

# Game Design Document

## Flappy Bird

# STEM Game Devs

Sebastian Grygorczuk

Haotian Gan

Kenneth Wu



# Flappy Bird

## Summary of the Game:

Arcade Style Game where you score points by dodging oncoming obstacles.

## Is the Game 2D or 3D? What genre is it?

2D “Side Scrolling” Game

## Is it level based or open world?

Level based, with only one level.

## How long do you think it should take to complete the game?

Small increments when player has free time.

# Story

What is the story of this game?

None

What is the inciting event that starts off the game?

None

What is the goal the player is trying to achieve as the end of the game?

Get the highest score

How does the story end?

Player gets 999

# Setting

Where does the game take place (Location) ?

Big City Park

When does the game take place (Time)?

Modern Times

Any significant event/place in the game?

Not really

# How is the Story Told to Player

Are there NPC the player can interact with?

None

Are there cutscene?

None

Environmental Storytelling?

Background imagery and the character design.

# Chapter 1:

What happens in chapter 1?

Bird is flying through a park in a big city as dodges pipes.

# Setting 2D/3D Game Assets

List out Assets you intend to use to make the Setting

- Background Image to show the setting
- Ground Image to show the ground

What kind of art style will these assets have?

Pixel art

Links:

<https://weeklyhow.com/wp-content/uploads/2019/11/Flappy-Bird-Sprites.png>



# Setting Music

List all of the Song that you intend to use in the game

- Menu Music
- Level Music

What kind of genre the music would fit it?

Elevator/Passive music

Links:

Menu - <https://freesound.org/people/josefpres/sounds/610523/>

Level - <https://freesound.org/people/SergeQuadrado/sounds/468212/>

# Characters

List all of the characters that will be in the game, and their

Bird - Playable character

# Player Character

Describe the character's appearance  
and their story:

It's a small red bird living in the big city.



# Player Character Controls

List of all of the abilities that the player can do and explanation on how they work:

- The Player can fly higher when mouse is clicked, otherwise gravity will be pulling them down.
- Then can collide with pipes and after they do game ends.

List the Animation and SFX that the character will require:

- Flapping Animation, when the player starts the game the bird should loop a wing flapping animation
- Death Sprite for when the player hits a pipe with SFX to accompany
- Goal SFX for when player passes through pipes

# Character 2D/3D Game Assets

## Asset Links:

Player Character -

<https://weeklyhow.com/wp-content/uploads/2019/11/Flappy-Bird-Sprites.png>

## SFX Links:

Die - [https://freesound.org/people/cabled\\_mess/sounds/350986/](https://freesound.org/people/cabled_mess/sounds/350986/)

Earn Point - <https://freesound.org/people/ProjectsU012/sounds/341695/>

# Gameplay

## What is the gameplay loop?

1. Start the Level
2. Avoid Obstacle
3. Die
4. Check if you got Highscore
5. Restart the level

# Game States

What states does the game level go through? How does it go between them?

There are three states that the game level can be in, Waiting to Start Game, Playing the Game, Looking at Lose Screen

1. Waiting to Start Game, will have a animation playing telling player to click mouse, after they click bird will be controlled by the mouse click and pipes will spawn
2. Playing the Game, will allow player to control the bird, they hit the pipe we move to Lose Screen
3. In Lose Screen player will see their score, see if they got a high score and be able to choose to either reset the level or go to main menu

# Win and Lose

What is the Win state for each level? What is the win state for the whole game?  
Are there any extra rewards for collecting all of everything?

There is no win state, only a lose state

What is the Lose state? How is the player punished for losing? Start the game over? Go back to checkpoint? Lose some of the currency?

The lose state is when the player hit a pipe, when they do player is told their score for the round and they can restart the level to try again.



# Motivators

What is the reason the player wants to keep playing the game?

The player will want to get a personal best score or a high score then their friends.

# Controls

Are you using mouse and keyboard, controller, both? What buttons correspond to what action on the controller?

Left Mouse button to start the game

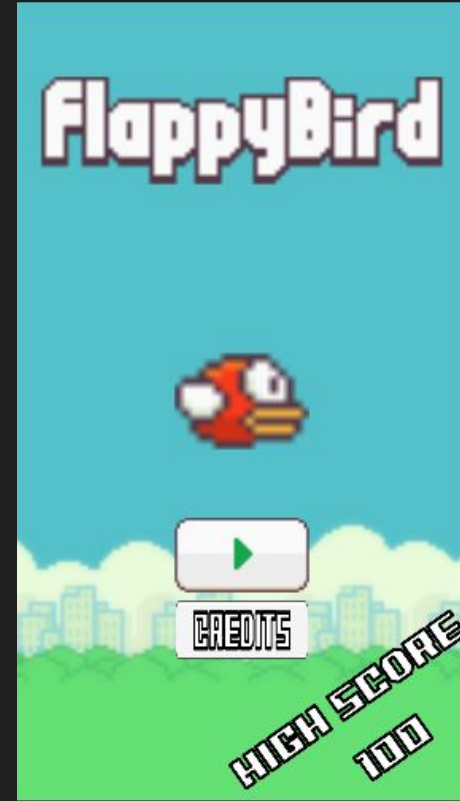
Left Mouse button to interact with buttons

Left Mouse button to make the bird fly up

# Main Menu

List all of the elements, 2D images, SFX, and Fonts and if they interact their interactions:

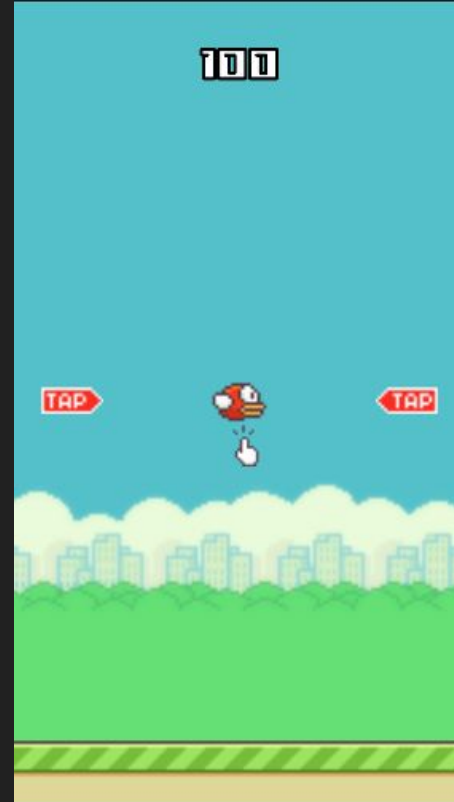
- Title Image
- Bird in flying animation
- Play button that will play SFX and take you to the level
- Credits button that will play SFX and take you to credits
- High score text that is animated to be bigger and smaller to grab attention



# In Game UI (Part 1)

List all of the elements, 2D images, SFX, and Fonts and if they interact their interactions

- For State 1 and 2 there will be a score at the top of the screen
- For State 1 you will have an animation asking the player to click on the screen



# In Game UI (Part 2)

List all of the elements, 2D images, SFX, and Fonts and if they interact their interactions

- For State 3 the score on top will be gone
- Now you will have a panel with current play score and high score,
- A medal that will be broze, silver, or gold based on the score
- Replay Button that will restart the level will play SFX
- Quit button that will leave to main menu will play SFX



# UI Assets and SFX

## Asset Links:

Buttons/Panels/Medals-

<https://weeklyhow.com/wp-content/uploads/2019/11/Flappy-Bird-Sprites.png>

## SFX Links:

Button Click - <https://freesound.org/people/volkbutphan/sounds/485486/>

## Font Links:

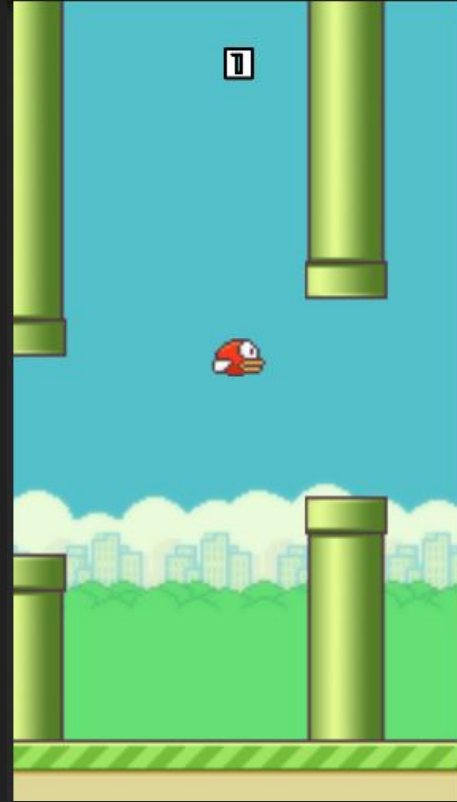
Font - <https://www.1001freefonts.com/monocoque.font>

# Level

What are some average obstacle that they will face in level? What will the level look like? How short or long the level will be?

The level will consist of set of pipes appear of the right side of the screen at random heights, the player will be stuck in the center of the screen and will have to dodge them.

Level will last around few seconds to few minutes.



# Level Assets

## Links:

Background/Ground -

<https://weeklyhow.com/wp-content/uploads/2019/11/Flappy-Bird-Sprites.png>



# Non Character Game Objects

List all of the non character game objects that the player will be able to interact with and how the player interacts with them

Pipes - Kill player and end level

# Pipes

Describe the game object, it's function in detail and any animation or SFX it needs.

Just two pipes, each one will have a box collider that the player can trigger and there will be an invisible trigger in between that when the player passes it they earn a point. SFX for player death and point earn is necessary.

The pipes will need to be destroyed once off screen



# Game State System

## What does this system do?

Controls what is current being updated, switching between waiting for player's first input, allowing the player to act and pipes to spawn, and to have the game wait as it waits for the button input on the lose screen.

# Pipe Spawner System

What does this system do?

A system that spawns a Pipe Prefab every X amount of seconds with two points to provide a range that will be used to randomize the height of the pipes.

# Data

Is there any data that you plan on storing between levels?

Current high score of the player