



Design Document for:

Dodgy Spike

The ultimate spike dodging experience

“Your mission begins today!”™

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Design History

This document is going to explain each element of the game, the changes I've made, the goal of the game, why you would play it again, the players, rendering, objects, and everything in between.

Version 1.1

This was the first update to the game, I received a lot of feedback from people and incorporated the changes below.

1. Allowed the back button to exit from the home screen.
2. The game no longer dims while playing.

Version 1.2

In this update I wanted to incorporate a reason to play the game more, this being leaderboards and achievements.

I used the Google Play plugin for this.

1. Added more tilt speed to player.
2. Added Google Play achievements and high scoreboards.
3. Modified checkpoints.
4. Overhauled the home screen.

Version 1.5

This update modified much of the controls to make it smoother and more responsive, also to fix bugs that allowed users to cheat the leaderboard system.

1. Added mute music button.
2. Added auto login for google play services (leaderboards & achievements).
3. Fixed auto login bug.
4. Fixed issues with retrieving leaderboards & achievements.
5. Modified player speed, spin.
6. Modified checkpoints.
7. Made the game smoother and more responsive during play.
8. Modified Google Play updates & posting.

Game Overview

Philosophy

Philosophical point #1

This game brings together many concepts from other classic and modern endless runner themed games. We were most inspired by the likes of “Flappy Bird”, “Timber Man” and old school endless shooter space games. We wanted simple 2D graphics, retro space age music and sound effects. Buttery smooth controls/responsiveness was of utmost importance, we wanted the game to be fun to play and tricky to master.

Philosophical point #2

We wanted our users to become addicted and want to come back again and again. In order to do this we incorporated a local score board of “best/high score” and “last score”, so that they would keep trying to beat their score. To push this even further we incorporated Google Play Leaderboards and Achievements into the game (Android only for now), this system tracks high score, total spikes dodged and achievements for certain scores and more. This sort of social system is hugely important in order to retain users.

Philosophical point #3

In order to spread the app to other users we added Facebook and Twitter share buttons. These act as a word of mouth type of sharing, where you can show off your score to your friends and bring in new users, it also adds to the buzz of the app by using #DodgySpike in the posts.

Common Questions

What is the game?

A lost star.

Stuck in a cave world.

Filled with treacherous spikes.

His mission is and always will be....

To dodge the spikes.

You are....

Dodgy Spike.

The infamous spike dodger!

Why create this game?

I love simple elegant graphics, sounds and controls.

I wanted to bring all of this together and add a competitive element with Google Play leaderboards & achievements.

I wanted a game that I myself would play while waiting for the bus, a game that I would say 10 times in a row “this is the last go” .

Where does the game take place?

A cave world filled with treacherous spikes.

What do I control?

You control a star, navigating him left and right by tilting your device.

How many characters do I control?

One character, the teal star.

What is the main focus?

The main focus is to dodge the incoming spikes as well as the cave walls, to reach checkpoints and get the high score. This will bring you into a state of flow with the game.

What's different?

There are not too many simple games like this, that use the device tilting as a control and also using abstract elements like stars, spikes and caves. I wanted something kind of artsy and abstract.

Feature Set

General Features

One endless red cave world
Fat purple and slender yellow enemy spikes
Evil red cave walls
2D graphics
32-bit color

Multiplayer Features

Online leaderboards for high score and total spikes dodged
Achievements based on reaching checkpoints such as 20, 50, 100, 350 spikes dodged in one go
Achievements based on total incremental spikes dodged over all games, such as 4000 spikes dodged
Easy to compare your scores with friends or all players of the game

Editor

No editor ☹

Gameplay

Tilt device left and right in order to dodge the spikes
Spikes randomly appear on either left or right hand side
They get faster, but so do you
Also don't touch the cave walls
Reach a state of flow and be the best in the leaderboards!

The Game World

Overview

A red cave world that has red cave walls.

There are slender yellow spikes and fat purple spikes coming towards you from left and right hand sides.

Caves walls

Constantly moving towards you

Spikes

Fat purple and slender yellow spikes coming towards you from either the left or right hand side.

Getting faster as time goes on, but so do you!

The Physical World

Overview

A red cave world with cave walls, slender yellow and fat purple spikes fly towards you as you tilt the device to dodge and maneuver around the world, always trying to stay alive as the game gets faster, in order to reach a state of flow and become the ultimate spike dodger! (and achieve the high score and gain achievements)

Key Locations

Red cave world

Travel

Move up straight through the world, dodging spikes along the way, using the gyroscope of the device in order to tilt left and right.

Scale

Orthographic view of the game, the spikes are much bigger then the star.

Objects

Red background, slender yellow and fat purple spikes, teal star, cave walls, menu scene.

Weather

Dark.

Day and Night

Night

Time

Stuck in a time loop, does time even exist here?

Rendering System

Overview

Used unity to create the game

2D/3D Rendering

Unity orthographic projection, halved the fixed update time step in order to make the gaem smoother.

Camera

Overview

Fixed orthographic, the player moves left and right, rotating, objects come towards player, making it look like he is moving forward.

Camera Detail #1

Menu scene shows many options, facebook/twitter share, mute sound/music, play, log in leaderboard, achievements, exit.

Game Engine

Overview

Unity was used to create the game using 2D mode.

Game Engine Detail #1

The game engine keeps track of how many points your on, your current speed, spikes speed, makes sure the spikes speed is in line with how often they generate so that it is possible to dodge the spikes.

Keeps track of generating text, sounds, waiting (co-routines, IEnumerators, WaitForSeconds)

Collision Detection

Instead of having the collider attached to the constantly generating cave walls, I just created a box collider in the middle of the screen, if the player exits this collider then he dies.

The spikes have polygon colliders attached, if the player enters there collider then he also dies and an explosion appears along with an audio clip.

Lighting Models

Overview

No lighting used in this game (2D)

The World Layout

Overview

Once you click play you are brought to the main game scene, a red world with cave walls.

Game Characters

Overview

There are fat purple and slender yellow spikes heading toward you, ever increasing in speed as you also do. They appear randomly on the left and right hand sides of the cave.

User Interface

Overview

Initially you arrive at a menu scene that auto logs you in if connected to the Internet. Then you can view leaderboards and achievements via Google Play.

You can also mute music or all sounds, share on Twitter or Facebook and of course play the game.

Musical Scores and Sound Effects

Overview

Retro space style sound effects and looping backtrack.

2D Sound

LCG Music (<https://soundcloud.com/lcgmusic>) made the sound effects and soundtrack (a good friend of mine).

Single-Player Game

Overview

Tilt the device, avoid the walls and dodge the spikes.

Story

A lost star.

Stuck in a cave world.

Filled with treacherous spikes.

His mission is and always will be....

To dodge the spikes.

You are....

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The infamous spike dodger!

Hours of Gameplay

It's a casual endless runner style game, supposed to be short and concise, play a game while on the bus, in class, waiting for a YouTube video to load? Maybe longer if you start doing well.

Victory Conditions

Indefinite gameplay, the victory is in beating your high score as well as your friends, and of course getting all those sweet achievements.

Character Rendering

Overview

Character is always rotating, spikes are instantiated from either the left to right hand side, move towards you with ever increasing speed, players speed increases also, spikes spawn quicker as speed increases, eventually reaching a max speed.

Cave walls spawn indefinitely.

Extra Miscellaneous Stuff

Overview

I eventually want to incorporate character select, have a small quick character, a big slow character and a character that when you press the screen down he speed up.

Add more background.

Add animations to all the objects, so that they pulsate.

More sound effects and changing background music.

“Dodgy Spike Appendix”

Provide a brief description of what this appendix is for and then get down to business and provide data to the reader.

Here are a few examples of some of the appendices in my latest design...

“Objects Appendix”

Background, cave walls, fat purple spike, slender yellow spike, teal star are the objects in the game.

“User Interface Appendix”

Menu and Play scenes, only two scenes in the game.

“Networking Appendix”

Uses the internet to log into google play services in order to get leaderboards and achievements.

Also to post to Facebook and Twitter.

Needed to create a Facebook app in order to post to Facebook.

“Character Rendering and Animation Appendix”

Spikes are generated on the left and right side of the screen randomly, they move towards the player, speeding up over time and spawning quicker.

Cave walls indefinitely spawn on top of each other in a loop, moving towards you.

Player character spins, this increases over time, you can tilt the device to move the player left and right.

“Story Appendix”

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