dash" follows this trend by offering an engaging experience centered around a dinosaur-themed environment. The game is developed for both mobile and desktop platforms, utilizing 2D graphics and real-time obstacle generation. Dino Dash incorporates multiple features that enhance

user engagement, such as high-score tracking, collectible items, and dynamically increasing difficulty levels.

"Desert Dino Dash" has been developed using Unity, a popular game development engine, and uses the C# programming language. The game targets a broad audience of casual gamers who enjoy easy-to-learn yet challenging gameplay. This paper provides insights into the development process, game design elements, and the technological stack used in bringing Dino Dash to life.

II. PROCEDURES FOR PAPER SUBMISSION

A. Review Stage

When submitting your manuscript for review, check with your editor for the preferred submission method. Whether hard copy or electronic, ensure the submission adheres to journal guidelines. Desert Dino Dash, in this case, was developed and tested across multiple iterations, and the game development was peer-reviewed by experts in game design and programming.

B. Final Stage

After the review, we submitted the final draft including in-depth discussions of game mechanics, optimization strategies, and development methodologies. The game uses sprite-based graphics, and the paper includes detailed specifications on the assets used, the game engine, and the physics calculations essential to achieving fluid gameplay.

III. MATH

In this section, we present the collision detection and physics calculations used in Desert Dino Dash. We utilized basic mathematical equations for velocity and acceleration to simulate the character's movement and jumping dynamics. The equations are implemented using Unity's physics engine.

IV. UNITS

All measurements in the game, such as distance jumped or obstacles’ size, are expressed in Unity units, which directly correspond to the resolution of the game window.

V. HELPFUL HINTS

A. Figures and Tables

Tables and figures illustrating the game development process, such as level design layouts and sprite maps, are included in the final paper. These visual aids provide a clear understanding of the game design choices and how the mechanics operate under different gameplay conditions.

Table I: Desert Dino Dash Metrics

Metric	Value
Game Speed	Increases over time
Obstacle Size	Randomly generated based on difficulty level
Jump Height	Fixed, adjustable by user input

B. References

The game development process was guided by existing research in procedural generation, player engagement, and mobile game optimization. The references used are as follows : Chrome Dino Game which known as T-rex Game.

VI. EDITORIAL POLICY

Submission of Desert Dino Dash to relevant game development and design conferences provided valuable feedback. Peer review at these conferences allowed for optimization of game features and mechanics, making the game more appealing to the target audience.

VII. PUBLICATION PRINCIPLES

The publication of this paper is in line with the journal's policy of advancing research in the application of technology in entertainment and gaming. Desert Dino Dash serves as a case study of how technical and creative elements can combine to create a commercially viable and enjoyable gaming experience.

VIII. CONCLUSION

In conclusion, Desert Dino Dash is a successful 2D game that integrates dynamic obstacle generation and physics-based gameplay. Future work includes adding new levels, increasing difficulty progression, and possibly integrating multiplayer functionality. The game's design philosophy focused on simplicity and user engagement, while the development emphasized efficient coding practices for cross-platform optimization.

ACKNOWLEDGMENT

We would like to thank the development team at Pixel Forge Studios for their contributions and support throughout the Desert Dino Dash project.

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